

On a successful method of treating acute rheumatism by large and frequent doses of bicarbonate and potash / by Alfred Baring Garrod.

Contributors

Garrod, Alfred Baring, 1819-1907.
Royal College of Surgeons of England

Publication/Creation

London : Printed by J.E. Adlard, 1855.

Persistent URL

<https://wellcomecollection.org/works/kexs5ezc>

Provider

Royal College of Surgeons

License and attribution

This material has been provided by This material has been provided by The Royal College of Surgeons of England. The original may be consulted at The Royal College of Surgeons of England. where the originals may be consulted. This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
<https://wellcomecollection.org>

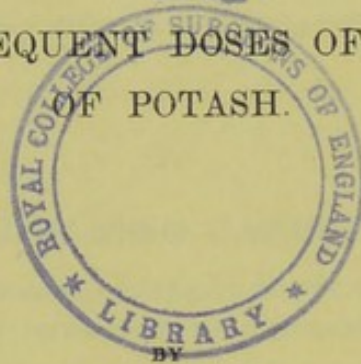
ON A

9

SUCCESSFUL METHOD OF TREATING
ACUTE RHEUMATISM



LARGE AND FREQUENT DOSES OF BICARBONATE
OF POTASH.



ALFRED BARING GARROD, M.D.,

PROFESSOR OF MATERIA MEDICA, THERAPEUTICS, AND CLINICAL MEDICINE,
AT UNIVERSITY COLLEGE;
PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL.

[*From Volume XXXVIII of the 'Medico-Chirurgical Transactions,'
published by the Royal Medical and Chirurgical Society of
London.*]

LONDON:

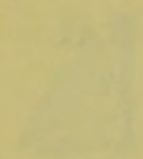
PRINTED BY

J. E. ADLARD, BARTHOLOMEW CLOSE.

1855.

PROGRESSIVE METHOD OF TREATING

ACUTE RHEUMATISM



LABOR AND THERAPEUTIC VALUE OF IODINATE



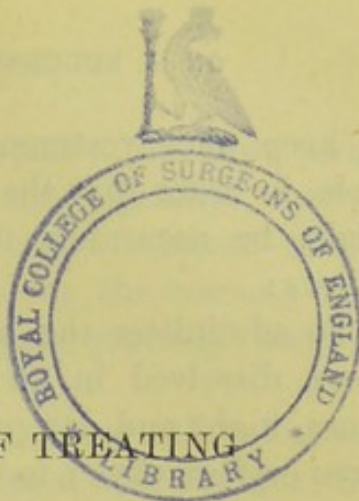
ALBERT HAYES CLARK, M.D.

PROFESSOR OF MEDICINE, HARVARD MEDICAL SCHOOL, BOSTON, MASS.

NEW YORK: THE CENTRAL BOOK CONCERN, 1910

1910

W. B. SAUNDERS COMPANY, PHILADELPHIA, PA.



ON A
SUCCESSFUL METHOD OF TREATING
ACUTE RHEUMATISM

BY

LARGE AND FREQUENT DOSES OF BICARBONATE OF POTASH.

BY

ALFRED BARING GARROD, M.D.,

PROFESSOR OF MATERIA MEDICA, THERAPEUTICS, AND CLINICAL MEDICINE,
AT UNIVERSITY COLLEGE; PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL.

Received Feb. 12th.—Read Feb. 13th, 1855.

FINDING that, although much had been attempted in improving the treatment of acute rheumatism, the disease, under the most approved plans, was still often very intractable, I was induced, about three years since, to seek some other method; and, from certain considerations, tried the one now to be detailed. The success attending my early trials appearing very great, I resolved to continue the use of it for a lengthened period, so as to arrive at some true estimate of its value; and the present communication contains the result of the treatment of 51 attacks of this disease, in 50 separate patients, admitted under my care in University College Hospital, from May, 1852, to January, 1855, a period of two years and three quarters. The patients were not selected, but the plan was adopted in all cases of the disease admitted into my wards. Every effort was made

to keep the treatment simple, as will be seen by the table, in order that the real influence of the drug employed might be accurately determined. My plan has been as follows :

To administer the bicarbonate of potash, in two scruple doses, dissolved in an ounce and half of water, every two hours, night and day, until the joint affection has ceased for three or four days ; in one or two cases, a drachm has been given every hour ; in two or three others, half-drachm doses, and occasionally three hours' intervals have elapsed.

Local depletion by leeching over the cardiac region has been employed when any endo- or peri-carditis has been present, and sometimes a very small depletion from the arm, rather for the purpose of obtaining blood for examination than for any therapeutic effects anticipated from it.

There is considerable difficulty in fixing exactly the date at which this disease may be said to have disappeared ; and doubtless, in the cases tabulated by many observers, cessation from pain has been taken as the indication. But a state of system may exist after the joints are free from active pain, and even without the presence of any cardiac affection, which requires but the smallest exciting cause to bring back the articular or heart affection in all its pristine intensity ; and patients in such a state, although free from pain at the time, cannot with any justice be considered rid of the disease. In my own cases, I have looked upon the following condition of the patient as indicating real freedom.

