On Acute Rheumatism
And its Treatment by Salicylates
With a Series of Twenty-seven cases occurring in Private Practice

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Part I. History of the Treatment of Acute Rheumatism.

The treatment of Acute Rheumatism has been from time immemorial one which has yielded but little satisfaction to most practitioners. It is true that a host of drugs has been employed, and that each has found advocates among members of our profession. Blood-letting, Mercury, Saline, Anthrax are methods of historic note; while Iron, Nitrate of Potash, and many other drugs too numerous to mention have each had their adherents who have described their favourite remedy as being eminently conducive to a happy termination of the disease. But when the same test of figures has been applied to the results obtained by each therapeutic agent we find in all a more or less indefinite period of suffering, with a large number of the sufferers disabled for life. There was, it is true, one point for congratulation, that the vast majority of the patients recovered; but whether on account of the treatment or not remained an open question, which, however, was answered in the affirmative by the advocates of each method of treatment. In fact no observations had been made with the view of discovering the natural history and duration of the disease, and a favourable end was only too apt to be ascribed to the means used, while any other termination was
ascended to the severity of the case.

Very great doubt as to the value of most if not all of the vaunted drugs was caused by the experiments of Fullerton (Med. Chin. Trans. for 1839) who found that patients treated on a pure vegetable system by Mint Water recovered about as soon as those on whom any of the other methods had been tried. The results of these methods I shall now consider under the headings of (1) Duration, (2) Complications, (3) Mortality. Summarising the results of the chief methods of treatment without going into details of all.

(1) Duration. The duration of Rheumatic fever is most uncertain, lasting in some cases but a few days, in others running a tedious course of months; most authors not giving any more definite statement than the following by Dr. James (Practice of Medicine Vol. 2 p. 203):—Rheumatic Rheumatic Fever

"is uncomplicated its average duration under proper treatment is from 12 or 16 to 25 or 30 days" — a literally wise limit but embracing the uncomplicated cases only. Warren (Reynolds's System of Medicine Vol. 2 p. 263) gives the average duration of the Acute Stage after admission into hospital in cases treated on the vegetable system as 13.1 days in males, 13.5 in females; being only 8.5 in those cases with no heart affection but 23.6 where the heart was affected.

At p. 947 he gives the results obtained by himself and Dr. Fullerton from the full Alkaline treatment, the average duration of the Acute Stage under treatment having been in males 6.2 days
The Total Duration of the Acute Stage (exclusive from the commencement of the attack) was 11.3 days in males, 15.7 in females or 13.5 on an average.

Senator (op. cit. p. 61) in reviewing the results of the various methods gives the duration from the commencement of treatment to the close of the Acute Stage as 9.1 days with Expectants; 8.4 with Blister; 7.6 with Alkalies.

Complications. Of these Heart Affection is the most frequent of the most deserving of attention. Senator in the article quoted above (p. 46) states that Heart affection is commonest in young patients, fully a third of the Cases before puberty having heart disease whereas after the age of 25 Endocarditis is the exception. He also states that the Heart is often affected in hospital than in private practice. He quotes from statistics of various observers the following percentages of heart affections:

<table>
<thead>
<tr>
<th>Name of observer</th>
<th>Total no. Cases</th>
<th>No. of heart attacks</th>
<th>Percentage of heart attack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonilland</td>
<td>74</td>
<td>64</td>
<td>86.48</td>
</tr>
<tr>
<td>---</td>
<td>40 (mild)</td>
<td>1</td>
<td>2.3</td>
</tr>
<tr>
<td>Budel</td>
<td>43</td>
<td>21</td>
<td>48.8</td>
</tr>
<tr>
<td>Chamberlain</td>
<td>174</td>
<td>9</td>
<td>5.18</td>
</tr>
<tr>
<td>---</td>
<td>25 without Alkalies</td>
<td>1</td>
<td>19.2</td>
</tr>
<tr>
<td>Dickinson</td>
<td>48</td>
<td>113</td>
<td>2.08</td>
</tr>
<tr>
<td>---</td>
<td>11 without</td>
<td>35</td>
<td>30.9</td>
</tr>
<tr>
<td>Stormer (private)</td>
<td>56</td>
<td>6</td>
<td>10.7</td>
</tr>
<tr>
<td>Prof. Warnecke</td>
<td>35</td>
<td>12</td>
<td>34.28</td>
</tr>
<tr>
<td>Total cases without alkalies 387</td>
<td>14.4</td>
<td>37.2</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>222</td>
<td>10</td>
<td>24.5</td>
</tr>
</tbody>
</table>

He further adds that Wunderlich gives 26.3 p. c.; Vogel 50.

*(Same as Galterdor - see note of caution apparent to ar op. 3)*
Santler 23.6; Sambucus 3.4; Pitt 18.8; Oenecodon 37.3.

Bull 20 p. cent. Parrot (op. cit. p. 935) gives the average as varying from a fifth to a half in the statistics of the various observers.

Heart complications occurred thus in something over 30 p. cent. of the cases, varying from a minimum of 20 to a maximum of 50 p. cent. when alkalies were not employed, but in only 4.5 p. cent. where they were used. This latter number includes, as I understand, only those cases which were attacked after treatment was begun. Not the cases which had heart disease on admission, as these are probably included in many of the other statistics. The results are unduly favourable to alkalies. The advantage of Alkalies is further shown by Dr. Garrod, who states (op. cit. p. 942) that "in no case did any heart disease occur after the patient had taken the remedy 48 hours." In estimating the proper value of this statement it must be remembered that heart complications almost invariably occur (as noted by Sall & Sutton loc.cit.) early in the disease—within the first week—and that most of the cases referred to had been ill for more than that time, the period when complications are most likely to arise being consequently past.

Hypopnoea is the only other complication to which it is necessary to allude. Its occurrence is a matter of the gravest import if it is generally associated with Central Symptoms which more frequently than not leave no trace after death of any brain lesion. The frequency of the occurrence of Hypopnoea and Central Symptoms is very doubtful. They are not by any means so common as Cardiac Affections. And though in most cases much more subtly fatal.
The cause that occurs generally, die so without organic lesion, permanent disablement, as it is so frequently the case after heart affection which we may certainly regard as the most important complication.

(3) Mortality. Very different results have been given but all observers agree in stating that a direct fatal result is extremely rare. Senator says (op. cit. p. 56) "While death occurs it is usually due rather to complications or unfavourable conditions of an individual kind than to the joint affection, even when this is severe. Haygarth lost 7.1% (per cent) of his 168 cases, Raymond only 3.3% per cent out of 490. The latter seems to be about the usual death rate, for Loeb's mortality was only a little over 8 per cent, while 3.7% of 566 patients under my own care two died (3.6 per cent) with cerebral complications and a sudden rise of temperature. It is in this way that death "occurs in most of the fatal cases."—On the "Repeal" Dr. Garrod (loc. cit. p. 742) says "With Rheumatic Fever proves "fatal it is either from acute disease of the heart x x x or "much more often from acute cerebral disease." He says that though the direct mortality is very small, it is impossible to arrive at anything like a correct estimate of the proportion who die from the after "effects." Arthur (Science of Practice of Medicine 4th edit. Vol. III. p. 23) puts the direct mortality as hardly exceeding 1 or 2 per cent. Roberts (Theory and Practice of Medicine), Yarmer (Practice of Medicine) and in fact all writers on the subject agree that the mortality is low. Yarmer attributes fatal results generally to heart affection, thus agreeing with Garrod. Roberts again says Senator I think most other observers place high temperature first on the list of
unsatisfactory symptoms. The mortality being so low it
is obvious that no comparison can be fairly made with the 27 cases
which are all I have to record; but the quotations from Senator D
Garrard showing that a fatal result is generally caused by
complications are of the greatest importance and closely connected
with the present subject.

Summary &

From the statistics quoted it appears that Alkali AS
administered in full doses afforded the most favourable results
both as regards the duration of the disease and the frequency of
fatal complications: but they were certainly not all that could be
derived. The usual directions to give the dose in large frequent
doses "until the joint symptoms definite disturbance had completely
disappeared" (Garrard loc. cit. p. 467) were frequently pointed out for
many days or even weeks before the desired end appeared to be
approaching and there were many who believed with Cresson (op. cit. p. 26)
that "such a theory of treatment which has hitherto been proposed
has been regarded by the profession as unsatisfactory." Sir
William Jenner at a discussion at the Clinical Society (see
Lancet Jan. 20, 77 p. 72) gave utterance to a similar opinion

Introduction of

Saltpetre and

Salicylic Acid.

In the Lancet for Mar. 4, 76 and May 11, 76
Dr. Mackean of Dundee published seven cases of Acute
Rheumatism treated by Saltpetre, the results being that the temperature
became normal, and pain disappeared by about the third day on
an average; sometimes much sooner. Meanwhile other
obstetricians published cases treated by Salicylic Acid and Salicylate
of Soda with equally good results. The publication of these
cases marks an era in the therapeutics of Acute Rheumatism.
The way of hope thus afforded being eagerly grasped by the members of the medical profession; and hundreds of cases were at once treated by the new drug. Before this time I had tried most of the ordinary methods of treatment, most frequently Alectoria, but without ever feeling certain that my patients had greatly benefited by them. I resolved, however, at once to try the new remedies though my past experience made me very diffident as to the result.

The subject of the present paper is a series of 27 consecutive cases of Acute and Subacute Articular Rheumatism which occurred in my practice at Huy (between April 1876 and June 1879, when I left the neighbourhood) and in which I used both Saline Salicylic Acid or Salicylate of Soda.

Part II. The Action of Salicylates in Acute Rheumatism considered in Detail; with an Epitome of Cases. 9c.

Before passing to the consideration of the Action of the drug I shall first briefly refer to some points of interest in connection with the cases:

Locality: It is well known that Rheumatism is very irregularly distributed. Senator (op. cit. p. 18) talks of the "Scene Endemicus" as greatly affecting it; and states that it is almost unknown in Cornwall, Devonshire, Isle of Wight &c. At p. 31 he further alludes to the alteration of type in different localities, stating that heart affections are commoner in some places than others. As a further proof of the influence of locality he quotes (at p. 58) from Duffy that Osteitis is a frequent sequela at Malta. It would thus...
appear to be a matter of some importance to note any particulars of place or climate which may have an influence on cases of Rheumatism.

The district in which my cases occurred was the neighbourhood of the town of Hay which lies in the Wye Valley on the western borders of Herefordshire. The place has a most unenviable reputation for Rheumatism from which the physical geography and climate of the district may I think in some measure account. The soil is generally a stiff clay on the Old Red Sandstone which retains moisture a long time, and the Rainfall is large. The bed of the river at Hay is about 200 feet above sea level. The Wye here runs through an alluvial valley which varies in width from half a mile to a mile and a half and is flanked on either side by steep hills rising from 1500 to 3000 feet. From Hay the valley opens out to the North East being thus particularly exposed to winds from that quarter. Moisture with a cold wind were consequently a frequent combination—one well known to be largely productive of Rheumatism.

**Season.** The following are the months in which the cases occurred:

<table>
<thead>
<tr>
<th>Month</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dates</td>
<td>3</td>
<td>8</td>
<td>4</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
</tbody>
</table>

This agrees with what Senator states to be the rule—that most cases occur between October and May—and as the cases were spread over rather more than three years the average may I think be considered fair. In the 5 months from May to
Seventeen only 5 cases occurred or an average of one a month; whereas in the 7 months from October to April there were 22 cases or an average of 3.14 a month.

Ages of the patients. Senator (op. cit. p. 16) gives the age of greatest liability to Acute Rheumatism as from puberty to thirty years of age. The following are the ages of those affected:

<table>
<thead>
<tr>
<th>Ages</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14</td>
<td>5</td>
</tr>
<tr>
<td>15-20</td>
<td>7</td>
</tr>
<tr>
<td>21-30</td>
<td>4</td>
</tr>
<tr>
<td>31-40</td>
<td>10</td>
</tr>
<tr>
<td>41</td>
<td>1</td>
</tr>
</tbody>
</table>

The only thing remarkable is that a much greater proportion of cases occurred in patients between 30 and 40 years of age than is generally the case. This may be partly accounted for by the fact that one patient aged about 32 had 4 separate attacks in the time specified and another aged 40 had 2 attacks. There were the only cases in which the same patient is down in the list for more than one attack.

Sex. Eighteen of the cases occurred in males—only eight in females, and one in an infant, the sex not being noted. This is not in accordance with Senator's opinion (op. cit. p. 16) that sex does not greatly influence the predisposition to the disease but would quite accord with the well-known tendency of Rheumatism to affect chiefly those who have severe muscular exertion with exposure. It is indeed probable that sex has in itself very little to do with the predisposition but—as males have generally greater exertion and more severe muscular exertion than females we might expect them to be attacked in greater
Rank & Occupation. Those attached were chiefly of the labouring class. Of the 18 males one was a man of independent means. A gentleman-farmer's son and a master-builder were the only others who belonged to toilsomely well to do classes. The rest all belonged to the working classes and represented various grades of labourers, besides a policeman, a machinist-a carpenter's apprentice and an errand-boy. Of the 8 females one was manager of a milliner's establishment, one a dressmaker, one a large farmer's daughter, one a farmer's daughter (working); two were wives of skilled mechanics, one a barmaid, and one a domestic servant.

Does cider-dinking predispose to Rheumatism? This is an almost universal belief in the district, and if cider has anything to do with causing the disease it certainly has every opportunity here. A labourer's daily allowance is in ordinary times half a gallon, and it is increased at harvest-time to a gallon a day. Even this amount is not rigidly adhered to, and two gallons - I have been told on good authority - are frequently taken. I only mention this theory as universally prevalent in the district, and cannot say that it is borne out by facts, for out of my 23 patients, 13 were, so far as I could judge, not in the habit of taking much if any cider.

The belief that cider is bad for Rheumatism appears to be common in Devonshire also as it is by a note by Dr. F. H. S. Pullein of Sidmouth (Brit. Med. Jour. Oct. 18th. 1879) p. 640. He says however that "careful statistical observance completely disprove the fact."
Previous Attacks. The number of patients who had had previous attacks was as follows:

<table>
<thead>
<tr>
<th>No. of Attack</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
<th>6th</th>
<th>7th</th>
<th>8th</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Cases</td>
<td>13</td>
<td>6</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>24</td>
</tr>
</tbody>
</table>

Thus more than half the cases occurred in patients who had had previous attacks. One patient had four separate attacks (Cases 14, 15, 24, 25); and another had two (Cases 6, 32). The number of patients in which the 24 attacks occurred was thus only 23.

Solubly full notes were taken of the facts of the case, special regard being paid to temperature and pain, and the time when relief was first obtained and the time when the acute symptoms had altogether vanished. The amount of the medicine given was also noted.

Of some of the seven cases that remain my notes are too meagre as to render the cases individually of little value — some of them living at great distances where I could only see them occasionally — I thought it better however to record them briefly — every case which occurred, to avoid the suspicion of having selected the more favourable cases only.

The temperatures taken were invariably taken either by my assistant or myself, in the right axilla in almost every case, and five minutes exposure allowed. The thermometers used were compared with each other, one of them having been previously tested by a Standard. The cases are recorded almost exactly in the order in which they occurred but in
I have arranged them according to their temperatures the height of which is, as Airsin remarks (loc. cit., Vol. ii. p. 3):

"a tolerably accurate measure of the amount of the poison present in the system, and of the patient's susceptibility to the disease."

The temperatures of the various cases were as follows:

<table>
<thead>
<tr>
<th>Temperatures</th>
<th>No. of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 103°</td>
<td>8</td>
</tr>
<tr>
<td>102 and under 103°</td>
<td>6 - Acute Cases</td>
</tr>
<tr>
<td>101 - 102</td>
<td>3</td>
</tr>
<tr>
<td>100 - 101</td>
<td>5</td>
</tr>
<tr>
<td>Under 100</td>
<td>2</td>
</tr>
<tr>
<td>Temperatures not noted</td>
<td>3</td>
</tr>
</tbody>
</table>

Of the cases in which temperature was not noted one was complicated with delirium, another with Acute Bronchitis, and the third occurred in an infant. In all the temperature was probably considerably raised though in the first two the rise could not be attributed to the Rheumatism alone.

The heart was affected in 5 of the cases where first seen; two out of these cases being recent, the other three of old standing, the result of previous attacks. In the remainder the heart was normal throughout.

The patients were confined to bed during the treatment, the usual precautions being taken to avoid exposure or chilling of the surface of the body, though I must insist on bedding and clothing existing in flannel as is sometimes done.

The Diet was light, milk, jarring soups or light soups being given till the acute stage was over, after which solid food was gradually resumed, stimulants being seldom required until convalescence.
Salicine, Sulphate Acid and Sulphate of Soda produce similar effects, somewhat like those caused by Quinine. The symptoms (which we may designate Salicine—or-Salicylic) are stated by Draper (Handbook of Therapeutics p. 563) to be:

- A dull heavy depression with tendency to flushing, a sense of fulness in the head accompanied by dizziness, neuralgia, frontal headache at times, and in large doses delirium. The respirations are hurried and there may be muscular twitches with spasmatic stiffening. Nervousness may be caused, the drug having an excitant effect on the stomach. Large doses quell the pulse and have a powerful depressant effect on the circulation. The unpleasant symptoms generally subside rapidly when the drug is stopped, though fever heat in Rheumatism is, as we shall see, greatly reduced by Saliplasts. There is but little effect produced on temperature in health and no action on the skin. Though in Rheumatism there is generally profuse Sweating—

**Rheumatism**

In Acute Rheumatism, the action of the skin is generally increased and the severity of the pain very much diminished after 5 or 6 hours doses. The pain continues to decrease and is gone in from two to four days, the Sweating in most cases continuing all the time to a great or less degree. Meanwhile, Temperature falls rapidly to the normal point. In this the fall in temperature is not however generally noticed until after the pain is somewhat relieved and the normal temperature was not reached in my cases until rather after the total absence of pain on an average. The pulse becomes slower and quieter at the first sound of the heart, less pronounced, large doses having a powerfully depressant action on the heart.

The heart—as already stated—dick not become affected in any
can after treatment was begun, and these cases already affected made rapid recoveries. Convalescence was generally rapid and satisfactory and there was no fatal case.

The various results of the treatment will now be considered in detail:

**Pain** was in every case rapidly relieved. I noted (1) the period of material relief and (2) the period of absence of pain.

(1) Material relief (by which I mean that the intensity of the pain was past and but little discomfort felt while lying still) occurred as follows:

<table>
<thead>
<tr>
<th>Period</th>
<th>Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>First day</td>
<td>12</td>
</tr>
<tr>
<td>Second day</td>
<td>9</td>
</tr>
<tr>
<td>Third day</td>
<td>2</td>
</tr>
<tr>
<td>Fourth day</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
</tr>
</tbody>
</table>

In 12 cases not relieved till the 27th day the drug was given in two small doses at first. The three cases in which the period of relief was not noted were free from pain in 2, 3, 6 days respectively. The average of those noted is 66 days.

(2) Pain was entirely gone, no tenderness remaining in the affected joints, as follows:

<table>
<thead>
<tr>
<th>Day</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
<th>6th</th>
<th>7th</th>
<th>8th</th>
<th>9th</th>
<th>10th</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>5</td>
<td>7</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thus 18 of the cases or 66.6 per cent were free from pain within 3 days; and 23 cases or 80.2 per c. within 4 days.