Absence of pain and any acute tenderness of the joints.

Freedom from any active cardiac affection.

Absence of marked thirst, with returning appetite ; and lastly,

No unusual rapidity or hardness of pulse.

The details of the following cases have been taken from my hospital case-books ; and I may state that until within the last month, I was quite ignorant of the numerical results which they would show, although fully aware that the plan had been very successful. My great object having been to obtain accurate results, every care was taken to

prevent deviations from the main plan; the few which occurred will be noted in the table, except, perhaps, that an *occasional* dose of an aperient, the senna mixture of the hospital, may have been administered by the nurses; this, however, was never done, except upon pressing occasion from prolonged constipation.

Among so many cases, complications from other diseases must necessarily have sometimes interfered with the duration and progress of the rheumatic affection; such complications have been also noticed.

As it would be almost impossible and unnecessary in a communication of this kind to give a full account of all the cases, I have selected three which have been detailed as far as necessary for our object, and have formed a table of the remainder, in which will be found the principal points of interest each patient's case exhibited, both before and during treatment, and the exact plan adopted.

CASE I.—Mary Cathie, æt. 10, admitted into University College Hospital, October 23rd, 1854; has lived in London two years, is at present at a school of refuge; has generally enjoyed good health, is not known to have any hereditary tendency to rheumatism.

On the morning of the 20th, when at school, felt much pain over dorsum of left foot, and soon afterwards was unable to stand upon it; had a warm bath, and some medicine, and went to bed; next morning attempted to get up, but had soon to return to bed, the affection extending to legs and thighs, and the next day (23rd) to hands, &c. For about a week this patient has had a little cough.

State on 24th.—Pulse 120; tongue furred in centre; bowels regular; skin hot, but without eruption of any kind. Both ankles and feet, hot, swollen, red and tender; left knee much swollen, hot, very painful, and somewhat red; right knee affected in a less degree; wrists better to-day. Respirations 40; some dry cough, and pain in left side; friction (pleuritic) heard about one inch below, and two inches to the left, of left nipple. Pain in side, increased by coughing.

Urine passed early in the morning, strongly acid, copious urate deposit; no albumen.

Commenced on the afternoon of the 23rd the following treatment:

R Potassæ Bicarbonatis, ℥j,
Aquæ, ℥j; ft. haustus.
To be taken every three hours.
Three leeches to left side.

To-day was ordered to repeat the medicine every two hours.

October 26th.—Pulse 110, rather hard; tongue furred, red at the tip; skin hot, no marked perspirations; bowels open yesterday. Knees and ankles much improved; complains most of left wrist, which is hot and swollen, and the dorsum of hand is red; little finger also affected; right wrist less painful than left. Cough troublesome; friction-sound heard over left side, but no pain in the side at present. Urine strongly alkaline.

28th.—Pulse 85, small and not hard; appetite returning, tongue but very slightly furred, no thirst.

Complains of no joint-affection, and can move limbs freely; cough much better; pleural friction still heard; urine strongly alkaline. To take the medicine four times a day only.

31st.—Continues free from all joint-affection, and seems quite well. Some friction still heard. To take medicine night and morning only.

This patient was afterwards ordered some infusion of columba with the ammonio-citrate of iron, as she was rather anæmiated, and in a few days discharged quite well.

It will be observed that the joint-affection and febrile symptoms in this case lasted only five days under the treatment, and that their total duration did not exceed eight days. The heart did not appear to be in any degree affected, and the only complication to the articular disease was the slight inflammation of the left pleura.

CASE II.—James St. George, æt. 20, born of English

parents, in the West Indies ; has lived in England nine years, occupation a barman ; has not enjoyed good health since he has lived in this country. Does not know that he inherits any predisposition to rheumatism, but he himself has had many attacks in which several of his joints have been swollen and red.

The present attack commenced on the 24th of October, in the shoulders ; the knees, ankles, and hands, have subsequently been affected.

State of patient on admission, November 1st, 1854.—Pulse 112, full and hard ; skin hot and perspiring very freely ; tongue furred, much thirst, no appetite ; bowels much confined. Left knee much swollen and tender ; also right wrist and both shoulders. Patient does not complain of chest, but heart's action is very violent. No increase of cardiac dulness ; loud systolic murmur of a sawing character heard at apex ; heard also at base, but not so loud. Pericardial friction sound over heart's region, some intercostal tenderness over the same parts ; was ordered to take directly a dose of house-medicine, to be cupped to four ounces over cardiac region, and the following medicine :

℞ Potassæ Bicarbonatis, ℥ij,
Aquæ, ꝥiiss ; ft. haustus.
To be taken every two hours.

November 2nd.—Joints of upper extremities worse ; pulse 120 ; bowels open ; pains much increased at night.

4th.—Chiefly complains of left wrist ; right wrist less affected : pulse 106 ; less friction-sound ; no intercostal tenderness. Endocardial murmurs less loud ; urine strongly alkaline.

7th.—Pulse 85, soft ; two fingers of left hand are now the only affected parts ; no thirst, returning appetite, tongue almost clean. Heart's action quick, friction scarcely heard, and murmurs much less intense ; urine strongly alkaline.

8th.—No joint affection ; pulse 80, soft. Appetite good ; patient feels well. To take the medicine every four hours in the day.

No further joint or cardiac affection ensued; and, in a few days, the patient, wishing to return to his employment, was ordered to take for a short time, decoction of bark, with half drachm doses of the bicarbonate three times a day. Endocardial murmurs were heard both at base and apex, with first sounds, probably he had some old heart affection from prior rheumatic attacks.

In this patient, the duration of disease before treatment was seven days; during treatment, not more than eight, making in all fifteen days. It will also be observed that the cardiac affection appeared to yield rapidly to the local depletion, combined with the administration of the bicarbonate of potash, and without the use of any mercurial.

CASE III.—Elizabeth Fisher, æt. 18, single; admitted November 19th, 1853; a servant by occupation; has always lived and clothed well. For the last nine years has been subject to acute rheumatism, during which time four distinct attacks have occurred previous to the present one.

Last week was exposed to cold from kneeling on cold stones; on the 15th inst. had pain in both ankles which caused her to keep her bed; after a day or two the knees were affected, and she was then admitted into the hospital.

19th.—Pulse 135, rather hard; tongue furred; appetite bad. Both knees swollen, hot, painful, and tender; immoveable; both ankles also affected, right most; shoulders rather tender. Was ordered the following medicine:

℞ Potassæ Bicarbon., ℥ij,
 Aquæ, ℥iiss; ft. haustus.
 To be taken every two hours.

20th.—Ankles and knees relieved; catamenia present; some tightness felt in chest; no friction over cardiac region, or endo-cardial murmurs. Twelve leeches ordered over heart.

21st.—Had a dose of house-medicine, as bowels had been &c., ned for some days. Shoulders more affected, also pain, confiof elbows and wrists, and some of the smaller joints of

hands. Knees and ankles much relieved. Joints much more painful at night. Pulse 120, full and hard; tongue furred; skin hot. Catamenia ceased in the night. Urine distinctly acid to-day, had not been before examined; to continue medicine each hour.

22d.—Pulse 108, less full and hard; thirst diminished; joints of lower extremities free from pain, those of upper less swollen and much relieved. No discomfort from the medicine. Urine alkaline. Catamenia returned.

24th.—Pulse 94, rather small; slept better; wrists moveable, but painful; shoulders still very tender.

26th.—Pulse 84, small, soft; tongue slightly furred; bowels open. Has taken the medicine every two hours since last night. Joints now free from pain, moveable; some tenderness of right wrist.

28th.—Quite free from any joint-affection. Pulse 72. To take medicine every four hours.

29th.—Pulse 72. Appetite pretty good.

December 3d.—Was ordered quinine, and in a few days Pulvis Ferri (fer reduct), there being some slight anæmia. Patient had no trace of rheumatism after this time.

In this case it will be remarked that the patient had been subject to acute attacks of rheumatism during nine years, and the duration of the joint-affection had never been less than a month on previous occasions; in two of them she had been in an hospital.

The duration of the disease from the time the potash treatment was commenced did not exceed eight or nine days, and the total duration from its first invasion twelve or thirteen days.

As the affection had been so severe and obstinate in all its previous visitations, I was induced to give the medicine in very frequent doses, and for two days two ounces of the bi-carbonate were taken each twenty-four hours, without the slightest uncomfortable symptom being produced.

TABLE OF CASES OF

Females

Name.	Date.	Age.	Occupation.	Hereditary Predisposition.	Number of Attacks.	Cause of.	History of present Attack before Plan of Treatment.
Eliz. Ash.	June, 1852.	40	Married, 9 children.	To rheumatism, none.	Third; first, 14 years since; second, some years after; both acute attacks.	Cold.	Commenced about 5 days since in ankles, gradually ascending to other joints, increasing in intensity up to time of treatment.
Jane Smith.	May, 1852.	35	Laundress.	None.	First.	Sudden alternations of heat and cold, also moisture.	About 5 days; first right instep, then knees and ankles.
S. Curtis.	July, 1852.	23	Servant.	None.	First.	Cold and wet feet.	About a fortnight not exactly given; first ankles, knees, loins were affected; had taken some opium, and also a chicum mixture, about 2 or 3 days.

RHEUMATIC FEVER.