The average period until pain was entirely gone was 3.22 days.
or of the last two cases (which occurred in the same patient in his 7th and 8th attacks) were included the average would be only 2.76 days. The average duration of pain was pretty nearly the same in the Acute & Subacute Cases being 3.25 days in the Cases whose temperatures were 101° upwards and 3.12 days in those whose the temperature did not reach 101°. Of Cases 24 (acute attacks) & 25 (an inflammatory affection long since with joint-rheumatism) were included the average of the latter and following the 1st att. was slightly 2.58 days.

The Skin. Sweating occurs in a large proportion of cases how long I cannot well say as I did not in my earlier cases note the significance of its occurrence and have only noted it as specially prominent in 11 cases though I believe it occurred in most of the patients. Sweating frequently occurs after about the fifth day, and there is generally relief from pain about the same time. The patient if without sleepless frequently falling into a quiet sleep.

Ringer (in edid) states that Salicylic Acid is found in the Sweat. Dr. Nelme (graduation Thesis Edin. 1879) failed to find it. I have only tested for it roughly but with negative results. Sweating I look upon as a favourable sign being generally associated with a diminution in the severity of the symptoms of the disease.

A Military Rash has been seen to follow the use of the drug; but as it is frequently seen in epidemic when otherwise treated it may not be due to Salicylic. Arthritis occurred in Case 24.

Temperature. The following table gives the temperatures recorded for the first seven days in 24 of the Cases (the other 5 not having been noted). Two out of the 24 were not noted regularly, being at a distance; three of the other 22 were noted until temperature was normal.
Table showing the daily temperatures of the cases.

<table>
<thead>
<tr>
<th>Day</th>
<th>1st</th>
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</table>

Average recorded each day: 224 21 19 12 11 6 6

Average daily minimums: 99.7 99.2 99.3 98.3 98.2 98.1 98.0

Daily minimums: 103.2 101.7 101.6 101.4 100.6 99.3 99.2

Average: 101.25 99.7 99.2 99.3 98.85 98.82 98.82
Thus the average temperature on the first day was 101.25, on
the second day 99.70° on the third 99.20. By the fifth day
all the temperature but one were below 100° and after that
day they all remained below (except in relapses to be again noticed).

The number of days that elapsed in the various cases till
temperature became normal was as follows:-

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<th>No. of days till</th>
<th>No. of cases</th>
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<td>9</td>
<td>Not noted</td>
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</table>

Thus of the 12 cases in which the date of normal temperature
was noted, 13 or 87.5% had reached the normal stage within
3 days and 16 or 72.5% within 5 days, all of the cases
but 2 being normal within 5 days. Of these 2, one was a case
of Pneumonia Normal in 7 days & the other three were 81%
74 38 3 cases occurring in the same man. The cases that
were not noted were probably not longer than the average.
As pain is stated to have been gone in 2, 3, 4, 5, 11 days
respectively, making the average duration of pain only 2.8 days,
which was under the ordinary time.

The average time, in all the cases noted, until temperature
became normal was 3-31 days, and (with the exception of
some cases in which relapses occurred and which will be referred
to afterwards) it remained so after the date since for normal
temperature in each, with the exception of Case 12 who was
a most refractory lad. His temperature was normal in 5 days
and pain being almost gone he dined and came downstairs.
Temperature rising on the two following days to 99.2 and 99.4
Pain however being gone he neglected the caution which was given.

This coincides so far with patient's report that the duration of
fever is in tolerably accurate relation to the mean temperature.
him and went out for the whole afternoon in a cold wind after which he was laid up as the result of the case showed for a considerable time. Or is, however, fair to suppose that but for his indiscretion his temperature would have remained normal after the 6th day and I have entered it as such - The only other fair method of dealing with his case would have been not to count it at all. This case forcibly illustrates the leading among patients treated by Salicylate to fancy themselves well before they are so; and it shows the great necessity for the use of the thermometer as the only reliable test of when treatment may be discontinued.

No case of Hyperpyrexia occurred; and though the Salicylates have such great power in reducing the ordinary fever temperature of Rheumatism they do not appear to have had any effect on any of the cases of Hyperpyrexia that have been reported.

The temperature charts of the cases are of but little individual interest, showing in every case where the drug was truly given a rapid fall to the normal point. Escalated together, however, and showing when his point was reached in each case they are of great interest. This I have done in a diagram on the next page which gives a miniature temperature chart of each case indicating also the day when each became normal. Side by side with this I have given a diagramatic view of the period of material relief and absence of pain so that the history of the more important points of each case is seen at a glance.
Diagram of Temperature and Duration of Pain

- Temperature:
  - The black lines give the charts of each case.
  - The top side of the shaded red line indicates the day of normal temperature in each. Where this data was not accurately known, a dotted line indicates the probable day.

- Duration of Pain:
  - The red line shows the day when material relief was experienced.
  - The black line shows the day when pain was severe.
The Circulatory System. — The effect on this is

most important. Dr. Oliver Moore (New York Med. Jour: Jul. 1869) states that the action is something like that of Digitales at first increasing, but afterwards diminishing the force and rapidity of the heart's action.

Thus he says: "the various motor nervous apparatus of the heart is paralyzed while the pulse becomes weaker, and fibrillation is slumber." I have not observed the preliminary stimulating effect of the drug, nor has it been, so far as I am aware, generally noticed. Still, and Maisch however (in the National Dispensatory — p. 74) quote Dannekotte, who say:

"recently claimed that the primary action is to increase the force of the cardiac muscles and arterial tension. — Such action however must be very brief, for the depressant effect on the circulation is generally soon noticed and is the one specially alluded to by most observers. Ringer (op. cit.) quotes Köhler's statement that the Salicylates produce a considerable fall of blood-pressure, even after the division of the Vagus and of the Spinal Cord." One grain injected hypodermically in a dog produces languor, and then complete motor paralysis and arrest of the heart (Still and Maisch, op. cit.)

The effect of the drug in reducing the strength and volume of the pulse may generally be observed after 4 or 5 hourly doses of 10 or 12 grains each, the pulse becoming soft and compressible. When the action is sufficient to cause marked Salicemia it has a powerful effect in reducing pressure. This was more especially noted in Cases 14 and 18, in both of which Acute Salicemia occurred. Accompanied in the latter case by Considerable Cardiac disturbance. Marked weakening of the first sound of the heart is noticed in many cases.

The frequency of the heart's beats is diminished to a very marked extent, the pulse falling in the Cases noted from an average of 87 at the commencement of treatment to 88 and 82.
and so on the four following days respecting as will be seen by
the following table. Trench (op. cit. p. 863) states that large doses
frequently quicken the pulse to 140 or more, but this did not occur in
any of my cases.

<table>
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</table>

Average:  87  85  82  78  70  67  61  53
Maximun: 125 110 108 98  86  85  69  62
Minimum:  61  55  57  61  60  56  64  50

Heart complications occurred in only two cases in a
recent or acute form. In case 21, a boy aged 8, there was
a loud systolic bruit heard over the apex at my first visit,
with pain in the region of the heart, and a temperature of 102.2
Fahrenheit. Seda was ordered in the usual way. In two days
he was relieved, and in three days pain was entirely gone,
and his temperature had fallen to 98.2° on the 9th. There was no
return of the symptoms after this date and the heart-sounds got softer but
had not disappeared when last seen.

Again in case 16 the heart-sounds were muffled when
first seen and the patient a lad of 17 had lost an anxious
look and pain over the heart; temperature 103.3°. Salicylate
of Soda was ordered in the usual way and by the following day
the first symptoms were much relieved though the heart-sounds
were still more muffled. On the third day there was considerable
effusion into the pericardium the transverse dulness measuring
2 ½ inches. There was for some hours considerable orthopnea but
no pain except on a quick inspiration; pulse 108 - weak.
This was at 11 A.M. Salicylate was continued (270 grains having
been taken up to this time) and large linseed poultices applied
over the heart. At 5 P.M. he was seized, could lie
almost flat in bed and had only a slight "catch" in his left
side on drawing a quick breath - pulse 93. Next day
he felt well; his temperature was 99.4; pain cutting gone and
did not return. The effusion was rapidly re-absorbed, the
dulness by the 8th day measuring under 3 inches. The temperature
which had hitherto remained over 99° was on that day 98.5.
and the Salicylate was now changed for a Chalybiate tonic.

\{Cases with old
\[Standing
\]bruits\}

In addition to the cases of acute heart affection all females
who were cases had old standing bruits, two of them being
in their second and one in a third attack. The first two
(cases 1 and 10) were known to have old standing heart disease.

The third (case 25) had a murmur, apparently of old
Standing. In neither of these cases was there any symptom of recent heart affection—except the exception of very tumultuous action in Case 10 to which however she was accustomed and which soon disappeared—and the rheumatic symptoms rapidly subsided—within 3 days in all the cases.

There are all the cases in which I considered the heart affected. But in two other cases there were murmurs for a short time, unaccompanied by symptoms of heart affection, rapidly disappearing, and doubtless of rheumatic origin. Case 13 had a bout of this description the first day. She was not ill but was better afterwards. Again in Case 26 a heart was heard during a relapse for about a day without other symptoms of heart affection however.

Three out of 27 cases then were only two with recent heart affection—one of endocarditis in a boy of 8 in acute stage lasting 3 days—the other being pericarditis in a lad of 17 in whom the acute stage was prolonged by effusion for 9 days. In both cases the heart was affected when first seen and the treatment by Salicylate was pursued in the usual way with the best possible results. It must, however, be noted that both the patients were young, both in their first attack and the heart disease probably only of a few hours' standing.

In cases where great weakness of the heart exists and in elderly people the powerful dispersing effects of the drug must be borne in mind. Still and Marisch (op. cit. p. 76) say

"Salicylic Acid and in a less degree its salts should not be given in large doses to persons having a weak heart or who are otherwise greatly debilitated, or, at least without caution—"retarding their natural tendencies with nutrients and
"Difficult Stimulants." — At the same time the effect should be very clearly watched in such cases, and the drug withheld on the slightest symptoms of failure of the heart's action, restoration and stimulants being promptly given if required. — A case was related to me by a friend in private practice who suspected that a fatal result in a case of Pericarditis was due to too great use of the drug. — Dr. Headlam Brunton

(Trans. Soc. Trans. Vol. 18, p. 341) in alluding to this subject suggests that the "muffled retraction of the first sound of the heart may indicate an influence on muscular structure which may not always pass away entirely." It will be observed that this is put forward purely as a conjecture and that no observations either clinical or pathological to that effect have been noted.

Dr. I. Buchanan Baxter in his translation notes appended to Sir Thomas Sydenham's article on Rheumatism in Sydenham's Cyclopaedia of Medicine (Vol. 16, p. 1031) states that Salicylic is superior to the acid or its salt when various cardiac troubles exist as it does not give rise to disagreeable or dangerous accident. Dr. Maclagan has frequently expressed the same opinion in the Medical Journals and in the British Med. Journ. for Nov. 12, 1881, p. 229) Professor Chadwick, from an experience of over 80 cases in hospital also advises Salicylic on account of its more producing alarming and toxic results like Salicylate of Soda. — He appears to have used the latter only once and to have been so alarmed that he ceased more to do so again — This resolution is I think premature and my own experience leads me to conclude that even in recent-
and acute cases of heart apoplexy, whether endocardial or pericardial. The
recovery in persons of fair strength Salicylate may be given with
perfect safety if the patients are closely watched; and that such
cases, if the drug is begun sufficiently early, do better under this
method than any other. The addition of Carbonate of Ammonia
to the mixture will generally obviate all risk in doubtful cases.

If there be marked difficulty Salicin is to be preferred, for
Syrup of Nux Moscown Salicylate made from Washburn, Green Bank Salicylates, but
usually for

The heart being nearly affected only in the two cases

valid gives a percentage of 92.4 recent cases. In no case did
the heart become affected after Salicylate was begun.

_The Respiratory System._ Under large doses of the
drug breathing becomes hurried. Sometimes deep and sometimes
sighing and shallow and almost panting, as though it were performed
laboriously, but the patient does not complain of any difficulty
of breathing. The costal as well as the diaphragmatic muscles are
involved in the exaggerated breathing (Winges, op. cit. p. 363)
In case 18 where too large a quantity of Salicylate was taken the respira-
tions were 28 after the temperature had become normal and pain
soon. There was nothing in the case which could account for
this acceleration which appeared to be solely due to the large
and which produced
amount of Salicylate which had been taken, even though which
symptoms disappeared, and delirium lasted for a considerable time.

Pothsontaine concluded that in fatal cases the respirator-
recovery movements cease before the heart ceases to beat. In his
Labourde Emiciot (Stille and Maisch, op. cit. p. 74).
The Muscular System. Under large doses there is often marked muscular weakness and tremor, associated with great irritability, so that a slight tap, say on the shoulder, causes muscular contractions so strong as to make the arm backwardly (kingsway)起重机.These symptoms are apparently due to the effect on the Nervous System. They pass away rapidly when the Salicylate is stopped.

The Digestive System.

Salicylate Acid is a local irritant, and, when given for any length of time, produces symptoms of the throat and fauces. This was very marked in Case 5, the only one in which I gave the Acid uncombined. Dr. Elvin Moore (op. cit.) says that Dr. J. A. Stedman found that a "characteristic nasi-pharyngeal catarrh" occurred when the Acid was given by the mouth or the rectum. The inference would be that this is an constitutional effect and not merely due to local irritation. I am not aware however that any other observer has obtained the same results as Dr. Stedman. With the Acid given by either route, we should expect the Soda Salt which produces precisely the same symptoms as the Acid to do so in this case also, but this is not the case. Both the Acid and the

Soda frequently cause Nausea. This latter may have something to do with this, but it is doubtful whether owing to their irritant effect Nausea occurred in several of my cases, and it is a symptom of no importance unless it causes us to interfere with taking the medicine. Vomiting occurred in only two of my cases (9 and 18), but was caused in the first by the patient taking too large doses amounting to nearly 10 grains hourly, and in the second by the Salicylate being continued too long 9 doses having been given in the course of one night after Similitus Aurum had set in. Case 10 was sick before Salicylate was begun, and the sickness was not increased by the medicine being generally retained. Dr. C. W. Parson (Boston City Hospital Reports 1926 p81) gives a series of 1600 cases.
in which the grains were given hourly for from 12 to 36 hours. Vomiting occurring in 18.8 per cent. In 29 Greville's cases treated by doses of 10-30 grains vomiting occurred in 22 out of 30, or 73.3 per cent. Dr. J. Milner Heucke (Graduation Thesis, Edin. University 1879) gave 15 grain doses every hour, vomiting occurring in 8 out of 19 cases, or 42.1 per cent.

This I consider a very large proportion and it is attributed by Dr. Heucke to the frequency of the dose. Doubtless, however, the amount of the dose was the cause, for in all my later cases I gave hourly doses, but of 10 or 12 grains only; symptoms never resulting except in the cases quoted in both of which the drug was given too freely, the dose in Case 9 being almost the same as Dr. Heucke's. Vomiting occurred, then, in only 7.4 per cent. of my cases; and I consider that it is generally evidence of an over dose.

Ringer (op. cit. p. 366) draws attention to the fact that the continued use of the drug, in large doses in healthy subjects, produces elevation of temperature which he attributes to Carbic Erinask. Some patients appear to be unduly susceptible to the irritant action of the drug and Still and Mädler (op. cit. p. 76) state that the gastric disturbance may be so severe as to resemble the results produced by a Corrosive poison.

The Bowels are as a rule confined while the drug is being taken, but at times profuse diarrhoea occurs as in the first try. Case 18 where the bowels acted freely after both doses of Salicylate.

This did not interfere with the action of the drug however, the emetic symptoms subsiding with great rapidity; and marked toxic effects with delirium supervenied from too long Continuance of the Mediciene.

Salicine produces but little disturbing effect on the digestive system. An opinion had been since the days of J. Salicylate was commenced as to whether a prudent degree of it had ever been prescribed to diarrhoea however.
The Nervous System.

Headache may be caused by one or two large doses of Salicylate. Tinger (op. cit. p. 866) gave a by a single dose of 60 grains which produced headache and flushing in 12 minutes. "Sineusitis Auris" and diarrhea are also frequent larger doses producing Stupor and Delirium. All these symptoms are more likely to occur in old and frail persons; and all of them, but more especially headache and nausea, more likely to occur if the bowels are constipated or if the drug is given too soon at the onset. This too early occurrence is unfortunate and interferes with the further administration of the medicine for a time; but if an apomorphine be given at the commencement of treatment when required, and of Salicylate of Soda is the dose limited to 10 or 12 grains every hour, they are not likely to occur for 6 or 8 hours by which time the effect of the drug on the disease is generally very clear or even.

"Sineusitis Auris" is generally the first to appear, being frequently preceded by a sense of fulness in the head. It is by far the most characteristic symptom of Salicinism and the one which chiefly attracts the attention of patients who describe it as being like the sound of a train or like machinery at work. It is a good guide as regards the continuance of the drug and it is doubly valuable from being so clear and recognizable by the patient. Giving the medicine as I have invariably done in doses of 10 to 12 grains in order to produce a rapid and yet safe effect. When "sineusitis" is generally felt after 5 or 6 or, at most, 2 doses, I order the medicine to be given till
pain is relieved or long in the ears comes on; and by no means the result of troublesome symptoms or effectually prevented. Tinnitus was noted as being well marked in 11 of my cases in one of which (Case 24) it was for a time felt in the left ear only. Its occurrence to a slight extent however is the rule when the medicine is given in the way I recommend.

If the drug be further pushed or if large doses have been given in the first instance Dizziness comes on with perhaps some headache. Dizziness was in my cases in 14 of 23 cases (Case 23) and in one case, a child of 8, who was evidently very deaf but made no complaint of Tinnitus which however he was probably unable to describe. Of two other cases, 4 and 18, in whom dizziness came on only the latter but it was only then in the latter both complained of headache and this only after delirium had come on. The aspect of the other (Case 24) at this stage was extremely characteristic. He was lying quietly asleep when I entered the room, his face bathed in perspiration. He awoke readily when spoken to, was perfectly collected, could hear questions put in a rather louder tone than ordinary and reply to them perfectly. He then relapsed into silence appearing perfectly comfortable but with what I might call a "far-away" look on his face. He said there was a tremendous noise in his head, "like a railway train," and he could not hear the clock on the mantel shelf as usual; while the look on his face gave the impression that the sound in the ears was attracting all his attention.

All these symptoms generally rapidly subside on the medicine.
Delirium occurred in Case 18, a boy of 15, when the precaution of stopping the drug on the appearance of Similis was not understood, and 9 doses St. Ignatius between 3:30 P.M. and the first day of treatment, (when having taken 6 doses of ½ gr. each he was treated as having no Similis) and 10 o'clock next morning. Similis had meanwhile set in immediately after the evening visit and he passed a restless and delirious night. When 12 at 10 A.M. pain was almost gone. Temperature had been reduced in 26 hours, by 160 grains of Salicylate from 102° 4 to 99° 2; and the pulse from 102 to 87 being very light and compressible. He was very weak. He constantly wanted to jump up and go for a walk, and told me he had been for a good long one in the morning. There was, at great difficulty in keeping him in bed; then again he would sink off into a sort of quiet delirium, sometimes talking nonsense, at others looking as if alarmed by the noises in his ears, and with the far-off look on his face. — At 2.30 P.M. his temperature had fallen to 98°, the other symptoms remaining as before. (The Salicylate had been discontinued at 10 A.M.) — At 6 P.M. he was as restless as ever. The pupils were now noted as long but contracting to light. — At 9.30 P.M. delirium was still active; temperature 98° 3; Pulse 94; Respiration 28. No urine had passed as yet, but shortly afterwards a considerable quantity passed but was unfortunately not retained for analysis. He continued very restless and delirious till 4 A.M., when he fell asleep and was still sleeping when seen at 10.30 A.M. His pulse then, during sleep, was 64, rather weak. During the night his chief object...
had him to get back to business and he suffered from optical illusions, declaring that a bundle of clothes was the baby of a friend in whom he was greatly interested, and insisting on having it dressed up for him to nurse. This he did with the greatest care for a considerable time, frequently calling attention to the good points of his patient. At 5.45 P.M. he was much more collected though he still had illusions which continued more or less till 10 P.M. when he fell asleep and passed a good night. Next morning his mind was perfectly clear, but the Tinnitus was gone. By the following morning it had disappeared.

The delirium in this case was clearly due to Salicylate, the rheumatic symptoms having almost entirely subsided, and temperature being nearly normal. Dr. Tennant (loc. cit.) had 8 cases of delirium among 50 cases of rheumatism; of these 6 at least were undoubtedly due to the Salicylate; but from the reports of his other three cases (No. 30, 39, 34) I should be inclined to think that the delirium was in them an accompaniment of the rheumatism. In one case with 89 there was Pneumonia with vomiting, and expectoration at the base of the lung; while in his other two cases (30 and 41) the temperature were 102° and 102° 8 respectively, when delirium was noted and the continuance of the Salicylate (even in more frequent doses in the former case) did not increase delirium which passed off under the use of the drug. — Dr. Brown (London Gaz., Hospital Reports (new series) 17) had 8 cases of delirium out of 109. — In the British Medical Journal for Jan. 29, 31 6 cases of delirium are reported. Five of these were at Monmouth College Hospital and Dr. Buxton in reviewing them remarked the similarity of the symptoms to those of the ordinary Delirium
of Pneumatics also noting the close resemblance of both to Delirium Tremens. "Vertigo, agitation, extreme torpor, wild delirium," he quotes from Rawson as the symptoms of Pneumatics Misnights; and from Wilks he quotes that "The delirium is vertigo and the perspiration form a picture which deflect the face similar of Delirium Tremens."

Delirium from Salicinare is not however likely to be confounded with either that of Pneumatics Misnights or Delirium Tremens though all three have many points in common. Cases may arise where there is a combination of more than one of these causes and the exact share which each of them has in producing the symptoms may be difficult to determine. Generally speaking, the fact that Salicinare are being taken and the invariable presence of other symptoms of Salicinare should be sufficient to prevent any mistake. The subsidence of temperature and, with it, of the severer Pneumatics symptoms will generally preclude the former, and the absence of convulsions in hand and tongue the latter cause. The delusions and hallucinations too have generally (though not always) less of the element of "horror" about them. In my case both the delusions and illusions (they did not, as in some cases, amount to hallucinations) were of quite an agreeable character.

It is important to note that Dr. Bartian, in the paper just quoted says that Suspensuses preceded delirium in all the cases. In my case I cannot say which first appeared being only told in the morning that he had passed a restless and delirious night.
The causes of delirium. Dr. Murchison at the Clinical Society on May 25th 1877 stated his belief that delirium was due to 
\textit{bouma} caused by acute nephritis which sometimes follows the 
use of salicylates. This, however, is disproved by the fact that 
in the course of the last case just quoted from the \textit{British Medical 
Journal} (Jan. 29. 81) there was no albuminurica, and in one of 
the other cases only traces. \textit{Finger} too (\textit{op. cit. p. 56-7}) states that 
delirium occurs without albuminurica and Dr. Grumman's cases 
prove the same thing. \textit{Dr. Acland}, however, \textit{(Brit.
Med. Journal Mar. 5. 81)} still thinks that \textit{bouma} may play 
an active part in its causation, and this he considers may 
crave from the great diminution of the amount of urine passed 
by patients taking salicylates. \textit{Dr. Dastin} in the 
article quoted considers with \textit{Mr. See} that the chief action 
of salicylates is on the nervous system and that in a patient 
already predisposed to this disorder (delirium) \textit{the additional heata} 
state produced by salicylates of itself would be sufficient to 
"determine the onset of an attack." \textit{I think there is little 
doubt that the direct action on the nervous system is sufficient to 
account for the delirium apart from either albuminurica, 
\textit{bouma} or a rheumatic complication; though the presence of 
any of these would doubtless predispose to delirium, and 
aggravate it if already existing.}

Some persons are more susceptible to the influence of 
salicylates. In one of the cases at University Hospital delirium 
occurred after 3 doses of 15 grains each given every 8 hours, each 
a small amount, even if given in one dose would very seldom 
cause delirium. The amount required to do so depends greatly 
...
on the method of administration. In all the cases noted it occurred early—frequently within 24 hours, and in all (except two of Dr. 
Fysh's cases which were a day longer) within 48 hours of the commencement of treatment.

It is important to note that in all the cases where full

I: Treatment of Delirium should be (1) To stop Salicylate;

(2) To promote elimination by the use of castor oil, and other

o.
The Genito-urinary System.

Salicylic Salicylic Acid and Salicylates of Soda appear in the urine very rapidly and seem to undergo speedy elimination by the kidneys in the form of Salicylic Acid (Ringer p. 512).

In a young man aged 19 to whom I recently ordered Salicylate for an attack of Subacute Articular Rheumatism there was a trace of Salicylate in the urine in 15 minutes, a faint purple colour being produced by adding a drop or two of the dye Ferri Piclorum. Stilll and Maisch (op. cit. p. 21) record a case of pyelostry of the bladder in which it was detected in the urine in 8 minutes. The elimination goes on while Salicylate is being taken and is not generally complete till a few days after the medicine has been stopped. In my case just quoted it was readily detected in the urine 3 days after the last dose. Ringer has proved it much later however.

"95 hours after the last dose" (op. cit. p. 21).

The quantity of the urine is generally diminished the cause being probably the copious perspiration which is so frequently produced. — Still and Maisch (op. cit. p. 21) say that Blaseau shows that the Excision of Ulcer and Ulcer Acid which is so excessive in Acute Rheumatism diminishes and that the want is thus proportionately increased. (See also Adrain's upper Art. Med. & D. (1851).

Albumen has been frequently found in the urine by several observers (Murchison, Grannum, Arnott &c.). Ringer states that Weber has seen the acid produce "Acute Nephritis with bloody "Elluminous Urine Containing casts". "Other observers" he adds...
"Rheu to similar effects with the Acid, in some cases the ulcer "being almost suppressed."

On account of the severe irritant effects of the drug in some cases Dr. Squair (Lancet Jul. 28) laid down the rule that "healing severe acute or chronic is an obstacle to the free employment of Salicylic Acid." And this precaution is specially applicable to the administration during Acute Rheumatism as it would appear that there is some reason for supposing that the kidneys are then specially sensitive. Senator (op. cit. p. 74) states that in such treatment appears to cause renal irritation and hypotension often more early than in health.

The fear of renal irritation however need not stand in the way of the free administration of Salicylates unless marked symptoms occur. Though I have met with very few in a large number of cases, I have never seen any bad effects of the short term employments.

Talley (op. cit. p. 75) says that Dr. Incurvill noticed a thin green colour of the urine which he thinks may have been due to a trace of Salicylic Acid in the specimen of the drug used. At the same time there was involuntary evacuation of feces.

Dr. Oliver Moore (loc. cit. p. 12) states that Salicylates sometimes exert a powerful antiphlogistic action; which however he says, rapidly disappears under the use of Damiana.
Epitome of Cases

I. Female, aged 30; 2nd attack coming on during acute bronchitis. 240 grs. of salicylic gum; acute stage 3 days.

II. Infant aged 22 months; 1st attack; 40 grains of salicylic gum; acute stage about 6 days.

III. Male aged 19; 3rd attack commencing on 5th day of scarlatina. 120 grains of salicylate gum. Pain soon much less.

IV. Male aged 44; 2nd attack, coming on while under treatment for an accident. Temperature 102°. 18 grains of salicylic ordinance every 3 hours; increased to 30 grains every 2 hours; 180 grains being given in about 4 days by which time acute salicylic was produced ("tinnitus," diaphoresis, headache) and the acute stage was over.

V. Female, aged 28; a subacute first attack with temperature (with clothes on) of 99°. Ten grains of salicylic acid given every hour for 2 days; then every two hours. Dose then increased to 15 grains after taking 200 grains there was burning in the throat. Fifteen grains of bicarbonate of soda were now added to each dose. The burning in the throat soon disappeared and "tinnitus" came on. Acute stage under treatment 3 days. 350 grains of acid taken.

Salicylate of soda used in all the subsequent cases.

VI. Male aged 40; a 3rd attack with temperature of 100°1. Sleepless for two previous nights. Salicylate given in 10 grains doses every hour. Much relieved before night and had a sleep. Acute stage lasted only 2 days. Salicylate given 2 days longer. 450 grains in all.

VII. Same patient as VI. After being well enough to resume work he had a fresh attack (20 days after commencement of last) with
temperature of 99° 8. Relieved next day; acute stage 2 days.
180 grains of salicylate taken in doses of 1½ gr. given hourly at first.

VIII. Male aged 28; 2nd attack; Temperature 100° 6; pulse 108.
112 gr. of salicylate with 6 minutes of Tricholine given hourly for 8 doses, afterwards as required. Not seen again as he lived at a great distance. Relieved next day and pain gone in 2 days. 180 gr. taken.

IX. Female aged 19; 1st attack; Temperature 101° 2; pulse 125.
Salicylate ordered in 112 gr. doses hourly. She accidentally took
the quantity, however, taking 16 gr. doses. Relieved after 2 doses; and pain nearly gone after 4. Vomiting coming on at the same time.
Though sleepy on the previous night she passed a quiet night and
acute stage 3 days; 270 grains taken.

X. Female aged 32; 2nd attack; Temperature 101° 4. Old standing
mural angina; faint, and extremely tinnitusous heart action. Ordered
112 gr. of salicylate hourly with Morphine and Digitalis. Pain gone
in 2 days.

XI. Male aged 34; 1st attack; Temperature 101° 3. Ordered 112 gr.
of salicylate hourly. Relieved in 2 days; pain gone in 3 days. Took
180 grains. At work shortly after this and caught relapse. 16 days
after the commencement of the first attack. This was relieved the next
day and he was well in a few days.

XII. Male aged 19; 2nd attack; intense pain with temperature of 105° 2; and
pulse of 110 after an almost sleepless night. Ordered 112 grains of salicylate
hourly which relieved him so rapidly that next afternoon he declined and
came downstairs against orders. On the 3rd day I again found him
downstairs; pain almost gone; temperature 100° 4. Recovery prolonged
by the daily exposure but the 6th day (having taken 630 grains) he
appeared almost well. He then declined against orders and went out
for several hours, getting a severe relapse which was relieved in 2 days
when he again exposed himself getting another relapse relieved in 2 days.
but having chronic rheumatism for some months. Acute stage lasted as 5 days.

XIII. Female aged 24; 1st attack; temperature 102°F; pulse 100; hiccough brisk. 11/2 gns of salicylate homi. Relieved the same day and pain almost gone next morning, temperature having fallen to 99. Potash gently. Dinatrium and diaphoresis. No more acute pain. Acute stage 4 days; 270 grains calomel in 4 days. Four days afterwards having mould about too freely, she had a slight return; relieved next day.

XIV. Male, aged 32; 4th attack for which alkaline had been used unsuccessfully for 4 days, last night being fifas. Temperature 101°. Ordered 11/2 gns of salicylate every hour. Slept 3 hours the first night and much relieved next day, so that he got up and dressed without leave. Pain was gone in 2 days; temperature normal in 6. 620 gns of salicylate taken.

XV. Same patient as the last. Had been fully cured and able to go out but (patient - with temperature of 105 to 106) caught a fresh attack 9 days after the last commenced. To test the alkaline, treatment he was ordered half a dram of picric acid of Peronsho of every hour. Passed a fifas night but pain was slightly better next day and the urinary similar alkaline. 300 lepther. The second night and the pain on the third day was not so severe. On the fifth day the urine being noticeably alkaline, and temperature 100°. The pain felt worse, the result of the treatment being much less favourable than from salicylate which was now given (1/4 gns. hourly). He recommenced the old medicine and took two large doses (about 18 gns each). After this he felt better, and continued the medicine. He slept well that night, preparing stuff, and had slight tinnitus when seen next day. Pain was gone in 3 days; temperature normal in 5. 150 gns of salicylate taken. Subsequently pain remaining in ring fingers a salicylate lotion was applied with some effect.
XVI. Male, aged 17; 1st attack with temperature of 103.1 and acute joint symptoms. Heart sounds muffled when first seen; no heat nor pain, nor was dulness noticed. Salicylate was ordered in 1/2 gr. doses every hour. Pain was almost gone next day and temperature 100.5. On the third day 250 grains of salicylate having been taken and all joint pain gone slight depression came on and a 'catch' was felt over the heart on drawing a long breath. Transverse cardiac dulness 3/2 inches; sounds still muffled; temperature 101.6. Medicine continued and large poultices applied to the heart. In a few hours he could lie down. Next day he felt well; temperature 99.7. Two days after this the transverse cardiac dulness had fallen to 2 inches and there was a definite murmur. Acute stage 7 days. Incl. 607 gr. of salicylate. Heart appeared normal when examined 25 days after he was first seen.

XVII. Female, aged 8; 1st attack with temperature of 101. Ordained 5 grains of salicylate every hour. Next day she had taken 50 gr.; pain was gone, and temperature 99.5. No return. Acute stage 2 days 40 grains total.

XVIII. Male aged 15; 1st attack with temperature of 103.5 the day before medicine was begun, and 102.4 the first day of treatment. 92 gr. of salicylate given hourly. Temperature fell in 7 hours (10.30 A.M. - 5.30 P.M.) to 101.2; pain much better; 110 salicine. Sinus murmur debilitated; just after he was seen and the medicine begun given all night, he was very delirious next morning by which time he had had 15 doses or 220 grs. Pain was almost gone and temperature 99.2. Salicylate stopped, and he was ordered to drink tea coffee & fruit. In the afternoon pain was gone; temperature 98. Acute delirium continued till he relented next morning when he felt asleep after which he was more collected, but he remained slightly delirious until night when he slept well recovering the next morning.
- 18 hours after the last dose of salicylate-free from delirium and without a trace of delirium. Acute Stage 2 days; 120 grains. latin.

XIX. Male, aged 19; 1st attack; with temperature of 100°. 5. Ordered 10 grs. of salicylate every hour. pain gone next day; 150 grains. latin. Slight relapse on 2nd day from first episode, relieved the following day.

XX. Male, aged 38; 2nd attack; with temperature of 102°. 1, and pulse of 102. Ordered 11/2 grs. of salicylate every hour. Much better next day after 2 doses. On the third day pain was gone, temperature 98°. 7, and pulse 75. 125 grains of salicylate taken up to this time. Continued every 4 hours, and 270 grains in all were given.

XXI. Male, aged 8; 1st attack; with temperature of 102, severe joint affection, and pain over heart with cough dyspnoea. Ordered 5 grs. of salicylate every hour. Next day only 20 grains had been taken but pain was less, and temperature 100°. 8. On the third day, after taking 75 grains pain was almost gone; temperature 98°. 8; bruised softer.

Acute Stage 3 days; took 180 grains in all.

XXII. Male, aged 12; 1st attack; with temperature of 101.2, and acute joint pain. Has had 2 sleepless nights. Ordered 9 grs. of salicylate every hour. The pain coming after taking about 60 grains he said he had been free from pain for 3 or 4 hours, the joints only remaining tender on pressure. Has had Swelling and "Sinews".

Acute Stage 2 days; took 150 grains.

XXIII. Female, aged 17; 3rd attack; with temperature of 101°. 5. Pain in several joints and old standing bruise. Ordered 9 grs. of salicylate every hour. Next day, after taking 8 doses (75 grs.) pain was all but gone and temperature 99°. 6. Acute Stage 3 days; took 150 grains.

XXIV. Male, aged 32; 7th attack; with temperature of 100.4 rising to 101.2. Took a 9 gr. dose of salicylate every hour. Relieved next day, but pain continuing the usual dose was given on the 3rd day. Pain continued in a tabaenae form with joint affection of the for 8 days. took 600 grs.
XXXV. Same patient as XX. 8th attack. Commencing 24 days after the last began with temperature of 102. Ordered 11/2 gns. of Salicylate every hour. Pain which was severe was relieved the same day; but a delirium and some affection of the joints remained for 10 days. Took 120 gns. of

XXXVI. male aged 36; 14th attack. Coming on when his health had been undermined by exposure. Temperature 100.2. Ordered 11/4 gns. of Salicylate every hour. Relieved next day. Acute Stage over in 24 days. Took 250 gns. Subacute Rheumatic symptoms continue, and on the 15th day from commencement of first attack relapse with temperature of 101. Ordered 15 gns. of Salicylate every 2 hours. Much relieved next day; temperature 99.5; pulse 80. Syncope brief (haemie) no cardiac pain. Acute symptoms of relapse over in 3 days. Another relapse occurred 14 days afterwards; also quickly relieved. Salicylate had been discontinued each time before a relapse occurred.

XXXVII. Female aged 13; 1st attack. With temperature of 101.3. Ordered 5 gns. of Salicylate every hour. Pain relieved the same evening and temperature reduced to 100.4. Pain from next day; and temperature normal in 2 days. Took 120 gns. of.
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**Table Note:**
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**Table Details:**
- Column 1: First column
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**Additional Information:**
- Further details are available in the next section of the document.
Part III. The effect of Salicylates on the Course and Duration of Rheumatism; Results by various observers

Comparison with other methods of Treatment.

Having considered the action of Salicylates in Rheumatoid Fever in detail, I shall now pass to the consideration of their effect on the disease as a whole as regards (1) Duration (2) Complications and (3) Mortality.

(1) Effect on Duration.

The effect on the duration of the disease is most marked. Temperature and pain are (complications accepted) the main points by which we judge of the progress of the disease. When temperature becomes normal and pain is entirely gone and there is no heart or other complication of injury (which would of itself probably cause a considerable elevation of temperature) the Acute Stage is past. We have seen that temperature was normal on an average in 3.32 days, and pain gone in 3.22 days. The number of days till temperature was normal and pain gone in each case was as follows:

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<td>Cases</td>
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Thus in 14 of the 27 cases, or about 63 percent the Acute Stage lasted less than three days under treatment. In 7 more it was less than 6 days. In the remaining 3 there were all under 10 days and comprised a case of Pneumonitis, and 2 & 8, and an 8, respectively.

[Note: The text contains some corrections and annotations, but the main content is clear.]
attack (both running very chronic and Subacute courses). The
average duration was 3.52 days. Some of the cases were
doubtless very mild but their tary do not unduly influence the
average is shown by the fact that the average duration of the 16
chronic cases all of whom had temperatures of 101° or over
was scarcely longer, being only 3.76 days.

Pitiable though this result may appear the full value of
the drug in relieving pain is hardly appreciated unless we remember
that material relief was afforded in an average of 1.66 days;
and that after the cases were thus treated as relieved no severe
symptoms occurred in any but one case reported as "relieved"
on the 2nd day but who had pericardial effusion causing great
dyspnea on the 3rd day.

To test the comparative value of Salicylates and Alkalies.

The latter were tried first in Cases 102 and 18. Note of the
Alkaline treatment were not taken in the former but were in the
latter. In the former, however, there was no improvement in the
symptoms by the 6th day of Alkaline treatment and the patient
had passed a sleepless night. At 6:15 P.M. on that day
Salicylate was given and many 50 grains taken by about
midnight when he began to perspire and fell asleep for three hours.
He felt so much better that I found him sitting up at 4:30 P.M.
next day and after this time he had no severe pain.