Symptoms at commencement and during Treatment.	Symptoms referable to Heart.	Duration of Disease under Potash Treatment.	Total Duration of Attack.	Nature of Treatment.	State of Health afterwards.
<p>June 14th.—Both shoulders, wrists, hips, knees and ankles affected with swelling, redness, and much pain; pulse hard; tongue white furred; etc.</p> <p>After commencement of treatment had no fresh joint affection.</p> <p>15th.—Joints much improved.</p> <p>16th.—No swelling, but pain abated; tongue clean, with increasing appetite; pulse 80.</p> <p>17th.—Patient had some slight chronic pains of joints, to which he had been subject before.</p>	<p>No proof of recent affection; murmur with first sound both at base and apex; moderate action of heart.</p>	<p>Duration of inflammatory symptoms, not more than 6 days.</p>	<p>Joints inflamed, about 11 days.</p>	<p>June 14th.— VS. ad ζvj, Pot. Bicarb., ʒij, every 2 hours, dissolved in water (an ounce and half.)</p> <p>19th.— Pot. Bicarb., ʒij, ter in die, afterwards a quinine and acid mixture, and iodide of pot. for the chronic pains.</p>	<p>Good. Has chronic pains.</p>
<p>May 27th.—Right knee and ankle very tender and painful, with slighter affection of left knee; swelling of joints; pulse hard, not very full; tongue red, thick, and white; perspires much.</p> <p>28th.—No joint-affection, but complains of weakness.</p> <p>June 1st.—No joint-affection; tongue clean, appetite good.</p>	<p>No distinct affection; some murmur at base with first sound; no immoderate action.</p>	<p>2 days.</p>	<p>About 7 days.</p>	<p>May 27th.— Pot. Bicarb., ʒij, Aquaë, ζiss, 3 tis horis.</p> <p>29th.— Repeat Haust., ter in die.</p> <p>June 1st. Inf. Columba, ζj, Ammonia Sesqui. Carbon. gr. iv, ter in die.</p>	<p>Good. First sound of heart at base slightly murmurous.</p>
<p>July 4th.—Pain, swelling, and redness of hands, wrists, and ankles; also of hips, knees, and ankles; tongue furred, thirst, loss of appetite.</p> <p>5th.—Joints relieved, wrists not swollen, less thirst; tongue clean; pulse 80, not resisting, pretty full; perspires freely; no pain last night.</p> <p>6th.—Joints almost well; tongue clean. After this date no more were affected.</p>	<p>July 4th.— A soft blowing murmur at base, with first sound; no inordinate action of heart.</p>	<p>Not more than 3 or 4 days.</p>	<p>Between 3 and 4 weeks.</p>	<p>Pot. Bicarb., ʒij, Mist. Camph. ζiss, every 2 hours.</p>	<p>Good. Slight murmur heard at base, probably anæmic.</p>

Name.	Date.	Age.	Occupation.	Hereditary Predisposition.	Number of Attacks.	Cause of.	History of present before Plan of Treatment.
E. Webber.	July, 1852.	17	Servant.	Not stated.	First.	Cold and wet.	Had sore from cold; and the 13th, left was swollen, extended to other joints, treatment.
Jane Wray.	Oct. 1852.	12	—	Not stated.	First.	None known.	Oct. 2d. — swelling of left afterwards hand came affected, and remained so till mission.
E. Withey.	Oct. 1852.	26	Servant.	None.	First severe attack; appears to have had a slight one a few weeks before.	Cold at first.	About 5 days admission the der, elbow, and of right side, hand affected.
Reb. King.	Nov. 1852.	21	Servant.	None mentioned.	Second; first when 12 years old.	Cold.	Had a violent about 18 days previous, with tenderness of which became relieved; and ten since, left foot ankles, right wrist hand, afterwards became affected.

Symptoms at commencement and during Treatment.	Symptoms referable to Heart.	Duration of Disease under Potash Treatment.	Total Duration of Attack.	Nature of Treatment.	State of Health afterwards.
<p>7th.—Swelling, heat, and tenderness of left ankle and right knee, other joints less affected, pain in back; tongue much furred; great thirst, much perspiration; pulse 100, bowels confined.</p> <p>17th.—Joints somewhat relieved, no fresh joints affected.</p> <p>20th.—Knee and ankle quite relieved.</p>	<p>Some pain in left side; soft murmur with first sound at base and apex; murmur probably anæmic and pain hysterical, as found afterwards.</p>	4 days.	About 7 or 8 days.	<p>July 17th.—Pot. Bicarb., \mathfrak{Dij}, Mist. Camph. \mathfrak{ziss}, every 3 hours; pill and draught first for bowels; six leeches to cardiac region, afterwards some antispasmodics and tonics for hysteria.</p>	<p>Well, except a little hysterical; some venous murmur, as well as soft cardiac murmur.</p>
<p>Oct. 8th.—Both ankles and wrists, and dorsum of hands swollen and tender; thirst; pulse 100, full and sharp.</p> <p>12th.—All joints well; pulse 80, tongue clean, appetite returning.</p>	<p>Oct. 8th. Murmur, with first sound at base (blowing in character), and at apex a murmur of a much rougher kind; much palpitation.</p>	4 days.	10 days.	<p>Oct. 8th.—Pot. Bicarb., \mathfrak{zss}, Aquæ Menth. pip., \mathfrak{ziss}, every 3 hours. 10 leeches to cardiac region.</p>	<p>Somewhat anæmiated. Venous murmur in neck.</p>
<p>14th.—Right wrist and hand much inflamed; slighter affection of right ankle; pulse 96, rather hard; perspires freely; tongue furred.</p> <p>16th.—Joints less painful; pulse 78.</p> <p>19th.—Joints not affected; pulse 64, not resisting; no remission of joint-affection; somewhat stiffness; pulse 72.</p>	<p>None. Murmur heard at base (systolic) on evening of 13th, not heard on 14th.</p>	6 days.	11 days.	<p>13th.—Pot. Bicarb., \mathfrak{Dij}, Aquæ, \mathfrak{ziss}, every 2 hours.</p>	<p>Good.</p>
<p>Nov. 4th.—Left knee swollen, tender, and red; right shoulder and muscles of neck affected; pulse 108, full, rather hard; tongue furred; much thirst.</p> <p>5th.—Right wrist red and swollen, and several small joints of hands; pulse 120.</p> <p>8th.—Joints easier; pulse 110.</p> <p>9th.—Pulse 100; joints much relieved, none swollen; skin dried; much less thirst.</p> <p>13th.—No tenderness of joints; pulse 80; no thirst; appetite returning.</p>	<p>Blowing murmur at base, with first sound, which soon became much diminished.</p>	About 8 days.	18 days.	<p>Nov. 4th.—Pot. Bicarb., \mathfrak{Dij}, Mist. Camph. \mathfrak{ziss}, every 3 hours.</p> <p>6th.—Every 2 hours.</p> <p>11th.—3 times a day.</p> <p>14th.—6 leeches to cardiac region; 4 oz. of blood from arm. One dose of house-medicine.</p>	<p>Good.</p>