In Case 18 (the same patient) note of the Alkaline treatment was
carefully taken. The patient appeared somewhat relieved for a time
but only to a slight extent. On the 4th day, the urine being thoroughly
alkaline, and having been more or less alkaline since the 2nd day
he had aggravation of the joint symptoms and was ordered
Salicylate
Saliyfate. He was so improved at getting the old medicine that he took
two extra large doses equal to nearly 20 grains after which he
declared himself nearly well again and had no return of severe
pain.

It is no bad test of the value of a drug that patients speak
well of it, and this I always found to be the case, more especially
with those who had had rheumatoid attacks and been differently
treated previously as in this case. Of the superiority of the
Saliyfate treatment I think there can be no doubt. The two cases
just quoted in which Atalactis were given are doubtless not
sufficient in themselves to prove this; but it is not worthy that
though the cases were not soon relieved by Atalactis by the 24th
and 51st day respectively, they were both returned by Saliyfate within
one day the acute stage lasting 6 and 5 days respectively

The number of series of cases have now been published, the
results being somewhat different. The weight of evidence in
favour of Saliyfate is, however, as Pullaert (Notes on Rheumatism)
days, becoming overwhelming, and the great majority of observers
have strongly testified in their favour.

The most advanced opinions are supported by Dr. Sonnery
and Dr. Groomhood. Dr. Sonnery (Bath Ladies' Hospital Rep. 1879)
divides his cases into Continual and Relapsing, the Acute Stage
under treatment commencing in the former nearly 20 days, in the latter
25 days. He considers that Saliyfate has a general soothing and
analgesic influence but that mischief is the duration of the disease
shortened nor the tendency to relapse diminishcd.

Dr. Groomhood (Clinical Soc., Trans., Vol. XIII) says that though
pain is undoubtedly ameliorated the duration of the disease is not-
Skotland. He thinks Salicylates are most powerful Antipyretics and that all the effective effects are due to them. Salicylic Acid and Salicylate are considered by many as the best treatment for Rheumatism.

Dr. Bristow (Theory and Practice of Medicine, Ed. 13, p. 343) considers Salicylic Acid and Salicylate of Soda "by far the most valuable and efficacious treatment of Rheumatism".

Dr. Austin Flint of New York (Clinical Medicine, 1879) considers Salicylic Acid and Salicylate beneficial though he says they do not prevent cardiac complications and should therefore be combined with alkalis.

Dr. MacLagan (Lancet, Mar. 4, 1876) found his cases recover in about 14 days under Salicylic Acid. He insists strongly on the necessity of giving large doses frequently and so saturating the system rapidly.

Prof. Charrière of Glasgow (British Medical Journal, Feb. 12, 1878) writes highly of the results of Salicylic Acid which he prefers to Salicylates because he says he has never seen it produce alarming or toxic results. And even in uncomplicated cases temperature is lowered in 24 hours.

Dr. W. Squire (Lancet, Dec. 20, 1879, p. 906) also writes in favour of Salicylates which he considers shortcuits the fever, and by so doing, cure the heart of heart affections. Eight cases which he quoted were relived in less than two days.

Dr. Broadbent (Lancet, Apr. 8, 1876) considers Acute Rheumatism to be an affair of two or three days under Salicylate treatment, and says he has not yet seen a case of Acute Rheumatism without complication in which the pain was not gone and temperature normal after 6 consecutive doses of 20 grains each at intervals.
of an hour on two successive days.

Dr. Casamy (Dr. George's Hospital Reports - p. 198) found pain relieved in two days, the average time in hospital being 6 days.

Dr. J. Buchanan Bantick (in a translator's note in the 16th Vol of Ziemmen's Cyclopaedia, p. 103) says that Saliqalid has a beneficial influence (which, owing to our ignorance of its intimate nature, we may call 'specific') on the joint mischief, and the course of the disease as a whole. He says too that the experience of Senatoret, whose article on 'Acute Rheumatic Polynyaemia' he translates, leads him also to think very highly of Saliqalid in.

Stille and Maissuch (The National Dispensatory p. 13) also speak highly of Saliqalid. In 100 cases quoted by them, the average time for which the drug was given was about 6 days, the average quantity being two grains. They quote Mr. Shanks who considers that 'its discovery is a triumph of empirical therapeutics, which has probably had but few parallels in the history of medicine'. They further state that excellent results have been obtained in Germany by Traube, Staffart, Baug, Lebert, and others, 425 cases being recorded with only 21 deaths. Among French physicians they quote S22 who says 'we may promise with almost certainty, the cure of febrile or agyrptic acute rheumatisme in from 2 to 4 days'. From this highly favourable opinion, however, they say that Gueran de Masuy and Jaccard dissent.

There are also (note in British Medical Journal Oct. 23, 1880 referring to articles in North Magazine for Løgeveldet, 370.
Series, Band IX; and Nord. Medizin. Archiv, Band VII.) refer
to the good effects of Salicylic Acid.

Dr. J. Milne Sollee (Graduation Thesis, Edinburgh University)
reports 19 cases in which the acute stage averaged 2.2 days
under treatment, and no cardiac complications arose after
treatment was commenced.

a series of 100 cases in which he used Salicylates, giving 200 grains
every 24 hours. In 63 cases the acute stage averaged
2.9 days; in 60 more it was 11 days; the average of the 77
being 6.5 days. In two cases the treatment appeared of no
avail and there were 7 fatal cases, cardiac complications
arising under treatment in 6.6 percent of the cases. He
also collects from various sources 800 cases, 63.3 p.c. of
which were relieved under 3 days and discharged in 12 days.

Dr. C. W. Brown (Boston City Hospital Reports, '80, lxxi, 47) gives
a series of 106 cases relieved in 1.46 days—pain gone
in 2.85 days; cardiac complications arising under treatment in
4.76 per cent; average time in hospital 18 days; amount
of Salicylate taken 251.3 grains; two deaths, one from Pericarditis
and one from Ventricular Complications.

22 cases by Dr. Miller of St. Peter's Hospital, Brooklyn, in which
pain and temperature were reduced in 2 days. Dr. Moore has
collected 308 cases which show an average duration of pain of
2.92 days—1 day in hospital 9.56 days.

Dr. Pingel (Handbook of Therapeutics, p. 575) says “the almost
unanimous opinion of the profession has confirmed the strong
recommendation of Dr. MacLagan. Ringlet's own experience is
highly in favour of Salicylates and he considers that the shortening
of the disease must lessen complications though heart-disease has
been known to arise in patients under the full influence of the
drug.

Thus if we summarise the results given by all the
observers quoted we find, with the exception of Drs. Crambow and
Jutting and two French physicians a unanimous verdict in
favour of Salicylates. The cases given number 1000 or 1200
at least. The exact number is not easy to arrive at as both
Jacobs and Moore give collections of cases from various sources
(250 cases if the rural separate cases are included) and it is possible that
the same cases figure in both. The
Acute Stage is stated by the various observers as a minimum of
2 days (Crambow) and a maximum of 8.8 (Jacobs); other observers
stating as follows:—Brown 2.25 days; Moore 2.92; by own
cases 3.59; Miller 2; and Sholmes 2.2 days.

Dr. Allman (Science and Practice of Medicine 7th edn. Vol. I. p. 666) after summning up the evidence on the subject considers that
the average duration of Rheumatism is shortened to 4.9 days under
Salicylates, and 6.1 days under the Acid; an advantage as he states
from one to three days over aspirin and compared with the practice
of iron treatment in which temperature became normal in half the
cases in ten days, under Salicylates it became normal in half the cases
in 3 days. The duration of the disease being "shortened under these remedies
than it has been under any other plan of treatment" and the chance of
complications lessened in the same proportion as the disease is shortened.
He does not however think that Salicylates are Specifics for Rheumatism.

We have already seen (p. 3) that the duration of the Acute
Stage under treatment was with expectants 9.1 days; with
But under the conditions of the experiment it is reduced to 2.1 days, and in my own cases show an average of 3.32 days, or little more than half the average time under alcohol.

The following table shows the results obtained by various observers.

<table>
<thead>
<tr>
<th>Name of Observer</th>
<th>Number of Cases</th>
<th>Pain gone</th>
<th>Temp.  before Normal</th>
<th>Length of Stage H.B. in Hours</th>
<th>Total length of Stage in Hours</th>
<th>Time in Hospital in Weeks</th>
<th>Amount of Alcohol in Grams</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aitken</td>
<td>106</td>
<td>2 1/2</td>
<td>4 1/2</td>
<td>2.33</td>
<td>4.76</td>
<td>18</td>
<td>34.3</td>
<td>2</td>
</tr>
<tr>
<td>Broadhead</td>
<td>2</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown</td>
<td>11</td>
<td>3.54</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cavagny</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charteris</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clark-White</td>
<td>2</td>
<td>3.22</td>
<td>3.32</td>
<td>3.82</td>
<td>6.06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clouston</td>
<td>19</td>
<td>3.2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delme</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jacob</td>
<td>100</td>
<td>3.2</td>
<td>3.2</td>
<td>4.2</td>
<td>11.2</td>
<td>20</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>collected cases</td>
<td>312</td>
<td>3.5</td>
<td>6.6</td>
<td>6.6</td>
<td>12</td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>MacLean</td>
<td>22</td>
<td>3.5</td>
<td>3.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miller</td>
<td>305</td>
<td>3.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moore</td>
<td>2</td>
<td>2.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Squire</td>
<td>2</td>
<td>2.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stillwell</td>
<td>2</td>
<td>2.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1427</td>
<td>3.2</td>
<td>6.4</td>
<td>6.4</td>
<td>9.8</td>
<td>20</td>
<td>20</td>
<td>0</td>
</tr>
</tbody>
</table>

Cases treated by alcohol:

- Blake's Boston Hospital Reports: 13.22
- Moore's Naval Cases: 22.6

Notes:
- In uncompliacted cases only.
- Figures given are for 93 cases of alcohol given.
- Cases given by Belding, y.e. 7 in alcohol under treatment, 0 in ethyl.
- Results given are for 68 cases excluding 14 cases given by Belding, y.e. 7 in alcohol under treatment, 0 in ethyl.

Additional data:
- Activated 316 cases: 6.75, 13.50, 21.5
- Other cases: 8, 9.1, 27.2
Total Duration of the disease. Not much is the duration of
the Acute Stage under treatment. Shortest but the total length of the
disease is greatly lessened. Most of the cases recorded here
have been in hospital practice, and generally 5 to 10 days ill before
admission. Dr. Jellinek gives 7 days; and Dr. Jannuzi and Diller
give 9.5 days as the average duration before treatment in males
and 6.2 days in females. Dr. Reginald Soutter, whose
"Continued" and "Relapsing" cases came under treatment on the 4th
and 9th days respectively says (loc. cit.) "Relatively few cases are admitted
earlier than the fifth day, but this circumstance tells both ways, as
"much for as against the remedy. Since the natural tendency of the Acute
Cases prove that a remedy administered between the 6th and 9th days
is likely to be credited with more merit than strictly belongs to it," his
theory being that in Acute Continued Cases pain naturally subsides
on the 8th or 9th day. This is just is his explanation of what
he thinks are only the apparently good effects of the remedy, and
if his hypothesis were correct, cases that were not put under
treatment for a week or so would require a shorter period of
 treatment than those treated from the beginning. But this is not
the case.

The point is one which cannot be decided by
hospital statistics of cases averaging 7 days or so of illness
before being seen; but the results of my own cases prove the fallacy
of the argument. In private practice it is the rule to see cases only
and serial of the cases actually developed under my notice
reliept於是 being withheld until decided symptoms of Acute Rheumatism
had set in. The duration of the Acute Stage before treatment
was commenced in the various Cases was as follows:—
Duration of Acute Stage before Treatment.

<table>
<thead>
<tr>
<th>Days</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of cases</td>
<td>19</td>
<td>2</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

It was not noted was probably only a day ill. But, including that, 19 cases were over 10 p.c. were under treatment within one day. 72% cases or 88.8 p.c. within 3 days, the average being 1.58 days.

The total duration of the cases dating from the commencement of the joint symptoms until the end of the Acute Stage was as follows in the various cases:

<table>
<thead>
<tr>
<th>Days</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cases</td>
<td>1</td>
<td>2</td>
<td>7</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

(In the last case Salicylate was not begun till the 9th day, arthritis having been tried first.)

Thus in 17 cases or 78 p.c. the total duration was less than 3 days, the average of the whole being only 3.06 days.

Among one of the cases, or 77.7% cases were over within 7 days, which is less than the time assigned by Dr. Southey as the natural duration of the disease, thus showing that his explanation of the good effects that follow Salicylate is incorrect. At whatever stage of the disease the drug may be given it is of the greatest service: but far from a delay of 6 or 8 days in commencing treatment being unimportant, as Dr. Southey suggests.

The cases given here to show the great advantage of early treatment by Salicylate as compared with those later on, and the still greater advantage that it possesses over any other.
method of treatment.- For 6.75 6.75 13.5 days,

Graud & Fuller using Alkalies found 6.75 6.75 13.5 days,

Helme — Salicylates 7.2 11.2

My own cases — Salicylates 5.06

The above show that if treatment be begun sufficiently early, few of the cases will last so long as 8 days and the average total duration of the disease is reduced to about 6 days. This I consider one of the most important conclusions to be drawn from the present series of cases, and one which has, as we shall presently see, an important bearing on the next subject for consideration.

(2) Effect on Complications.

The only complications met with were Candida, and, as already noticed, only 2 cases, or 7 per cent had recent heart affection, both being affected when first seen. Three others had old standing heart disease. The remaining 22 remained unaffected throughout. No case of heart disease arising after salicylate was begun. — I have already discussed the question of treating heart complications by salicylate and shall need only consider whether the drug prevents them, and, if so, to what extent.

Dr. Southey (loc. cit.) states that under it the risk of heart affection is not less. Dr. Brenchon appears to hold the same opinion. — Dr. Austin Flint (loc. cit.) says that salicylate,
though generally beneficial do not prevent cardiac complications, and he suggests combining Salicylate and Alkaline treatment. This view appears to be based on the fact, admitted by all observers, that the heart may become affected in patients under the full influence of Salicylate. But the question for consideration is only whether the drug lessens the tendency to heart-affection; and if so, whether it does so to as great or to a greater extent than Alkalies or any other treatment? This assertion appears to amount in the affirmative, saying that Salicylate does not ward off complications, but that it lessens the chance of them in the same proportion as the disease is shortened. 

Dr. Simkin stated his opinion in nearly the same words - this in fact appears to be the general belief, and if we can show that complications are diminished to the same extent as we have already seen that the disease is shortened, the point will be clearly proved - and this I believe we can do.

We have already seen (p. 19) that various observers have
the frequency of heart complications as ranging from 20 to 50 per cent., the average being about 30 p.c. With Alkalies however heart affection was stated to be reduced to 4.5 per cent.

And next after the fallacy of taking these figures as proving the relative value of Alkalies, which have however hitherto been admitted by the most efficacious treatment, more especially as regards the prevention of complications.

Dr. Moore (loc. cit.) quotes two series of cases which as regards the comparative value of Alkalies and Salicylates are of the utmost importance. Both were treated in Boston City Hospital.
The one by salicylic under the care of Dr. Holmes, the other, under the care of Dr. Brown, being treated by salicylate, all other circumstances being presumably alike. Under salicylic about 10.5% of the cases developed heart disease, whereas under salicylate only 2.75% became affected. And this appears to be rather over than under the average of heart affections where salicylate is used, Dr. Jacob finding the average as 32% from a series of 312 collected cases, of which with 19 cases (8 of which were unaffected on admission) having no hearts affected under treatment, the same result being obtained in my 27 cases out of which 22 were unaffected when first seen. This shows that salicylates are certainly not inferior to salicylic in warding off heart affections.

Dr. Moore goes so far as to say that no case of acute "Rheumatism seen within the first 24 hours and have Cardiac "ailments if treated by this method." This expectation, however, is not "realized, for one of my cases was seen within 24 hours of "his attack with fully developed endocarditis. The heart may inflict in the first place to suffer.

But the issue in question is considerably narrowed when we recollect that Bull and Taffler found that the heart was generally affected within the first week or not at all (Cantlie Ed. 4, Vol. 1, p. 860). In reference to this point Dr. Moore says:

"Those cases which have been affected with the disease for some "days without any treatment should be carefully separated from "those under treatment from the very start. For if it be, as stated "by Dr. Longo Clark, that the heart complications are not apt "to occur during the first few days of the disease, then have not "under treatment prior to that time would probably not be
affected by the Acid", whereas those seen from the commencement
and naturally be the only test of the real value of any method
of treatment as regards the prevention of Heart Disease.

We have already seen that Cases are generally admitted
to hospital about the 7th or 8th day on an average by which
time a very large proportion have already got Cardiac Nervous
Condition out of a total of 79 (57 p.c.) of Riselmans cases, which
had averaged 3 days illness, had heart disease on admission;
and though the remaining 8 remained unappalled, we must
recollect that they had already passed the period of greatest risk.
Again 55 p.c. of Dr. Jacob's 100 cases had heart disease on
admission, only 5 Cases being affected afterwards.

In the particular my Cases are essentially different having
an average (p. 38) of 1.53 days ill before treatment was begun and
the Number of Cases having heart affection at this time being
only 2 new and 3 old standing — altogether 5
out of 27 Cases, or 18.5 per cent. — The remaining Cases, then,
22 in number, had to pass through the period of greatest risk, and
they did so without heart mischief arising in any case, Stronger
evidence of the value of Salicylate in lessening the Risk of Heart
Affection Could scarcely be given.

(3) Effect on Mortality. None of my cases were fatal.
A series of only 27 cases however would be altogether inadequate
as a basis for calculating the mortality - Stadl and Maisch
gave 426 Cases with 21 deaths or about 5 p.c. Dr. Jacob
had 5 deaths out of 100 cases. Dr. Brown lost 2 out of 106. In Dr. Helms's 17 cases there was no death; nor was there, as I have just stated any fatal case among my 27. The ordinary mortality, ranging as already stated from 3. to over 7 per cent, it will be seen that the various series of cases quoted are within the average.

The Direct Mortality is always low, and probably much less than the Indirect, in estimating which statistics are not likely to be of much service. Both have been shown to depend chiefly on complications, the latter more especially on Cardiac ones, and the effect of Salicylates in reducing these cannot fail to have a marked effect on the Mortality of Rheumatism.

We thus see that, tested by the ordinary standards of comparison, Salicylates stand at the head of all remedies proposed for Rheumatism. There have been several cases reported where Salicylates have apparently had no beneficial effect though given in the most approved of manner. But many of the reported failures are clearly owing to the way in which the drug has been given. On this point Elger (op. cit. p. 179) says

"It is not to be expected that Salicine or any other remedy "will be successful in every case of Rheumatism; moreover "in many of the reported unsuccessful cases the dose was far "too small." This is often the case, and I have been told
that Salick was of no use in a case or cases when my
informant had used it in what he called very large doses, but
which proved to be only 10 grains 3 times a day! The favour
results already quoted can in no way be invalidated by
showing that Salicylate may be given with little or no good
effect in doses of which none of its chief advocates approve.

So convinced am I of the value of the drug that I have
letting felt justified in advising my patients to the outlet
by telling them that their severe pain would probably be gone
after 5 or 6 doses which is almost invariably the case.

I should also remark that though the series of cases was
closed on my leaving Stuy in June 1879, my subsequent-
experience, comprising 5 or 6 cases, has been equally favourable
since I have been in practice in London, one of the Western
Suburbs of London.

Objections to the Use of Salicylates.

It is objected to the use of Salicylates (what Relapses
are very frequent in cases treated by them, and that Convalescence
is protracted. These points I shall now consider.

(i) Relapses are stated by Dr. Trombo to be very
frequent in cases treated by Salicylates. Dr. Jacob states the law
opinion - Several other observers have drawn the same; and the
attention is not easy to dispense without statistics of the frequent
of relapses in cases otherwise treated.

Dr. Squire (quoted: 1st. Dec. 20, ’79) says: "That relapses are more frequent afterwards may be doubted; the cases probably are in those who make the objection. Under other treatment a patient continues "specific for ten days has no relapse because there is no recurrence; the tendency to relapse after disappearance has in all cases to be "guarded against; in this it is readily relieved, and the time in "which it is likely to occur is ."

In ten of my cases there was more or less return of the symptoms. Six of these, however, (Nos. 6, 8, 11, 14, 20 and 21) had meanwhile been well and at work, not having been seen for 13, 16, 13, 8, 14 and 18 days respectively. These were then for such attacks for which it would be unreasonable to accuse the medicine of inefficiency, and it is not worthy that all of these cases except No. 11 had had at least one previous attack, and were thus evidences constitutionally predisposed to the disease. Three of them were entirely fresh as cases 7, 18 and 23; the rest were very slight, and are alluded to in the notes of the cases of the others in cases in which the symptoms returned.

No. 12 went out against orders with a temperature not quite normal on the 8th day of a sharp attack, he remained out a whole afternoon in a cold wind, and had a very severe relapse. No. 13 had a slight return of pain 44 days after the medicine was lifted off—doubtless caused by moving about the house too much.

These remain two cases 19 and 26, which both relapsed without any cause that I could detect on the 12th and 17th.
day of the disease respecting, and having had an interval of 9 days in each case free from acute symptoms, yet not sufficiently well to get about, the disease in both cases being of a cold chronic type which I believe to be specially subject to relapses. Salicylate had meanwhile been left off in both cases. Since then we had the only two cases in which relapses occurred without apparent cause, the proportion of cases relapsing only 1.24% (last which result my experience leads me to consider highly favourable.

Relapses, when they do occur, are, I believe, greatly caused by leaving off the drug too soon on account of pain being gone.

Though the acutest resists death the patient Caroline [name redacted]

I believe they are to be prevented by carefully watching temperature as the most important indication, and continuing salicylate till it is normal, or even longer. But the difficulty to get patients who are quite free from pain to believe that they are not well is a

This was great, and the "immediate response which is apt to follow rapid relief" (Stiles and Waddington p. 76) has to account for a return of the symptoms in many cases. I cannot too strongly assent to his belief that the thermometer gives the only reliable indication as to when salicylate may be stopped and the patient allowed to leave bed. After pain is gone and temperature normal, the patient should be very closely watched for a few days longer, and the salicylate either continued in less frequent doses, or resumed on the slightest return of pain or rise of temperature—Dr. Squire left his cases under care for at least ten days. If this be done relapses will be rare, and we may agree with Dr. Moore that the trouble is not—

"in the drug used, but in the manner of its employment."

Dr. Squire and I both think that diphenyl may be used, while salicylate is too violent, though we are not in the habit of using it, as we are not accustomed to the severe symptoms under its use.—
and I have found them successful to treat them at least equally rapidly.

(2) Convalescence. Dr. Grunhold (loc. cit. p. 326)

States that patients treated by Salicylate become anemic, are long in getting strong, and do not recover so rapidly as under other a means of treatment. This is a very unusual experience, for almost all of my patients made rapid recovery, and in many of the cases a few days after the end of the Acute Stage sufficient to restore the patient to health. All of them, except the cases already noted, in which death occurred, recovered much more rapidly than I have ever seen similar cases do under other treatment. And this is only what we might reasonably expect from the great power of the medicine in reducing the length of the Acute Stage and lessening complications. In convalescence after any illness is generally in direct proportion to the duration and severity of the attack, and the gravity of complications, and it would require very strong evidence to prove the contrary to be the case in rheumatism.

The duration of convalescence may be judged of by the average length of stay in hospital. Dr. Hume gives a table which shows that this varies from a minimum of 24 to a maximum of 36 days, whereas Salicylates are not used. Compare with the Salicylates show to great advantages for we see by the table given before at p. 54, that Caseg gives only 6 days, Moore 9-5, Adams 12-72; Brown 18, Hume 20, and Jacobs 20. In my own cases being in private practice time is nothing to me.
analogous to stay in hospital and therefore I cannot compare my results with those just given, but as the acute stage was shorter in my cases than what Atkin states as the average and Salique it is fair to infer that convalescence would have been equally favourable. It certainly was more rapid than under any other treatment I have used. — Dr. Squire (loc.cit.) in comparing his cases treated by Salique and relined in less than 2 days and those treated by Squire which averaged 12 days adds that the latter "required long after care" as compared with the former. The weight of evidence I consider to be distinctly in favour of Salique, or at least—

Dr. Brunnhov's statement that anaemia follows Salique treatment is, I believe, much more true of all other modes of treatment. Anaemia is a well known result of Rheumatism and has been noted as such under every method of treatment ever employed. Dr. Brunnhov is the only writer so far as I am aware who considers it more frequent after Salique. Dr. Squire on the other hand (loc.cit.) says "the subsequent anaemia, as I see and convalescence quicker than after treatment by none of the above I am a witness." My own experience agrees with that of Dr. Squire, and I consider that the after progress of a case of Rheumatism, in which Salique has been used is much more favourable than under any other treatment.

(3) The possibility of Salique producing toxic effects, and the precautions by which these may be avoided have already been considered in Part II, chiefly under the headings of effusion, circulatory, nervous, and digestive systems.
Part IV. On Salicene, Salicylic Acid and the Salicylates.

Mode of Administration; Dose; Quantity given; Mode of Action

Salicene was used in my first few cases; Salicylic Acid in the next, but on account of its insolubility and causing great burning of the throat I combined it with Soda on the 3rd day of treatment. All the other cases were treated by Salicylate of Soda. This I used in the form of a Solution Containing one dram of the Salt to an ounce of water. It was made by mixing Salicylic Acid with Bicarbonate of Soda and the requisite amount of water in an open dish, and boiling after effervescence had passed off. I prescribed it as "Liquor Sodae Salicilatii" and consider it a most convenient as well as a reliable and economical method of using the drug. The formula for its preparation was:

Salicylic Acid 26 grains
Bicarbonate of Soda 16 —
Water to 30 ounces

The chemical formula for Salicene is \[ C_9H_3O_4CO_2H \] and for Salicylate of Soda \[ C_9H_3O_4CO_2Na \].

One atom of Hydrogen being replaced by one of Sodium. Thus 160 grains of the Salt contain 138 of the Acid and 28 of Soda 60 — 87 3/4 — 8 3/8

31 3/4% of Sodium being contained in 31 3/4 grains of the Bicarbonate. If made in larger quantities a cheaper Soda Salt might be used.

The Solution thus made cannot be distinguished from
one made from the salt commonly sold. Both become darkened a few days after being made but they maintain their active properties intact for months.

Dr. PowerJames in the British Medical Journal for March 19th 1881 recommends the Salicylates of Ammonia, Potash, Lithia, Lime, Quina, and Cinchonidia in cases where it may be thought that any of the bases mentioned may be given with advantage. I have however used none of these having been anxious to test the actual value of salicylate without the admixture of anything which could possibly be said to influence the result; but I believe that some of them, especially the salts of Ammonia and Quina or Cinchonidia may be specially serviceable in many cases.

I began by giving the Salicylate flavoured with Compound Tincture of Cardamom, and for the sake of variety continued this in all the cases. A more elegant combination is made by the addition of half a dram of Syrup of Ginger, a few drops of Aromatic water, and a couple of drams of Peppermint water (if not objected to) to each dose — or a dram of Syrup of Orange or Lemon may be added to each dose — I have recently (March 1881) found in a case of Phthisis complicated before treatment was begun with liver disorder and ulcers which the ordinary remedies (opium followed by Bismuth in suspensio etc.) failed to allay, that Salicylate of Soda in 10 grain doses every hour and combined with half a dram of Syrup of Ginger and the same quantity of Tincture of Orange was not only readily borne but appeared to allay the symptoms better than anything else.
somewhat surprised at the result, as I was afraid that the Salicylate might increase cardiac irritation and so had withheld it for a day or two.

**Dose.** The whole success of the treatment depends on the proper administration of the drug on which great stress must be laid. Salicylate of soda should be given in doses of 10 or 12 grains (for an adult) every hour until pain is relieved, or "tinnitus aurium" (headache) is produced. Before administering the drug, it is well to give an enema of the bowels are constipated. If this precaution is neglected headache or vomiting is most likely to occur; in which case the Salicylate should be stopped, and not resumed till the bowels have been thoroughly relaxed and the "tinnitus" has subsided. Where urgent necessity for the rapid administration of the drug exists these precautions may be somewhat relaxed but if so the case should be closely watched for unpleasant toxic symptoms may result.

Marked relief is generally experienced after the 5th or 6th dose, and slight tinnitus is frequently felt about this time. The further administration of the drug must depend on the circumstances of the case and the susceptibility of the patient to its influence. It ought to be pushed as rapidly as the patient can bear it (short of marked symptoms of Salicinum) until pain is gone and temperature normal; after which time it is well to continue it 1 or 2 times a day for a few days longer; the temperature meanwhile being carefully watched and Salicylate given more frequently if it rises. Unless these precautions are attended to delirium
will almost certainly occur for the pain is reduced so rapidly that patients are apt to leave off the medicine and expose themselves before temperature is normal. Dr. Sydenham showed that when relapses occur the urine will be found to contain no Salicylate indicating that it has all passed away. This precaution will be奉 a great extent due to a sufficiently long continuance of the medicine.

A somewhat smaller dose than I have indicated was given in Case 224 but with less marked effect; and in one or two other cases the doses were given by the attendants either too seldom or in too small quantity the result being a delay in recovery (Cases 24, 21, 13, 23).

Again a larger dose than I suggest, more especially if given at the outset is apt to produce unpleasant symptoms such as delirium or headache. In a Case of Lumbago in which I continued Salicylate in doses of 1.5 grains every 2 hours the third dose or two caused such severe singing in the ears that the patient (an elderly lady) lifted off the medicine. In Case 9 two large doses were taken by mistake (about 16 grains each time) and Vincentia came on after the 1st dose, not sufficient however to prevent her sleeping. At my visit next morning it had not subsided. I ordered an aspirin but did not stop the Salicylate as I should now do. The large dose taken at first seemed to have produced an intolerance of the drug and she was sick after taking it the next day.

Thus we may conclude that a smaller dose than 10 or 12 grains every hour will not produce sufficient effect, and that if given at the outset a larger dose is apt to cause gastric and often disturbance.
The great secret of success in giving Salicylate is, I believe, to give it in small doses and frequently, irritation being soon relieved so that "at last" (to quote from Singer's work p. 572) "large doses fail to produce any characteristic effect: though when given in small, without any gradation, these small doses, time after time in discontinuance, produce very decided symptoms, which may persist one or two days, and may come in the day after the withdrawal of the medicine".

This intolerance of the drug from beginning with two large doses I have already alluded to; and as it is not always to be got rid of at once, the proper treatment of the case may be undeservedly delayed should it unfortunately occur. Singer (op. cit. p. 575) advocated a 10 grain dose every hour, to be increased to 15 or 20 grains or more after 24 hours. I have seldom required to use the larger dose, though when ordinary doses fail to produce a sufficiently rapid effect they may be used with great advantage. In Case 12 I raised the dose to 18 2/3 grains, the largest I have ever used, and only given after ordinary doses had been used for some time.

Saline must be given in much larger doses - 15 - 30 grains. I have given as much as 220 grains in 24 hours - a much larger amount than I have ever given of Salicylate.

The amount of Salicylate given in each case will be seen by the following tables. The amounts given for each day should not represent what the patient actually took on that day, but the drug has been given sufficient strength to show the patient is not under an exaggeration of its influence at 2 or 3 grains, 3 or 4 grains a day or oftener may be substituted for the 10 grain every hour if preferred. The amounts taken during the same.
being supplied from my prescription book in most cases, indicated only the day when medicine was ordered and the amount ordered.

Table showing Amount of Salicylate given each day, with total amount in each case.

<table>
<thead>
<tr>
<th>Number of Case</th>
<th>Age</th>
<th>Temperature</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
<th>6th</th>
<th>7th</th>
<th>Total Amount Given</th>
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<td>(b) Males over 15 - with temperatures under 101°</td>
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<td>53.7</td>
<td>22.3</td>
<td>35.7</td>
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<td>(c) Females over 15</td>
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<td>(d) Males and Females from 10-15 years of age</td>
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<td>180</td>
<td>240</td>
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<td>240</td>
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<td>(g) Saline</td>
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<td>780</td>
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<td>Average</td>
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<td>240</td>
<td>240</td>
<td>240</td>
<td></td>
<td></td>
<td>980</td>
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</table>
The amounts taken may be summarized as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Males over 15 years of age</td>
<td>650</td>
<td>180</td>
<td>253.6</td>
</tr>
<tr>
<td>(a) With temperature of 101° or over</td>
<td>650</td>
<td>120</td>
<td>293.2</td>
</tr>
<tr>
<td>(b) With temperature under 101°</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II. Females - (all under 18)</td>
<td>270</td>
<td>150</td>
<td>260</td>
</tr>
<tr>
<td>III. Males and Females aged 10-18</td>
<td>180</td>
<td>120</td>
<td>157</td>
</tr>
<tr>
<td>IV. 10-20 years (children)</td>
<td>180</td>
<td>60</td>
<td>120</td>
</tr>
<tr>
<td>V. Salicylic Acid (one dose)</td>
<td></td>
<td></td>
<td>360</td>
</tr>
<tr>
<td>VI. Salicin 1 male or female 780</td>
<td></td>
<td>240</td>
<td>370</td>
</tr>
<tr>
<td>1 infant 140</td>
<td></td>
<td></td>
<td>140</td>
</tr>
</tbody>
</table>

From this it will be seen that adult males took more than adult females; and that the larger the dose, the greater is the amount of Salicylate required. It will also be seen that Salicin required to be given in much larger doses than Salicylate.

As a Local Application, I used Salicylate of China in thin solution (3 to 10 drops) locally in the ears (1 and 13) when tenderness of a single joint remained after the acute attack was over. Both ears appeared to derive benefit. This is all my experience of the typical effects of Salicylate and insufficient as a basis for any trustworthy conclusions. I think the local application is worth a trial however.
Mode of Action. This appears to be the same whether Salicylic Acid or Salicylate of Soda is given.

Ringer (op. cit. p. 564) says, "Salicine is converted in the body into Salicylic Acid, and possibly this Acid produces the symptoms. The Alkaloid will not, of course, yield its own weight of Acid, hence its effect in producing symptoms is less manifest than the Acid which, he says, "produces the characteristic symptoms in much smaller doses." At p. 572 he says he has never seen Salicine produce the quiet and great reduction of temperature which follows the use of Salicylic Acid.

Dr. J. S. Macfie (Brachycephal's Alorspect 1879) does not consider there is any evidence that Salicine is changed into Salicylic Acid in the body.

Still, and Maileb, however (op. cit. p. 74) agree with Ringer and Dr. Squire (alorspect Dec. 25, 79) says that Senator also holds this view.

My own experience coincides with Dr. Ringer's, both as to a larger dose of Salicine being required and also as to its less rapid action, which would be explained by some delay occurring in its conversion into the Acid after being taken. A full account of experiments made with the view of testing the Comparative Values of the drug is given by Ringer at pp. 572-3. The objections to Salicine are its insolubility; the much larger dose, and longer time required to produce the effect; and, for a time, the absurd expense of the drug. On the other hand the fact that it acts more subtly than the Acid and its salts
May make it advisable when from cardiac debility or other cause it may be thought advisable to take extra precautions. Salicylic Acid has no advantage over its salts and has the great disadvantage of being much more irritating. The Salicylates and their salts are the most generally useful form for administering the drug. Dr. Squire (loc. cit.) states that whether the Acid or a Salt be given it will be found in the blood in connection with a base.

Being said (Salkeld p. 78-79; Moore loc. cit.) that the Nascent Carbonic Acid which is being constantly evolved from the animal tissues absorbs the Soda in the blood, the Acid, which is the active part, being thus liberated.

The following are the opinions as regard the mode of operation of the drug: — Dr. Moore (loc. cit.) says that Köhler "considers the effect in reducing the temperature due to some influence on the viscerum motor nerves leading to dilatation of the peripheral vessels, and consequent lowering of the temperature of the blood." Dr. Squire says that "the relief of pain is effected either by soothing the peripheral nerves, or relaxing the small vessels by acting on the visceral motor centres; its effect on pulse and respiration being due to its action on the Pneumo-Gastric nerves. Dr. Acland (Brit. Med. Journ. Mar. 6, 81) says that the lowering of the temperature and diminution of pain are nearly coincident with a marked diminution in the excretion of Nitrogen in the form of urea. He does not state that as cause and effect, however.

The above explanations of the effects produced. 

The above explanations of the effects produced.
Salieglie Acid in Rheumatism. an hand on the knowledge of
its physiological action. Beyond this however, several doctors
(Chesbign, Buchanan, Raritan, &c.) hold that a specific action is
produced, and that this is to nearly if not quite the same
extent as that of Quinine in Ague is I think abundantly proved.

For we have shown in Quinine and Salieglie two potent
antipyretics, the most useful known in Ague and Rheumatism
respectively; but these are not interchangeable, Salieglie being of very
indifferent value in Ague (Ringer p. 576 says it sometimes
appears beneficial) and Quinine of no special worth in Rheuma-
tism. This appears to show that a specific effect is produced
by each of these drugs upon the disease for which it is specially
serviceable. Two separate hypotheses as to what this action
may be are given by those holding different views of the Nature of
the disease. (a) On the one hand Arber (op. cit. p. 277) states it is supposed
that some morbid material is generated by
and within the body; (b) and on the other Thorne says
upon Rheumatism as depending almost entirely upon external
circumstances and as being propounded a morbid disease.

(a) Dr. Stressen (dies O. 20. 179) apparently holds the former
view and considers that Salieglie Acid acts as an Antiseptical
It states that on foods in 20,000 will prevent the hæmatie fluids
from fermenting; and he considers that the Lactic Acid fermentation
is also prevented by Salieglie Acid which he says is liberated from
the Soda in the blood "exactly where the fermentation peculiar
To Rheumatism can be stopped at its origin", the Acid character
of the preparation being acquired, he says, quite at the skin, and the
acid products of muscular tissue within the muscle. The
disease poison being, as he says, thus neutralized, time is allowed
for its elimination.