Name.	Date.	Age.	Occupation.	Hereditary Predisposition.	Number of Attacks.	Cause of.	History of present before Plan of Treat
Catherine Lockyer.	Nov. 1852.	25	Laundress.	None to rheumatism.	First.	Cold and damp.	A week since knees, hips, and ankles and afterwards some joints in upper extremities became affected. Had been much exposed, in a cold room, to the steam of wet linen.
Sarah Southcott.	Nov., 1852.	26	Married.	None to rheumatism.	First.	Debility from inflamed breast, and afterwards cold from washing.	23 days before pain and swelling in knees, ankles, and then elbows, hands and shoulders became affected; upper extremities becoming little more affected.
Amelia Ransom.	Dec., 1852.	25	Servant.	—	Second; first occurred 9 years since.	Cold and wet feet.	Dec. 5th.—Left hand became affected, and afterwards right hand, knees and feet.
Eliz. Fisher.	Nov., 1853.	18	Servant.	Rheumatism from mother.	Fifth; first when 9 years old; last about 4 months since.	Cold and wet.	Four days since ankles became affected, then knees, &c. Former attacks always lasted from a month to five weeks, sometimes treated in hospital.

Symptoms at commencement and during Treatment.	Symptoms referable to Heart.	Duration of Disease under Potash Treatment.	Total Duration of Attack.	Nature of Treatment.	State of Health afterwards.
<p>Nov. 30th.—Right ankle, knee, wrist, elbow, and shoulder swollen, hot, very painful, some oedema red; left knee, hip, and shoulder less affected; pulse 116; much thirst; skin hot, profusely perspiring.</p> <p>Dec. 4th.—Can move lower extremities, upper still painful.</p> <p>5th.—Joints free from pain, except some stiffness on movement; pulse 88.</p> <p>11th.—Only a little tenderness of right wrist; no further joint-affection.</p>	None.	About 10 or 11 days.	18 days.	<p>Nov. 30th.—Pot. Bicarb., ℥ij, Mist. Camph., ℥iiss, every 2 hours. Patient did not take this quantity, not more than ℥ss, by error; and the urine did not become alkaline for some days. Patient had much irritability of bladder when taking medicine.</p> <p>30th.—VS. ad ℥iij.</p>	Good.
<p>Nov. 29th.—All joints of left hand much affected, swollen, tender, red; right elbow and wrist less affected; both knees swollen; tenderness also of left wrist; pulse 108, full, hard; skin hot and moist.</p> <p>Dec. 2d.—All joints well; pulse 64, weak; appetite returned; no joint-affection from that date.</p>	None.	3 days.	26 days.	<p>Nov. 29th.—Pot. Bicarb., ℥ij, Mistura Camph., ℥iiss, every 3 hours. VS. ad ℥iij.</p>	Good.
<p>Dec. 9th.—Right elbow and wrist, left wrist and hand swollen and tender; knees and ankles likewise affected; erythematous eruption over skin of whole body; skin hot; thirst; pulse 108.</p> <p>11th.—Pulse 96; joints red, still very painful at night.</p> <p>14th.—Pulse 88; no swelling of joints since 12th.</p>	None.	4 days.	8 days.	<p>Dec. 9th.—Pot. Bicarb., ʒss, Aquæ, ℥iiss, 3 times a day. VS. ad ℥iij.</p>	About 9 or 10 days after last date, Dec. 14th, had typhoid fever, but left quite well.
<p>Nov. 19th.—Both knees and ankles swollen, hot, and tender; shoulders painful; pulse 135; tongue furred.</p> <p>21st.—Shoulders, elbows, wrists, and hands affected; joints of lower extremities much relieved; pulse 120, full and rapid.</p> <p>22d.—Joints much relieved; pulse 108.</p> <p>26th.—Joints almost well; pulse 84.</p> <p>28th.—Joints free; pulse 72.</p>	None. Some tightness in chest for a day or so; no murmur or friction.	8 or 9 days.	13 days.	<p>Nov. 19th.—Pot. Bicarb., ℥ij, Aquæ, ℥iiss, every 2 hours.</p> <p>21st.—Every hour.</p> <p>25th.—Every 2 hours, then every 4 hours; soon had a tonic and iron.</p>	Good. Slightly anæmic; to continue the iron.