(b) Thorneycroft (Brit. Med. Jour. Oct. 28, 80) believes that
"Acute Articular Rheumatism is an infective disease, which, like
"intermittent-fever, belongs to the diseases of low lands," and
states that "causes of Rheumatism diminish in proportion to the
"height above the level of the sea, and increase in proportion as
"this is approached." He regards the "good effects of Saline, as
"confirmatory of his idea that Rheumatism is an infective,
"(malarious) disease." Now this appears to be proved to depend on the microphages of Malarious soils, which is capable
of separate cultivation in an indigestible fluid which then
becomes changed with the poison and is capable of producing
malaria when inoculated subcutaneously into rabbits (Note by Mr.
20. 1879). I am not aware of any analogous experiments
as to the cause of Rheumatism — Senator, however, (op. cit.
p. 21) says that Hooke "has recently hinted in general terms
"at this possibility that while the body is heated and the superficial
"vessels dilated, the monads (microcerci) present in the atmosphere
"may find a more easy entrance into the organism, and that
"many cases of "chill" may be thus accounted for. This is of
course a mere hypothesis, but one which, at all events as far as the
presence of germs said, may be regarded as a natural inference by those who hold the malarial theory of Rheumatism and accept the validity of the experiments showing that the malarial poison in a certain state of germs. The exact method of their entrance into the body as described by Hectar may remain an open question till the fact of their entrance is proved.

Now if “germs” have anything to do with the production of Rheumatism the beneficial effect of Salicylate might be accounted for by the antiseptic power of the acid, in which Thorense appears to allude. Polloki without giving a decided opinion on the subject says that if this be the case the acid must be the active principle, the salt having but—small antiseptic power.

Salicylate acid however has very great antiseptic virtues. When making some experiments with disinfectants I found that one grain of the acid added to 8 drams of fresh urine in an open glass kept it perfectly clear and free from organisms for many 2 months (Jan. 27—May 21). Dr. Moore states that when added to Diphtheritic urine in the proportion of 1 in 59 and left for 5 months the bacteria were found lying dead at the bottom.

The proof of the antiseptic action of Salicylate acid out of the body is perfectly clear. It has however been said that it cannot exert this action within the body. On this point the following experiment by Dr. Moore detailed in the article quoted is of great interest:—Two persons were vaccinated from the same gall of lymph, the one having two grain Salicylate Acid (one grain 3 times
a day for two days beforehand and continuing the Acid in 2 grain doses 3 times a day for the next week, 2 until 3 days after the time for the vehicle maturing. The Vaccination ran a normal course in the person who took no Salicylic but took no effect on the one who had taken it. Some days were now allowed to elapse until the last trace of Salicylic Acid had disappeared from the urine. The Vaccination was then repeated the lymph used being the remainder of that in the original quilt. No Salicylic was given, and a normal vehicle resulted.

The experiment being only tried once requires confirmation but it opens up a most interesting field for investigation, and it appears to afford the realization of the dream of many an ancient epidemiologist. In connection with the present subject it is chiefly interesting as indicating (if proved) the power of Salicylic Acid to prevent the system against the effects of certain poisons of an organic nature introduced in without. — As may also be noted the Finger states that Weber has found Salicylate of Great Value in Septicemia &purperal Cases, the Morbid Conditions in which would (to quote Dr. Angus Macdonald's able resume on the Subject in the British Medical Journal of Nov. 13, 80) appear to be "dependent on the action of certain microbes".

These observations have all more or less connection with the question of the aseptic action of Salicylic Acid in Rhumatism - if this action however we have no certain proof
The somewhat analogous "Anti-ferrum" theory, sketched by Dr. Squirre is not necessarily antagonistic to but may be included in the Antiseptic theory; for the microcosm the presence of which is assumed by the supporters of the Malariæ Theory may be the Cause of the Leucine Acid fermentation which is held by the other side to be the immediate cause of Acute Rheumatism. — The theories of the Specific Action of Salicylic Acid have given rise highly interesting but the evidence is insufficient to warrant us in arriving at any positive conclusion.

We have thus seen whose Rheumatic Fever is treated by Salicylates:

(1) That the duration of the Acute Stage under Treatment is shortened to 3 or 4 days, being only about half what it was under the antiseptic treatment which has hitherto been considered the best for in other cases wholly unattended or in cases of the disease so mild as to yield the best results; and that the Total Duration of the disease has been almost reduced.

(2) That the tendency to Simple Complication is lessened, so far as we can judge, more than by any other mode of treatment and that if treatment be begun sufficiently early the risk of that occurrence is reduced to a minimum.

(3) That where adequate precautions are taken Relapse occurs but seldom.

(4) That Convalescence has been proved by the great majority of the cases published to be rapid and satisfactory.

(5) That the best results, however, are only to be obtained by giving rapidly satiating diet with frequently repeated small doses which must be pushed to the extent of producing salience unless marked benefit quickly result from their use; and that the
patient must be closely watched for several days after temperature has
turned normal, Salicylate being resumed at once if temperature rises
or pain returns.

I have only further to add that the value of tabulated
series of cases is greatly enhanced if fixed standards of comparison
be adopted in arranging them. The difficulty of adequately comparing
them otherwise will be seen by a glance at the table on page 87 where
I have endeavored to show the results obtained by various observers.
It will be seen by this table that not one of the points named was
attained to by any observer.

I beg to suggest the following points as being most worthy
of note:

1. When Pain is materially reduced
2. When Pain is Gone
3. When Temperature is Normal
4. The length of Acute Stage under treatment (the acute
stage being considered over when temperature is normal
and pain gone)
5. The length of Acute Stage before treatment; which added
to the length under treatment gives the Total Duration.
6. The number of cases from same affection whose
    treatment was begun, and the percentage of those who
    remained so throughout.
7. Mortality.

As minor, if important, points should be added Age, Sex,
Number of Attacks, Amount of drug taken and a Classification
of Cases according to temperature; also to which circumstances amounted
with which period the fever ceases, and the length of Convalescence.
It is further of importance when severe toxic results
have followed the use of Salicylates to note the manner of their
incidence and passing off, the amount of the drug previously

Latin, and whether it was stopped on the first appearance of
inflammation. The danger of bacic attacks is I believe almost nil
when the drug is given in small and frequent doses and when
the precaution of stopping it at once on the occurrence of
"Similitus Aureum" has been carried out.

The present paper has been limited to the consideration of the
results produced by Saliplata in Articular Rheumatism with
abnormal temperature. I consider it chiefly serviceable in Recent
acute attacks affecting the larger joints. In Subacute cases with
but slight elevation of temperature the effects are equally good
when the larger joints are chiefly affected. It is here serviceable in the
"aggravated" type of the disease which frequently occurs in those who have
had several previous attacks where the smaller joints are more
often greatly affected Saliplata frequently affected and attacks more frequent. Such cases have
not infrequently a gouty complication and the addition of Indol
of Pernio and Colchicum to the Saliplata is beneficial.

In Chronic Articular Rheumatism its effects are less marked.

Muscular Rheumatism is a distinct disease, in which I
shall only state in passing that Saliplata appeared at times highly
beneficial, but its action is uncertain, and my experience would
lead me to suppose that it depends somewhat on family
constitution.
Part V. - Cases.

Case I.

Miss B. drummell, had an attack of Rheumatic fever some time ago which left organic disease of the heart as indicated by a permanent mitral syphilitic murmur.

April 10, 1876. I was called in to see her and found her suffering from Bronchitis, with diarrhoea and pains in the limbs the result of a severe cold. The temperature (9 P.M.) was 101° F. Ordered Cough mixture de.

Ap. 11. She has a decided attack of Acute Arterial Rheumatism with pain in several joints. The Cough mixture was stopped, some pills (Spleen and Squill) being ordered instead. To be taken if required, also the following mixture:

$F$ Saliene $f$, Glycerin $s$, Ag, ad $\frac{3}{4}$ $sp$. 3 parts every 3 hours.

On Ap. 12th the mixture was repeated; on April 13th she was going on well; and on April 14th the Rheumatism had gone and did not return. Ordered a tonic with Sulfur and Acid.

Case II.

Mrs W., 3 years old, aged 3 years. April 2, 1876, she had a feverish attack with swelling and tenderness of limbs and ankles. Ordered 5 minims of Ferris $N$'s Fluid Extract of Jaborandi (Minium $=\frac{1}{8}$) every hour till sweating profusely. This soon produced copious perspiration.

Then ordered: $F$ Saliene $f$, Glycerin $f$, Ag, ad $\frac{3}{4}$ $sp$. 3 parts every 3 hours.

On April 3rd there was not much difference; on the 5th the mixture was repeated and two or three days after this the child was pretty well, and apparently free from pain.
Case III.

J. H. Farmer's son, aged 19, 3rd attack, coming on on July 17th, on the 5th day of Scarletina, the rash and throat symptoms having both begun to subside. He has severe Rheumatic pains in both wrists and hands which were becoming tender rendering him quite helpless. Ordered 10 gr. of Salsaparilla of Soda in water every hour. On the following day the pain was gone and did not return.

Case IV.

Mr. W. Butler, aged 44, 2nd attack. While on some scaffolding on June 13th was bruised by a heavy piece of wood falling against his side. At the same time he strained himself severely by trying to prevent the accident, the injury being about the line of junction of the 8th, 9th and 10th ribs on the left side with the cartilages. He remained at work until June 18th, when he found himself unable to get about, being helpless from pain over the ribs and in the small of the back. At 6 P.M. when I saw him for the first time his temperature was 101° F. and pulse 92. No sign of fractured ribs. Tongue white; Urine high colour. His last attack of Rheumatic fever was thirty years ago when he was 6 weeks ill. Ordered an Alkaline mixture with Morphine and Astra; some Pet. Spiritus. Co (Oxides) as bed-time and a liniment of (Acetate & Compound Camphor) to rub on the painful parts.

11 A.M. Temperature 101°; Pulse 84; Respiration 30.

The liniment has produced tingling in the back and the pain subsides.
easier but he has now pain and some numbness down the right thigh. Blood constringed. Ordered 2 ounces of Muriatic Acid at once, and to continue the treatment as before.

20th. 11 A.M. Temperature 102. Pulse 91. Bowels not acted. Pain and tenderness in right knee and ankle, the case being now one of well marked Acute Arthritis Rheumatica. Ordered some more laevica, after which he was to take the following mixture:

1/2 Salicylic Acids, 1/8 Hyoscine 1/4, Tinct. Co. 1/4, Sp. Chlor. 1/4, Ec. 1/2. Make one ounce Every 2 hours (or many 1/9 grains of Salicin for a day.)

6 P.M. Temperature 101.7, Pulse 98; bowels acted and he feels relieved in consequence but the Rheumatic pain continued as before.

21st. 11.15 A.M. Temperature 100.6, pulse 91. Having mistaken the directions he has only had two doses of medicine. He passed a restless night. There is pain in the right knee and ankle and redness and swelling of latter. Ordered mixture every 2 hours.

8.30 P.M. Pain much the same. Salicin in all 8 doses. Mixture repeated, and a grain of opium ordered at bed-time.

22nd. 10.30 A.M. Temperature 100.6; pulse 84. Pain much less but has attacked the other leg also, all the joints of both lower limbs being more or less affected, especially the ankles. He slept for 2 hours after the pill, but when he awoke was slightly delirious for a short time; bowels not acted since yesterday morning; urine clearer.

6.15 P.M. Temperature 101.0, pulse 89. Pain in lower limbs less, and he feels better altogether. The Carpo-metacarpal joint of the right hand is affected however. He has now taken 500 grs. of Salicin. A fresh mixture was ordered, each dose containing 30 grains of Salicin, to be taken every two hours. He was also ordered two aspirins.
pills (one grain of Calomel, and 1/4 of Comp. Chlor. Pil in each) and to have an opium pill if required.

29th. 10.30 A.M. Temperature 100.2; pulse 86. He had a grain of opium but passed a rather restless night; bounds acted twice. Pain gone except from right leg, and now afflicts only the three and outside of left leg and the right thumb, but is not severe anywhere.

8 P.M. Temperature 99.7; pulse 87. Bound have acted twice. He feels much better. There is still a dull ache in left kne and ankles. He has taken 240 grains of salicine in 8 doses since last night. Visit for you in all.

Mixtures repeated (30 grains every 2 hours).

30th. 11.30 A.M. Temperature 99.7; pulse 73, soft and compressible. He passed a good night and slept well. The pain is entirely gone and he is in a perfect perspiration. He was a little when I entered the room but immediately assuaged. He has considerable "sinister weird, with some headache. Cervix" and diarrhea, which he says he felt slightly yesterday. Today the diarrhea is so marked that he cannot as usual hear the tick of the clock on the mantel shelf. He lies in bed perfectly still with a rather dull and heavy depression combined with a sort of "far off" look. He hears sometimes emitted a rather loud voice, answers them intelligibly, and there is no symptom whatever of delirium or restlessness. Ordered the medicine every 3 hours and light nourishing food every hour (soups, milk, or milk with a little syrup in it).

9 P.M. Temperature 99.9; pulse 69. No pain and feels much better. Sinister and headache less severe. Has had 180 grains of salicine since last night.

25th. 10.45 A.M. Temperature 98.8; pulse 69. No pain.
The patient had taken 2 doses (60 grains) of salicylic acid on about 6 days. "Sensations" less, urine highly acid and of a rather higher colour than normal; S.G. 1.027. Has no appetite—ordered a bland tonic.

8:45 P.M. Temperature 97; pulse 72. Still improving.

26th 6:30 P.M. Pulse 69. No pain. Sensations and sleep much gone and he can hear the clock tick for the first time in the last three days.

27th 4:30 P.M. Temperature 97.8; pulse 72. Much better. Sitting up in bed and writing. Tongue cleaner, and he has enjoyed his food today. No return of pain which has now been gone for three days. His recovery after this date was steady and satisfactory.

Case V.

Miss J., aged 28, milliner. 1st attack.

July 5, 1876. 2 P.M. Was sitting up, dressed, her temperature being 99, and pulse 95. Was pain in the back and more or less all down the right arm with tenderness in the shoulder and elbow, and pain on moving the arm. She complains of feeling hot. The mines came on naturally two days ago. She has been on Wednesday accompanied at first by soreness in both legs. She was ordered to bed and to have 10 grains of Salicylic Acid in mixture with syrup and water every hour till 20 grains are taken after that every two hours.

10 P.M. Reported better; to take 15 grains every 2 hours.

6 A.M. 10:30 A.M. Temperature 97.3; pulse 75. Yesterday morning
The pain attacked the right knee which was very tender. During the night pain abated everywhere and she now feels altogether better. Tongue cleaner, and she does not feel so hot.

7th. Noon. Temperature 98.7; pulse 82. She has taken about 60 grains of the Acid. She is decidedly better, the pain being gone except in the shoulder. She has felt running in the throat since last night. Ordered to continue 15 grains of Salicylic Acid combined with 15 of bicarbonates of soda every 2 hours; and to have a liniment (Acornut 1; Camph. Co. 2 parts) for the shoulder.

10 P.M. Reported better; to take his medicine every 3 hours.

8th. 8 P.M. Sitting up. Pulse 100. No pain anywhere but the shoulder feels rather stiff and sore when moved. The pulse would still. Tongue rather cleaner, but appetite still bad. She has now had in all about 330 grains of Salicylic Acid. Since yesterday afternoon she has had great "tinnitus" and dyspnea. The addition of soda to the acid prevented the irritating effect on the throat. She was now ordered to stop the Salicylate and to have a bland tonic. There was no return of pain after this date.

Case VI.

C. M., aged 40, coachman, 39th attack. His previous illness was very protracted. The present illness began two days before he was seen, and he had had no sleep for two nights.

Nov. 28. 7:30 A.M. Temperature 100.1. Pain in left ankle and toes and intercostal muscles of right side. The knees and hips have been painful but are better now. Heart sounds normal; Voice Swell; is very depressed fearing another long attack.
Case VII.

This occurred in the same patient as the last—many a fortnight after I had last seen him. He had meanwhile considered himself quite well and returned to work; but after a drive on a very cold day, the pain returned.

Dec. 16, 76. 5 P.M. Temperature 99°.8. Considerable pain in
right—shoulder. To have the same mixture as before (10 grains morphia)

17th: Temperature normal; pain much relieved. Continue medicine.

18th: Pain gone; sitting up and walking well. He continued well after this date.

Two months later he was troubled with pain and tenderness over the right acromio-clavicular articulation not however sufficiently severe to make him stop work. I ordered a lotion of 2 draughts of gallic acid in an ounce of water to be rubbed into the painful part, a flannel soaked in the lotion to be then applied. The pain which had troubled him for some time was relieved in a day or two but showed a tendency to recur.

Case VIII.

Mr. G., aged 28; 2nd attack.

Jan. 19, 1877. His last attack was about over a year ago. For the past week or more he has been complaining of pains in the hip and ankle joints. He says his right knee was much swollen yesterday. He has pain now in the right shoulder and left wrist; heart sounds normal; temperature at 5 P.M. 100.6; pulse 108.

F. Fred. Salicyl 3 T., N.-colchici 3 T., R.-sod. 1/2 T., Ag. 1/2 T. S. 1/2 T. Ag. One ounce (1/4 f.) every hour until pain is relieved or half the mixture is taken, then every 2 or 3 hours as required. Also to have an opium pill at bed-time, and a chloral and morphia draught if needed.

As he lived at a great distance I was not to call again.
unless absolutely required. The subsequent progress of the case
was such that I could give from the message he sent which was that
the pain was much relieved the day after I saw him, and on
the day after that it had entirely gone.

His recovery was so satisfactory that within the next fortnight
he drove in an open carriage from the house of a friend with
whom he was staying when I saw him to his own house; a
distance of 16 miles over a very bad road, in about 3 hours driving.
This honours was rather too much for him and I heard on
Feb. 28th (18 days after I last saw him) that he had a return of
the Rheumatic pains. I did not see him at this time. He had
his former prescription repeated. The results I was told were the same
as before; relieved next day; and pain gone on the day after that.
On March 30th he again had a slight attack for which he took for
the same medicine; the result being as satisfactory as before.

Note.—Though only seen once on account of the great distance
his recovery was without all that could be wished. The attacks
on Feb. 3rd and Mar. 30th were not relapses but separate attacks
occurring after he had recovered.

Case IX.:​

Miss A., farmmaid, aged 19. 1st attack.

Feb. 23rd. She has been out of sorts since the 20th but has only
been bed today when I saw her for the first time. Her temperature
at 6 P.M. was 101°2; pulse 120. She was extremely restless all last
night. Both wrists and knees are now tender, especially the right
knee. Heart-sounds normal; tongue white. Ordered
11/2 grains of Salicylate every hour until relieved.

26th 10.25 a.m. Temperature 98.3° pulse 108. She took 1/2 dose of the medicine last night, and has had one this morning but has taken no dose since. Each time, thus averaging 1/2 grain in each dose. After second dose last night the pain was easier, and after the 1/2 dose, about 11 P.M. the pain was nearly gone and she had no nausea in the mouth. She fell asleep about midnight and slept quietly all night. Pain is now much relieved, pulvis being 2 or 3 hours not quite gone. To continue the mixture, and have 1/2 grain of Calomel and Subacetic pill at bed-time.

27th 12.15 P.M. Temperature 99.1° pulse 90. The right knee is still sore when pressed at the back of the joint; no other pain. No nausea or vomiting. Has taken 5 doses of Salicylate since yesterday's visit. To take it now only every 3 or 4 hours.

26th 24.30 P.M. Temperature 98.6° pulse 92. She vomited after supper last night, and again after breakfast, as well as after this midday. Sultimus yesterday and this morning, and some nausea today. No pain, or torments remaining. She slept well after midnight. Ordered to continue Salicylate in half doses.

27th 18.30 P.M. pulse 82. No tinnitus since yesterday morning. Taking no medicine since yesterday's visit for fear of nausea. Slight tenderness at back of right knee; also in right shoulder from bed clothes getting displaced during sleep.