Name.	Date.	Age.	Occupation.	Hereditary Predisposition.	Number of Attacks.	Cause of.	History of present illness before Plan of Treatment.
Eliza Wiggins.	Dec., 1853.	43	Married.	Rheumatism from father.	Second; first at the age of 16.	Cold and damp.	After a few days illness, on Dec. 1st, knees, hips, and arm became affected; on the 20th, the arm on the left side.
Eliz. Smith.	Dec., 1853.	27	Married.	Rheumatism from mother.	First.	Cold and damp.	Oct. 16th. -- knee became red; other joints likewise; subsequently affected.
Lousia Emberson.	March, 1853.	31	Married.	Rheumatism from father.	Third; first 6 years ago, which kept her in bed 5 weeks: second 3 months ago, lasting the same time.	Not stated.	Three weeks ago joints of arms and legs became affected; of right and left alternating.
Jane Shay.	Dec., 1852.	39	Married, 7 children.	Father had rheumatism.	First.	Exposure to cold and damp.	Three weeks ago after great exposure shivering and pain in feet, knees, hips; afterwards upper extremities.

Symptoms at commencement and during Treatment.	Symptoms referable to Heart.	Duration of Disease under Potash Treatment.	Total Duration of Attack.	Nature of Treatment.	State of Health afterwards.
<p>Dec. 21st.—Left hand and foot red, swollen, hot, and painful; shoulders swollen, and left side of head and neck; both ankles, wrists, and knees much affected; hands also painful; pulse 96, hard.</p> <p>24th.—Joints painful, but not swollen; some very slight jaundice; pulse 84.</p> <p>27th.—Left shoulder and second finger of hand only affected; pulse 84; yellowness diminishing.</p> <p>29th.—Joints only slightly painful, no fresh joint-affection.</p> <p>Dec. 23d.—Both ankles, knees, hips, shoulders, elbows, wrists, and dorsum of hands more or less tender, swollen, and red; swelling extends to the tip of fingers; no pitting; pulse 105, hard; much thirst; skin moist; pains much increased at night.</p> <p>26th.—Left wrist and knees very affected; pulse 95; less thirst; perspires freely.</p> <p>31st.—Joints not swollen and can be moved freely without pain.</p> <p>Jan. 3d.—Pulse 75; appetite good; joints remain quite well.</p> <p>March 22d.—Both knees and right ankle swollen; wrists and shoulders very painful; fingers of hand swollen; pains increased at night; pulse 96; thirst; tongue furred.</p> <p>25th.—Left knee still painful, and right wrist and shoulder; other joints very much relieved; pulse 96, small; no thirst.</p> <p>26th.—Scarcely any pain in joints.</p> <p>28th.—Free from joint affection. After this time patient recovered rapidly.</p> <p>Dec. 9th.—Pulse 100, hard; thirst; tongue furred; skin hot, moist; right wrist, hand, elbow, shoulder, and right knee swollen, very painful, and tender.</p> <p>11th.—Joints of right upper extremities relieved; yesterday left wrist became swollen, &c.; pulse 84, rather hard.</p> <p>14th.—Much relieved; pulse 80; less thirst; left wrist but little tender.</p> <p>16th.—Appetite returning; no joint-affection; after this time patient rapidly recovered; slight tenderness of left wrist remained for a few days.</p>	<p>Slight murmur, with first sound, at first.</p> <p>No cardiac affection.</p> <p>Slight murmur at base, with first sound, on admission.</p> <p>None.</p>	<p>9 days.</p> <p>8 days.</p> <p>6 days.</p> <p>7 days.</p>	<p>12 days.</p> <p>15 days.</p> <p>27 days.</p> <p>—</p>	<p>Dec. 21st.—Pot. Bicarb., ℥ij, Aquæ, ℥iiss, every 2 hours; VS. ad ℥iij; 2 or 3 doses of house-medicine, and for a few nights ½gr. of morphia.</p> <p>Dec. 23d.—Pot. Bicarb., ℥ij, Aquæ, ℥iiss, every 2 hours; VS. ad ℥iij. 29th.—V.S. ad ℥iij; for 1 or 2 nights, took ½gr. dose of morphia.</p> <p>March 22d.—Pot. Bicarb., ℥ij, Aquæ, ℥iiss, every 2 hours; VS. ad ℥iv.</p> <p>Dec. 9th.—Pot. Bicarb., ℥ss, Aquæ, ℥iiss, every 3 hours. 11th.—Draught to be taken every 2 hours. 16th.—Every 4 hours. 19th.—VS. ad ℥ij.</p>	<p>Good.</p> <p>Good. Slightly anæmiated, ordered to take iron.</p> <p>Good.</p> <p>Good.</p>