28th Appears well and free from pain. Had no return.
Vince. Even since her last attack she has had a mitral regurgitated
murmur, and has been subject to frequent attacks of palpitation. The
heart action at present is tumultuous and can be heard 5 or 6
feet away from the bed; number of beats not noted; Occasional
Sickies — Ordered 112 grms of Salicylate hourly Combined with
Morphine and Digitalis; also in case of sickness occasioning dizziness
and teaspoonful doses of a mixture containing Morphine, Bismuth
and Gums of Orange.

April 8. Pain quite gone; pulse quick. The Salicylate mixture
was generally well retained on the stomach. — No return

__ Case XI __

J. D. aged 32 - policeman. Called at my house on April 19th.
He was in considerable pain in the right knee, especially over the
patella; his temperature at 2.30 P.M. being 101.3 — His first attack.
Ordered 112 grains of Salicylate hourly; a lead and opium somatoboli
to the joint, and to go to bed at once.

April 20. 7 P.M. Temperature 99.6. Knee worse; unable to stand.
21st. 11.30 a.m. Temperature 97.7. Pain in knee almost gone, and
ankle better. Continue mixture
22nd. 7 P.M. and ankle both well

Shortly after this he went on duty; but on May 6th he called
on me again complaining of pain in right knee which was swollen.
His former mixture was repeated, and he was ordered to bed.

May 6. 8 P.M. Temperature 99.2°; Much better; and swelling
almost gone. — He proceeded steadily and in a few
days was feeling well and able to return to duty.
Case XII

E. W. male, aged 19. Had rheumatic fever 15 months ago when he was 8 months in hospital.

May 18. Noon. Temperature 103.2; pulse 110. Complaint was acute; patient was seized with rheumatic pains the previous day. Slight fever. [Further text is not legible.]

19th. 1 P.M. Temperature 101.7; pulse 102. Bowels act in well. Pains better everywhere; almost gone from left elbow but has attacked the shoulder. Sways he slept most of the night. He has had 12 doses of Salicylate and is now sweating freely.

20th. 1 P.M. Temperature 100.24; pulse 81. He felt so well yesterday that he dressed and came downstairs. I found him not too subdued and sitting downstairs by the fire as he "felt dull" in bed. He has taken 8 more doses since yesterday's visit. Slept all night with no sweating. Ordered to bed, and to have his clothes put away. Continue medicine.

21st. 6.30 P.M. Temperature 101.24; pulse 72. He has slept well today. Pain still continues but not severely. 10 doses since yesterday's visit.

22nd. 1.30 P.M. Temperature 100.6; pulse 62. 10 doses since yesterday's visit;eluens altogether better and has pain only in right arm. Says he slept well; but others say he was noisy in the night, as of delirium. No symptoms of salurnine. Continue medicine.

23rd. 11.30 A.M. Temperature 98.3. Has ong shake and slight pain in right arm and shoulder.

24th. 5 P.M. Temperature 99.2; pulse 60. He sat up again last night without pain. He has however no pain left anywhere now. To have Calomel added to his mixture, and to take it every 2 hours.

25th. Noon. Temperature 99.2. No pain. Though pain was
From however it will be seen that Temperature had risen within the last two days since he began to get out of bed again; the other people in the house saying they could not prevent him. Still there was very reason to believe that he was convalescent. Unfortunately however the afternoons being bright, but with a cold east wind, he dinned and went out for several hours, bringing on a return of the symptoms.

26th 2.55 P.M. Temperature 102.2°; pulse 92. Some pain in right shoulder and elbow; pain also in left elbow and both hips and ankles. To receive medicine as before every hour.

27th 5. P.M. Temperature 101.9°; pulse 92. Satein 8 doses. Pain same in right shoulder and left knee; also less tendency in left shoulder and right knee and over sternum; heart sounds normal.

28th noon Temperature 102.2°; pulse 104. He has pain in almost every joint; flushed and sweating. Only taken 6 doses since yesterday's visit — no delirium.

6. P.M. Temperature 102.8°; pulse 90. Only taken 2 doses since noon. I gave him a double dose and ordered the medicine to be continued repeat every half hour until 8 P.M. At 9.30 I had a message that he was better.

29th 10.30 A.M. Temperature 100.7°; pulse 78. Much better but pain not gone. Says he had a noise "like a trian" in his head before bed-time. He slept well however and the "tricusits" is now gone.


30th 12.30 P.M. Temperature 99.4°; pulse 72. He has had 8 doses of medicine since 8 P.M.; passed a good night and has now got pain in the left shoulder only slight. Satein medicine every hour.

31st 11.20 A.M. Temperature 99.5°; pulse 72. Got up again without leave for 3 hours yesterday evening. He did not pass such a good night; pain much as yesterday. To take medicine every hour.
June 11 a.m. Temperature 99.2; pulse 72. passed a very restless
night. Pain continues in left shoulder, and has attacked right forefinger
which is swollen. Increase dose of Salicylate to 70t in 8 doses, or
nearly 1g y. doses.

2nd 3 p.m. 100%. Pain still in finger, and slight in shoulder
3rd. 5:20 p.m. 99%. No pain.

4th. Temperature 98.4 (hour not noted) no pain except slight giving

5th. Temperature 91.2; pulse 88. Pain in shoulders and knees, the
latter being swollen. Has neglected his medicine and only taken 8 doses in
the last 4 days.

6th. 1 p.m. Temperature 98.2; pulse 78. Pain and synovial
inflammation of left knee.

8th. Temperature 98.2. No pain; still slight swelling in knee.

11th. Has been better and able to sit up for the last 3 days. Swelling
continued in knee however. Went out with one limb today.

He had no return of acute symptoms but made a somewhat
slow recovery as was only to be expected.

Note. The case notwithstanding the many disadvantages owing
to the patient’s unwell condition shows forcibly the good effects of
Salicylate. Beginning on May 18 with a temperature of 103.2 and
pain so severe that he was almost crying, he was so far relieved by
the afternoon of the following day that he walked and came
downstairs (without loss). On the 23rd his temperature was
reduced to 98.3 pain being almost gone. He then assumed his
forbidden vines downstairs, and on the 25th went out for several
hours. Next day came a serious relapse with temperature of
102.2 and severe pain. Under Salicylate his temperature fell to
99.2 by the 30th pain being much less severe—again he improved
himself and neglected his medicine temperature rising to 101% on
June 6th. Medicine being resumed and given regularly, temperature fell
to 98.2 in two days, pain being gone. No further return of acute sympotms.
CASE XIII.

May 12. aged 24; first attack.

July 18th, 1877, 3 P.M. She has been ailing for 3 days and has had joint pains since yesterday but has only right bed today. Pain in both hips and toes, right wrist, and over the heart. Not keen anywhere and only felt strongly on motion or on taking a deep breath. There is a left typhoid murmur at the apex. Temperature 102.1; pulse 100. Tongue swollen. Ordered 11/2 grains of salicylate every hour.

9:30 P.M. Reported as being able to move her joints much more freely.

19th. 10:30 A.M. Temperature 99°; pulse 92. Slight pain in right wrist and left hip, only felt on moving the joints; no pain elsewhere; heart sounds normal. She has taken 12 doses (135 grs.) of salicylate and shepa came on in the night. She slept from 4 to 7 A.M. Ordered half an ounce of castor oil and to take her medicine only twice a day.

20th. 4 P.M. Temperature 99°, pulse 85. Tongue less. She has slight pain in right wrist and left hip. Heart sounds normal.

21st. Progressing favourably.

22nd. 1 P.M. Temperature 98.2; pulse 68. Pain gone except a little stiffness in right elbow and wrist if violently used. Tongue clean. Ordered a barley tonic.

23rd. She was going on favourably until last night when pain returned in the right wrist, elbow, and hip bone — not sufficiently severe however to prevent her sitting up today from 10 A.M. till 6 P.M. At 8 P.M. when I saw her her temperature was 99.5°, pulse 75. Ordered 11/2 grain doses of salicylate with half a dram of Compound of Papl and chronic after every dose.

On the 27th she had only slight stiffness past and by the 29th she was free from pain and able to sit up without further ill effects.

Note. - The brain appeared to be toxic, and was only heard once — this first time.
Case XIV.

W. W., labourer aged 32; 5th attack.

Oct. 9. 77. He has now been ill for 8 days, and since Oct. 5th he has been treated by calomel without apparent benefit. No sleep last night. 4.45 P.M. Temperature 103°; pulse 70; pain in left knee and right ankle; heart normal; tongue coated at the back. Ordered 15 grains of salicylate every hour and 5 grains of colchicin and heurana pill to be taken at once. The bowels being constipated confinement.

10 A.M. Had a message in the morning that after his 6th dose, about 12 P.M. he fell asleep perspiring and slept till 4; much better and 4.30 P.M. Temperature 99°; pulse 67. Pain so far relieved that he has got up. He has in fact no remains of pain except tenderness on pressure over the right ankle. Taken two pills which had not acted. Ordered back to bed strict to continue medicine (he has had 12 doses) and two more pills at bedtime.

11th, 4.45 P.M. Temperature 98°; pulse 68. Bowels acted freely. Pain gone; only slight soreness on pressure over dorsum of foot.

12th, 5.30 P.M. Temperature 100°; pulse 70. Had slight pain behind the left internal malleolus yesterday morning, the spot still remaining tender on pressure. Slept without complaint and no pain elsewhere. Bowels acted naturally, and he is perspiring freely; taken 360 grs.

13th, 5.15 P.M. Temperature 99°; pulse 60; sweating freely; no pain. Repeat mixture with half a dram of comp. tinct. of ipecac to each dose. 6 p.m. 2 hours. Has taken 250 grains of salicylate.

15th, 7.30 P.M. Temperature 98°; pulse 60; feels well, but weak. 16th, 6.30 P.M. Sitting up. No pain nor soreness. Joints still very stiff, and he has come cough. Ordered wine, Japonica for the joints and a cough mixture.

Note. In his case the anti-calomel was most needed after the 5th dose being decidedly injurious to the kidneys.

Salicylate
Case XV.

In same patient as the last case, L. still attacks. He had been feeling well
and on Oct. 23rd went out and got chilled.

Oct. 25th 77. 4 P.M.; temperature 99°.6; pulse 62. On elbow
is swollen hot and painful and he cannot move it - and the joints of the
fingers of his left hand are sore. Being anxious to compare the effects
of the alternate treatment with those of Salicylate I ordered him half
gram doses of Bicarbonate of Potash in mixture every hour for 3 hours,
after his eyes two hours.

26th. 3 P.M. Temperature 101; pulse 62. Passed a sleepless night.
Pain now lies more low down to joints of middle and ring fingers and
swollen. He has taken 3 doses of Potash.

5 P.M. Urine faintly alkaline; temperature 101.5; pain rather better. Continue
altabasi every hour till last time; then every 2 hours of avostra.

27th 10.25 A.M. Temperature 100.; pulse 60. Slight better last night.

Boules acted promptly after a dose of Senna. Pain less intense in elbow and
fingers, but has attacked left face.

5.30 P.M. Temperature 100.4; pulse 78. Pain still less intense; urine alkaline.

28th 10 A.M. Temperature 100.; pulse 70. Elbow much better, but
left face worse, and left ankle also affected. Urine thoroughly alkaline.

He has now taken the alkalosis in full doses for 3 days and they have failed
to give anything like the relief that Salicylate did in his former attack.

Ordered Salicylate; 1/2 gr. every hour.

5.15 P.M. Temperature 100. He had the Salicylate about 1 P.M. and was
greatly gratified by the change. He took two extra large doses (equal to
about 36 grains) and kept he is already better. He can bear pressure
on the face and he can move the limbs fairly though the ankles continued
tender and swollen.

29th 11 A.M. Temperature 99.1; pulse 60. Slight well last night.

Pain in finger. Elbows almost well; but little pain anywhere though...
At other joints remain tender. Slight "Similias". Ordered an aspirin and to continue Salicylate.

5.30 P.M. Temperature 99.7; pulse 66. Much the same; bowels not acted on.

"Similias" continues. Ordered Sepia and to take Salicylate only every 4 hours.

20th 11.30 A.M. Temperature 99.3; pulse 87. Bowels acted just and he slept well after 1 P.M. No "Similias". No pain except tenderness on pressure over left iliac and ring finger. Take Salicylate every 2 hours.

7.20 P.M. Temperature 99.2; pulse 60. Tenderness last; take Salicylate every 4 hours.


He had no further acute symptoms. The tenderness of the ring finger however continued and on Nov. 6 he was ordered a lotion of 2 drops of Salicylate in an ounce of water to be rubbed in and then applied on ring. This gave relief in a few hours; swelling subsiding and the joints being more flexible. He made a slow recovery his temperature remaining about 99 for 10 days or so.

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**Case XVI.**

J. E. Mawson labourer aged 17; first attack. Says he has felt out-of-work for 3 or 4 weeks but was able to be about until the evening of Dec. 10th when he came home feeling stuff and sore. For the next two days he remained in bed all the forenoon, only getting up for a short time in the evening. Joint affection became marked on the 12th.

Dec. 13. 77; 4.30 P.M. Temperature 103.1; pulse 102
Pain moderately severe in both abdomen and thighs, especially the right also in the loin so severely that he can scarcely bear the bed clothes to touch them. Skin dry and hard; tongue fairly clean. Slept very badly last night. Bowels acted yesterday and again this afternoon seven. No pain at the chest but a suspension muffled sound with the systolic impulse near the apex. Pulsus anemic look. Ordered 11 3/4 grains of salicylate every hour.

8.30 P.M. Temperature 100.8. Has taken 4 doses; feels much better. Appetite present.

11.30 P.M. Temperature 100.5; pulse 100. Has taken 10 doses of medicine (112 qts.). Pain is almost gone; he can avoid his arms about and bend his knees without pain. Sleep rather better last night, but not really well. No headache or tinnitus; tongue white; bowels not acted. No pain at chest; heart-sounds muffled.

8.20 P.M. Temperature 102.4; pulse 106; slight pain in left knee but better otherwise.

11.30 A.M. Sitting pillowed up in bed with an anxious look and complaining of great dyspnea, especially if he attempts to lie down. Temperature 101.6; pulse 108; weak; Respiration 26; no pain over the heart except on quick inspiration. Sorense cardiac dulness below nipple 4½ inches; heart-sounds muffled; no murmur. He says he has had rather better night; no pain now in any of the joints. No headache nor tinnitus. He has taken altogether 270 grains of salicylate - Ordered to continue it and to have large linseed poultics over the heart.

5 P.M. Much easier; lying almost flat in bed; temperature 101.2; pulse 93; Respiration 26. No pain anywhere except a slight-
"Catch" at his left side when he draws a deep breath. Heart not troubled.

8.30 P.M. Temperature 101.1; pulse 96; Respiration 22. No pain, nor coughing. Continue medicine every 2 hours and poultices.

16th. Noon. Temperature 99.7; pulse 80; Respiration 20.

He says he feels quite well; can lie down with comfort; and a quick, long inspiration gives no pain. Transverse Cardiac dulness 3 1/2 - 4 inches. Ordered buckwheat poultices containing one fourth mustard, and medicine every 2 hours.

8 P.M. Temperature 100.5. Bowels acted in afternoon; continues better.

17th. 11.30 A.M. Temperature 99.5; pulse 72

7.30 P.M. I was somewhat astonished to find him sitting up.

He feels "quite well" but the Cardiac dulness is the same as before, and the sounds continue muffled. Temperature 99.8. The bowels have acted 3 times today. Ordered buckwheat at once, and to continue the medicine every two hours.

18th. 5.30 P.M. Temperature 99.2; pulse 64; Cardiac dulness 3 inches; soft systolic murmur at apex.

19th. 11.30 A.M. Temperature 98.9; pulse 51

7.20 P.M. Temperature 99.2; pulse 58; Respiration 16.

20th. 12.30 P.M. Temperature 98.5; pulse 50; Systolic murmur still heard at apex; Transverse Cardiac dulness now under 3 inches. P. For. Common: 6r. 51. Sp. Chor. 51. F. (alum. 51)

Ag. a 71 114. Syr. 51 3 times a day. (She had taken 60 lbs. of Navelot.)

From this time he progressed steadily, and called to see me on Jan. 7th, having been able to sit out for the past week or ten days.

The heart-sounds and dulness were now normal; he appeared quite well and had no relapse.
Case xvii.

F. J., female aged 31, had been ill for 2 or 3 days with slight feverish symptoms, and laying pains all over the body; in shoulders, muscles of thigh, sides of face, &c., for which I had treated her with Antimonials.

Jan. 1. 1878 11 A.M. Temperature 101. Had pains in the foot yesterday, and in left shoulder this morning. Left vein hot and painful; right vein tender at the back, not hot.

Bouls not acted for some days. Ordered 3 drams of Castor oil at once and 5 grains of Salicylate every hour.

2nd. 11.25 A.M. Bouls began acting about 2 P.M. yesterday and acted 4 or 3 times today. Began the Salicylate at 3 P.M. and has taken 10 doses (50 grs.) Pain in the spine; temperature 99.5.

3rd. 5 P.M. Temperature 98.5; no pain. There was no return.

Case xviii.

S. P. came by, aged 15, called on me on Jan 3. 1878 complaining of pain through the limbs, bowels very defined, and general symptoms of cold. He was ordered Jaborandi.

Jan. 15. 78. Laid at home at 11. 30 A.M. Temperature 103.6.

Pulse 108. No vomiting since taking the Jaborandi. Bowels not acted

Nightly yesterday; tongue coated; ankles tender and painful. Ordered
5 grs. of Pe. Cal. et Strep. at once.

16th. 10.30 A.M. The pill did not act so he had some Mir. Jamaica
Co. last night and he bowels have acted 6 or 7 times. He has hardly

 Slept all night. Temperature 102.4; pulse 102. Severe pain in both
Fever and anulites yet greatly increased by movement or pressure
Ordred 9 3 grains of Saliyalki every hour.
5.30 P.M. Temperature 101.2; pulse 98. he has taken 6 doses and
been in much less pain since 2 o'clock. The bounds have acted very
shortly after 2nd dose of the Saliyalki. No ammeter. Continue medica
tion every hour for two hours; then every 2 hours.

17th. 10 A.M. Temperature 99.2; pulse 87 weak and
compresible. He has had in all 15 doses (140 grains) of Saliyalki.
Saliyalki set in immediately after Dr. Holmes's visit last night, and
continues soundly. He is very deaf. All night he was very restless and
delirious, constantly wishing to get up and go for a walk, and he
tells me that he has been for a walk this morning to a village two
miles distant. Pain is almost gone and he can toss his limbs about
freely; the only point now affected being the right arm which is slightly
tender. The bounds have not acted since 6 P.M. at which time
he also passed a small quantity of urine. Has been sick once this
morning.

Stop Saliyalki. Give hasty or coffee and
milk every quarter of an hour, and let him drink a cup of broth
and water.

2.30 P.M. Temperature 98; pulse 92; still delirious; no pain.
6. P.M. Saliyalki severe; pupils large but contracted to light. Jumps
out of bed at once if left alone.
9.30 P.M. Temperature 98.8; pulse 94; respirations 28. Delirium
still active; no urine passed at 7th.

18th. 10.30 A.M. He continued very restless till 4 A.M. when
he fell asleep, and is still sleeping quietly. Pulse (during sleep) 64, rather
weak. He passed urine freely last night but it was not retained for
analysis. There was constant delirium until he fell asleep. He is great
with was to return to work as he thought his employer's "books" would fall behind in his absence. A bundle of clothes lying in the room he chose for a baby and was much pleased by his mother's dressing it up for him to nurse; which he did with great care and attention frequently calling attention to the infant's good points.