Name.	Date.	Age.	Occupation.	Hereditary Predisposition.	Number of Attacks.	Cause of.	History of present before Plan of Treatment.
Eliza Winn.	April, 1853.	34	Married, 5 children, last born a few months since.	None known.	First.	Not known. Had been unusually weak since last confinement.	About a week was laid up with joint-affection.
Hannah Keting.	May, 1853.	17	Servant.	None known.	Second; first 8 years since, has had short breath since that time.	Damp rooms.	Rheumatic twinges of a fortnight, three weeks' stage previous to that, bad cold and cough.
Mary Robinson.	May, 1854.	17	Nursemaid.	None to Rheumatism.	First.	Cold.	About 5 days before admission, shivering, ankles came swollen; she threw them into cold water three times, the hand soon became affected; afterwards wrist, elbow, shoulder. On the day of admission the arm became similarly affected.

Symptoms at commencement and during Treatment.	Symptoms referable to Heart.	Duration of Disease under Potash Treatment.	Total Duration of Attack.	Nature of Treatment.	State of Health afterwards.
<p>April 4th.—Left wrist, elbow, and shoulder very painful; on the inside these joints less affected; feet and ankles swollen and painful; much thirst, and perspiration; pulse 96.</p> <p>7th.—Joints of upper extremities much better; right knee still painful; ankles relieved.</p> <p>9th.—Appetite returning.</p> <p>12th.—No joint-affection after this period, and no further rheumatic symptoms.</p>	None.	8 days.	—	<p>For 4 days previous to April 4th, had taken a French depurative syrup, and was bled to ζiv; no relief, but fresh joints became affected.</p> <p>4th.—Potassæ Bicarb., \mathfrak{z}ij, Aquæ, ζiss, every 2 hours.</p> <p>12th.—Every 4 hours.</p>	Good.
<p>May 11th.—Wrists and right knee chiefly affected, but complaints of pain in all limbs; pulse 108; tongue furred; perspires freely; much thirst; pains increased at night.</p> <p>13th.—Pains in joints much diminished.</p> <p>14th.—Joints much improved; pulse 108.</p> <p>19th.—Pain and tenderness left ankle.</p> <p>26th.—Pain in right knee; slight swelling; no joint-affection after this date.</p>	On admission much friction-sound over cardiac region; afterwards increase of cardiac dulness.	12 days.	30 days.	<p>May 11th.—Pot. Bicarb., \mathfrak{z}ij, Aquæ, ζiss, every 2 hours.</p> <p>12th.—Increase Bicarb. to ζj.</p> <p>13th.—12 leeches to heart.</p> <p>17th.—Blister to cardiac region.</p> <p>24th.—Potassæ Iodid., gr. iij to be added to draught which was, or should have been taken three times a day on the 21st.</p> <p>The heart-affection was afterwards treated with calomel and digitalis.</p>	Good, except subject to palpitation, shortness of breath, &c., as before admission.
<p>May 16th.—Both ankles, hips, wrists, and dorsum of hands, were very much swollen, hot, and red; pulse 120, full and hard; tongue furred; much thirst; no appetite; skin hot, perspires much.</p> <p>18th.—Joints of right arm much affected; left, tolerably free from pain; right knee and ankle somewhat red; pulse 95, not hard.</p> <p>20th.—Joints still painful, but not swollen; pulse 65.</p> <p>23d.—Joints not swollen or tender, but left arm a little painful; tongue clean; appetite good; no subsequent joint-affection.</p>	<p>May 16th.—Rough murmur, with first sound at base; heart's action excited; some tightness and pain over cardiac region.</p> <p>23d.—Murmur at base softer, after a few days scarcely audible.</p>	7 days.	12 days.	<p>May 16th.—Pot. Bicarb., \mathfrak{z}ij, Aquæ, ζiss, every 2 hours; 12 leeches to cardiac region; VS. ad ζiv.</p> <p>18th.—Morphia, gr. $\frac{1}{4}$, at night and repeated for a few nights.</p>	Good.

Name.	Date.	Age.	Occupation.	Hereditary Predisposition.	Number of Attacks.	Cause of.	History of present before Plan of Treatment.
Mary Ann Meredith.	Sept., 1854.	16	Servant.	None to rheumatism.	First.	Cold and wet feet.	About 3 days before admission, side of ankles became swollen and painful afterwards, knees and some joints of extremity.
Han. Mack.	Oct., 1854.	40	Laundress, married.	Not stated.	First.	Cold and wet, when weak subsequent to some chest diseases.	About 4 days before admission, became swollen and painful, which obliged her to lay up.
Mary Cathie.	Oct., 1854.	10	Child at school.	Not known.	First.	None given.	3 days before admission, had pain in left foot, was unable to stand, the day extended to joints in a day or so.
Mary Bruce.	Nov., 1854.	19	Servant.	None to rheumatism.	First.	None known.	About a week before admission, obliged to lay up with pain and swelling of ankles and feet; fortnight before some pains in parts.