5.25 P.M. Temperature 99; pulse 84. He is now asleep, and much more collected though some delusions remain. Complaints of headache; also timidity which he says is as bad as ever. Left side rather sore on motion, but not tender on pressure; no pain elsewhere. Passed urine freely today; bowels not acted since 6 P.M. on 16th.

17th 11 A.M. He continued slightly delirious till 10 P.M. when he fell asleep and passed a good night. His mind is now perfectly clear but timidity is not quite gone. No trace of Rheumatic pain anywhere.

Temperature 98.4; pulse 78. Passed water and bowels acted only this morning. Ordered a little tonic (Inca and Chronic Etna).

20th 11 A.M. Temperature 98.6; pulse 84; no pain; timidity gone; feels quite well.

22nd. No return of pain; feels well but weak. Continue tonic.

No return of the symptoms and he recovered quickly.

Note. This was the only case in which delirium was produced and it was due to the drug being continued regularly all night after "Timidity" had set in. The symptoms were nearly as severe as in some cases reported. Active delirium with delusions and illusions not unlike Delirium Tremens was the prominent feature. First the active delirium restlessness and jumping out of bed passed off, then the illusions and quiet delirium disappeared and finally the Drapery and Timidity.
Case XIX.

J. J. Carpenter's apprentice aged 19: fit & active.  
July 24th 1878, 12.30 p.m. He has been ill since the 1st. His temperature then was 100.8; pain in left knee and left ankles; tongue covered with a creamy fur; bowels confined. Ordered 10 gr. of salicylate every hour and an aperient pill to be taken at once.

8th 4.30 p.m. Temperature 99. Constant pain is gone but the left knee and ankle continue tender on pressure only.

6th. Not seen but reported better and pain gone. Ordered bore.

As he lived at some distance and we heard that the rheumatism had gone he was not seen again for some time. Meanwhile he continued weak.

14th 1 p.m. Was asked to see him as pain has returned. Temperature 100.8; pulse 116. He says he awakened in a perspiration in the night, feeling pain in right wrist which is now very tender. Tongue covered with ding-brown fur. Ordered an aperient pill at once and 10 gr. of salicylate every hour.

15th. Reported better.

No return of rheumatism; not seen again.

Case XX.

Mr. W. aged 38 had Rheumatic fever about 6 years ago when he was ill for 2 months. On Mar. 7. 78 he complained of cold and general lassitude all over, especially in the back, but was not confined to the house. Ordered a mixture with Aetia, Bismuthbile of Potash and Morphine, an aperient pill, and Chloroformium circinatum for the back.

Mar. 8 4 p.m. Seen at home. Bowels acted after 1 day.
and he has felt easier since. She has pain, but not very severe, in
right hip, and left knee and ankle; temperature 101.9; pulse 90.
Conjunctivitis yellowish, and he has a yellow tinge. Continue medicine.

9th. Noon. Temperature 102.1; pulse 102. Severe pain in
knees ankles and back; tongue more purplish. Ordered another
pill and 1 1/2 grains of Sallygale. Every hour till pain is relieved, or
sleeping in the bed comes on.

10th. 10.15 A.M. Temperature 100.7; pulse 90; the constant
pain is gone, but the joints continue tender on pressure. Took the
pill yesterday, and some castor oil a few hours afterwards. Bowels
acted only 3 times, the motions being dark and offensive. Has had
6 doses of Sallygale and about midnight began to purgative and slept
rather better. Tongue clean and moist. Continue medicine every
hour for 3 or 4 hours unless "stimulus" comes on before; then every
hour and a half or two hours.

11th. 11 A.M. Temperature 98.7; pulse 95. Slept well last
night. Bowels acted this morning; the motion being still dark and
offensive; tongue clean. Taken 7 doses of Sallygale since yesterday's
pill (or 12.3 grains altogether in the last two days). Pain is gone, only
slight tenderness on pressure remaining in the left heel. Ordered
Sallygale every 2 hours, with half a dram of Comp. Tinct. of Barbi
in each dose; also another opium pill at bed-time unless the bowels
act before then.

12th. 3.30 P.M. Temperature 99.9; pulse 70. Bowels acted
just twice after the pill. Tongue brownish and appetite bad. Pain red
Estado are gone. Allowed to sit up while his bed is made.

12th 11 A.M. Temperature 97.8°; pulse 62°. No return of pain and he felt so much better yesterday that he came downstairs without any bad result. Ordered an efficacious mixture with Tanagraum, Ringer, and Dijon.—— This mixture he continued for a week or so and I did not see him again.

On the 8th he sent to tell me that he had pain in his left hip and knee which had prevented his sleeping on the previous night. I did not see him but ordered his mixture to be repeated and heard afterwards that the pain speedily disappeared.

Case xx.

R. S. male aged 8; first attack

Mar. 11, '78, 6.30 P.M. Has been ill and complaining of pain in the joints since yesterday evening. Temperature 102.4°; pulse 120. Some pain in both knees and ankles, left shoulder and over heart. Rough systolic bruit louder at the apex. Tongue furred; bowels active fairly last night. Ordered 5 grains of salicylate in mixture every hour until pain is relieved, then every 2 hours.

12th 6. P.M. The medicine being only given in teaspoonful instead of tablespoonful doses until this morning when he noticed that he had been only eight full doses (30 grains) up to the present time. Temperature 100.8°; pulse 110; pain in legs rather less severe; left elbow and wrist affected; Cardiac bruit unchanged.

Conlin's Medicine
15th 5 P.M. Temperature 98°8; pulse 90. Has taken 15 grains (75 grains) in all. Pain gone from all the joints except the right knee which is still slightly affected. Cardiac beat much softer; tongue clearer. Continue Salicylate.

15th 6 P.M. Temperature 98.2; pulse 98. Has taken 15 grains (75 grains) in all. Pain entirely gone. She is slightly drowsy. Cardiac beat is if anything rougher than yesterday. Continue Salicylate every 3 hours.

15th 9.40 P.M. Temperature 98.2; pulse 86; no pain; breath unchanged. Ordered an iron tonic.

16th Temperature 98.3; pulse 86. Pector communism softer. Doubt not acted for 3 or 4 days. Ordered Castor oil.

She had no return of pain and made a rapid recovery but as he lived at some distance I had not an opportunity of examining the condition of the heart after he got better.

[Note.]

A typical case of Acute Rheumatic fever with heart complication within 24 hours of the onset of the disease, rapidly relieved; the acute stage under treatment being only 3 days — no relapse.

Case Xxvii

J. P. aged 12; 1st attack. Had been suffering from a cold with pain and stiffness in back and limbs. Since Jan. 23. The joints became more particularly affected on the 26th. Since which day he has had sleepless nights.

Mar. 30. 78, 11.30 A.M. Has only slept today.
Temperature 101.2; pulse 108. Pain and slight swelling in both
austere. The joints of the hands and fingers too are very painful and
much swollen, the fingers being especially affected; for while he can,
though with difficulty, bend the wrists, he cannot bend the fingers
at all without severe pain. No swelling; bowels regular; tongue
totally clean. Ordered 9.2 grains of salicylate every hour.
8.30 P.M. Temperature 100.2; pulse 106. Has taken 6 doses (577s.)
of salicylate. She began to perspire in the afternoon, and for the last
two hours or so has had "tinnitus". Pain he says has been quite gone
for 3 or 4 hours, though the joints are still tender on pressure.
He can shut his hands without pain. Ordered to omit the medicine
till 6 a.m., and then to take it every 3 hours; or to take a
dose before that time if pain should return and "tinnitus" subsides.
31st 11 a.m. Temperature 99.6. Slept well all night, and
has only had one dose of salicylate since last night's visit. Joints
tender and remains in right wrist; none elsewhere.
6 p.m. Temperature 100.5; pulse 90. No pain or tenderness any-
where. Tinnitus gone. Has taken no medicine since the morning
visit. Ordered to continue it every 3 or 4 hours.

April 1st. Temperature 98.9; pulse 86. Has taken 6
doses since last night; has slight tinnitus; no pain or tenderness
anywhere.

2nd. 3.30 p.m. Sitting up and feeling quite well.
Ordered an iron and camphor mixture.
He went out favourably after this and had no relapse.

Case XXII.

Miss E. W. aged 17. She had Rheumatic fever in infancy and
again last winter when she was frequently blistered and had neural
April 19. 78, 12. 20 P. M. Temperature 101.5; pulse 116.
Sore pain in right elbow and wrist; slighter pain in left elbow.
Murmur heard with 1st sound of the heart loudest at the apex; but there is no pain or other symptom indicating action Cardiac mischief, and the murmur is characteristic of old standing. Bowels acted yesterday from medicine; tongue fairly clean. Ordered 9.2 grains of Salicylate every hour.

20th. 11. 30 A. M. After the 8th dose of medicine the pain in the elbow subsided and perspiration profusely. She has now taken 8 doses (75 grains). Temperature 97.6; pulse 108; pain gone but the joints that were affected and also the shoulders are tender on pressure. Slight tinnitus, and sour perspiration. Cardiac bruit unaltered. Tongue clean; bowels only acted slightly last night. Ordered a Black draught at once; and Salicylate every 2 to 4 hours according to the severity of the pain.

21st. 3. 20 P. M. Temperature 99.6; pulse 108.
Bowels acted well. Has only taken two doses of Salicylate since yesterday. Pain and tenderness of joints quite gone.

She had no return of Phthisis after this date but progressed favourably, and at the end of some distance I have no further notes of her case.

Case XXIV.

W. W. aged 33, 1st attack (Nos. 5th and 16th are recorded as Cases 14 and 18). On Oct. 16th he got very wet in the rain. He was able to be out next day, but on Nov. 12th he remained in bed as the pain in the joints was so severe that he could not stand.
Oct. 19, 78, 10.30 A.M. Temperature 100.4°; pulse 67. Left ankle and great toe swolles red and very painful; skin dry; tongue thickly coated; bowels confined. Ordered a Plank draught at once to be followed by 9/2 grains of Salicylate every hour.

11th. 9.30 A.M. Temperature 100°; pulse 65. Bowels acted 3 times; tongue clearing at the edges. He took the Salicylate mixture regularly yesterday but evidently not in full doses, as the 8-grain mixture lasted till 11 A.M. He began to feel better about midnight; no sweating. Left ankle much less painful though still swollen; the great toe however is still very tender and the right one has become affected. Continue mixture.

7 P.M. Temperature 101°.2°; pulse 86. Limbs on left side; pain earlier.

15th. 9.30 A.M. Pain less severe but the ankles and toes are still slightly affected. The skin of the right great toe being red, swollen and shining. Temperature 99.2°; pulse 76. No tenderness; tongue somewhat furrowed on centre. Table medicine still every hour.

6.30 P.M. Temperature 101°.2°; pulse 76; pain chiefly confined to right side. The dose of Salicylate appears too small (hammer 7 1/2 gr., having been given instead of 11 1/2 as in his previous illness). Ordered 11 1/2 grains every hour.

16th. 11.25 A.M. Temperature 99.7°; pulse 70. Took the Salicylate regularly from 8 P.M. till 10 A.M. when slight tenderness set in and he fell asleep, perspiring from all night. He has taken no medicine since 10 A.M. Both pains continue tender to the touch. Tongue still furred. Table Salicylate every 2 hours.

8.20 P.M. Temperature 100.4°; pulse 70. Has had a good sleep in the morning. Feet; feels much better, and pain is all but gone.
17th 11 A.M. Temperature 99.6°; pulse 70. Her had 3 more doses of Salicylate; no pain, but right foot and great toe are tender on pressure. Take medicine every 2 hours.

6.45 P.M. Temperature 100.1°; pulse 70; bowls acted twice; tenderness as before.

18th 10.10 A.M. Temperature 99.3°; pulse 60. Had some pain in left ankle and side of foot early in the night. This is not gone but the joints are tender on pressure. To take medicine every hour.

6.30 P.M. Temperature 99.4°; pulse 60. Was had 5 doses this morning; no pain, but tenderness in both feet.


11.33 P.M. Temperature 39°; pulse 60. Pain in head gone; 2 hours.

1.18 P.M. Temperature 99.6°; pulse 60. Was taken two doses of the last medicine. He can stand on the right foot but the left is still tender. Altogether he feels better than he has felt at all.

20th 10 A.M. Temperature 99°; pulse 62; tenderness easterly.

21st Noon. Temperature 98.8°; pulse 64. Pain in left foot during night; but it is gone now.

22nd Temperature 98.6°; pulse 64. She has a little tenderness which is entirely confined to the tarso-metatarsal and phalangeal joints. The toes on both feet look shrivelled and are diaphanous. Ordered a bath and opium lotion for the foot. Continued better.

Note. A smaller than ordinary dose of Salicylate was used at first but with less effect. The usual dose was given two days afterwards. Laterly the case had a very good course. Salicylate was given up for Calomel and Sublimate of Potassium. The diaphanousness is regarded by Dr. Austin Flint (op. cit. p. 772) as diagnostic of faint.
Case XXV

The same patient as the last. 8th attack.

Nov. 9, '78  2:20 P.M.  Temperature 102.5; pulse 72; severe pain in right carpo-metacarpal joint, left thumb, and back. Tongue moist. Ordained 11/2 grs. of salicylate every hour.

10½ 7 P.M.  Temperature 101.6; pulse 90. Took medicine regularly till midnight when he began to perspire freely and the pain abated. He has only taken two doses of medicine since then. Pain much less.

11½ 10 A.M.  Temperature 99.5; pulse 70. Hand and wrist continue tender; pain scarcely at all so; one elbow affected. All the affected joints are rather swollen.

12½ 11 A.M.  Temperature 99.0; pulse 62. No pain.

1:30 P.M.  Temperature 99.6; pulse 72. Taken 270 grains.

13½ 5:30 P.M.  Temperature 99; pulse 60. Tenderness in hands and right elbow.

12½ 7:15 P.M.  Temperature 99; pulse 54. Tenderness still in some of the joints, especially the wrist.

15½ 7:30 P.M.  Temperature 98; pulse 58.

16½ 11:30 A.M.  Temperature 99; pulse 52. Metacarpophalangeal and first joint of index finger swollen and tender. He has taken over 1200 grains in all but only 130 within the last 12 days.

18½ 7:15 P.M.  Temperature 98.6; pulse 62. Tenderness still remains.

Note.  The attacks began very recently in a highly rheumatic subject. The pain was relieved within a few hours. The subsequent profuse sweating was tedious partly owing to his not taking the medicine so regularly once the severe pain had gone, and partly to the attack taking a subacute and gouty form like his last, and tending about the small joints.

Continued better after this date.
Case xxvi.

E. W., male, aged 36, 1st attack. He caught cold on Nov. 10, '78 when a railway bridge was carried away by a flood and he being a workman on the line had to work very hard with greater than ordinary exposure. The effects of this illness have hung about him ever since though he has never had to give up work. On Feb. 15, '79 he was seized with rheumatic pains and was kept bed ever since.

Feb. 18, '79 9 A.M. Temperature 100.4; pulse 84. Had an almost sleepless night. Both wrists and right ankle painful and swollen, several of the large joints also painful but to a less degree. Joints swelting; tongue coated; bowels confined.

Ordered 1/2 gr. of Salicylate every hour.

9 P.M. Temperature 100.2; pulse 90

19th 10 A.M. Temperature 99; pulse 90. No pain now in any of the joints though the shoulders are sore if moved. Has had 10 doses (180 grains) of Salicylate and now is prepared to sweat. Tongue coated; teedrums over the bowels which have not acted. Ordered a dose of Carbolic oil and all other medicine every 3 hours.

20th 4.50 P.M. Temperature 99.2; pulse 84. Bowels have acted; he is perspiring freely; slight looseness in shoulders wrists and hips.

21st 3 P.M. Temperature 99.2; pulse 70. Had sharp pain in the hips during the night. No pain now except slight looseness on motion in the right shoulder.

22nd 10.30 A.M. Temperature 98.7; Pulse 68. Slept well; no pain; some stiffness in right shoulder.
After this time he continued free from all acute symptoms but was weak and anemic, unable to get out and troubled with Subacute Rheumatic pains for which a Saliylate lotion was used. On March 2nd the pains became worse.

Mar. 3. 7 p.m. Temperature 101°. Pain in right shoulder and hand which are swollen and red; pain also in right side and right iliac. He has a cough which pains him. Ordered 18 grains of Saliylate every 2 hours till relieved.

4th. 8:45 p.m. Temperature 99.5°; pulse 80. Pain much less; some perspiration. Loud bruit heard with the stethoscope over the apex of the heart—no very rough; heart dulness normal; no pain over the heart.

5th. Improving; bruit less marked

6th. Temperature 98.5°; no pain; bruit gone. A somewhat muffled prolongation of the first sound remains over the apex.

7th. Improving rapidly. Has an attack of urticaria; bowel acting. Stop Saliylate and to have a Bland mixture.

10th. 9:30 a.m. Temperature 99°; pain in left hand and arm. Ordered 10 grs. of Saliylate every hour.

8th. P.M. Temperature 99°; pain greatly relieved

12th. Pain gone; discontinue Saliylate

13th. Evening temperature 100° with increase of pain. Ordered 8 grains of Saliylate every hour through the night; after that every 2 hours.

14th. Temperature normal; pain nearly gone. Ammonia added to the Saliylate mixture; to be taken every 3 hours.

15th. 12:20 p.m. Temperature 98.6°; pulse 72. No pain, but the finger continued tender. Ordered Iron and Subide of Potassium.
After this there were no further acute symptoms though he was troubled with subacute articular rheumatism and unfit for work for some months.

Note. A subacute attack coming on in a patient, debilitated by exposure and running a chronic course with great tendency to relapse. I did not see him during the height of the relapses and am indebted for the notes of the case to Dr. J. Ingeliss for who was my assistant at the time. The cardiac bruit heard on Mar. 29 was I think probably hemic. The temperature was only 99.5; pulse 80, and there was no pain over the heart, nor any other symptom to indicate heart mischief, while a hemic bruit was not improbable in a patient so debilitated and with such an adynamic type of the disease. Salicylate as usual relieved the joint symptoms rapidly and the relapses each time came on after it had been discontinued. The bruit was heard only on March 29 and 5th being gone on the 6th.

**Case XXVII**

A M. Domestic servant aged 13. was exposed to cold in the beginning of March 79 and was seen on March 30th. She was then feverish with pains all over her but not markedly even in the joints. Ordered an alkaline mixture with Lg. Ammoniae Aq. with which she continued for two days.

Mar. 5. 10.30 A.M. Temperature 101.3; pulse 115. Pain in both hands and ankles, so severe that she cries if they are moved at all.
Tongue evilt: bowels acted daily until today. Ordered 5 grains of Salicylate every hour.

8.40 P.M. Temperature 100.4°; pulse 96; pain much less now.

First sound of heart rather indistinct. Bowels have acted. She has “Sinusitis” and giddiness. Ordered to take the medicine every 2 hours through the night.

6th 9 A.M. Temperature 99.2°. Slept well, not awaking till 5 A.M. when she had her medicine. Pain and tendonness entirely gone but there is a slight amount of fluid in both knees. To take the Salicylate every 2 hours.

5.20 P.M. Temperature 98.9°; pulse 75°. No pain or tendonness in any of the joints, but they continue stiff and sore on motion. The bowels have acted several times. Sinusitis has continued more or less since last night. Stop Salicylate.

7th 11 A.M. Temperature 98°.

5. P.M. Temperature 97.8°. No pain or tendonness. Taken 3 doses of Salicylate today. Ordered to stop it and to have a Paris mixture.

There was no return of Sinusitis and she made a rapid recovery.