Symptoms at commencement and during Treatment.	Symptoms referable to Heart.	Duration of Disease under Potash Treatment.	Total Duration of Attack.	Nature of Treatment.	State of Health afterwards.
<p>Sept. 28th.—Ankles, knees, right hip, some small joints of right hand, elbows, and right shoulder very painful and hot, some swollen and red; pulse 98, sharp; skin very hot; tongue furred; much thirst.</p> <p>30th.—Ankles tender, other joints much relieved; pulse 80.</p> <p>Oct. 2.—Left hip became affected; other joints much relieved.</p> <p>4th.—No joint-affection; pulse 65; tongue clean; skin cool.</p> <p>Oct. 10th.—Both shoulders, left elbow and wrist, and both knees affected; left knee much swollen; tongue furred; much thirst; pulse 112, hard.</p> <p>12th.—All joints well, except knees; pulse 78.</p> <p>14th.—No joint affection; pulse, 60.</p> <p>Oct. 23d.—Both ankles and left hand hot, swollen, tender, and painful; both knees similarly affected, left most; wrists painful; pulse 120; tongue furred.</p> <p>26th.—Knees and ankles much improved, and moveable; left wrist, back of hand, and little finger most painful, also swollen; right wrist so; pulse 110.</p> <p>28th.—No joint-affection; pulse 85; no thirst.</p> <p>Nov. 7th.—All the large joints of the body, and several small joints of each hand, very painful, tender, hot, and immoveable; pulse 125; skin hot; tongue furred.</p> <p>9th.—Joints improving, especially those of upper extremities.</p> <p>11th.—Joints free from pain and moveable; still tender on deep pressure; pulse 72, easily excited.</p> <p>12th.—No joint-affection, not even tender on pressure; pulse, 60, quiet, 56.</p>	<p>Sept. 28th.—Murmur, with first sound at base; heart's action excited.</p> <p>None.</p> <p>No heart affection, but slight pleurisy on left side; distinct pleural friction lasting some days; cough.</p> <p>Nov. 7.—Loud friction at apex, extending upwards; no increased cardiac dulness.</p> <p>9th.—Cardiac dulness extends to upper border of second rib.</p> <p>12th.—No friction sound; no increased cardiac dulness.</p>	<p>6 days.</p> <p>4 days.</p> <p>5 days.</p> <p>5 days.</p>	<p>9 days.</p> <p>8 days.</p> <p>8 days.</p> <p>12 days.</p>	<p>Sept. 28th.—Pot. Bicarb., ℥ij, Aquæ, ℥iiss, every 2 hours; 12 leeches to cardiac region.</p> <p>Oct. 10th.—Pot. Bicarb., ℥ij, Aquæ, ℥iiss, every 2 hours. One dose of house-medicine.</p> <p>Oct. 23d.—Pot. Bicarb., ℥j, Aquæ, ℥j, every 3 hours, 24th, every 2 hours; 3 leeches to left side of chest.</p> <p>Nov. 7th.—Pot. Bicarb., ℥ij, Aquæ, ℥iiss, every 2 hours. A dose of house-medicine; 12 leeches to heart. 14th.—Another dose of house-medicine.</p>	<p>Good; slight murmur at base, and venous murmur at neck; was ordered iron.</p> <p>Good.</p> <p>Good.</p> <p>Good.</p>

Name.	Date.	Age.	Occupation.	Hereditary Predisposition.	Number of Attacks.	Cause of.	History of present before Plan of Treatment.
Bridget Kale.	Oct., 1854.	26	Washer-woman.	None to rheumatism.	First.	Cold and wet.	For several years has had some swelling of wrists and hands, then of right knee became painful just before mission.
Mary Kemshed.	Nov., 1854.	46	Cook.	None.	Second; first, 7 years ago, since which has been subject to pains in joints.	Cold and damp.	About a fortnight before, had painful swelling in ankles and other joints; did leave off work 10 days before admission.
Christiana Chapman.	Nov., 1854.	59	Needle-woman.	None known.	At 11 years of age had rheumatic fever, between which time and the present had at least eight distinct attacks, usually lasting a very long period.	Cold.	10 days previous had pain in the hands, shoulders, ankles, and most of neck became affected.

Symptoms at commencement and during Treatment.	Symptoms referable to Heart.	Duration of Disease under Potash Treatment.	Total Duration of Attack.	Nature of Treatment.	State of Health afterwards.
<p>Oct. 19th.—Both ankles and knees tender, right knee swollen, pains worse at night; pulse 5; thirst.</p> <p>21st.—Joints much relieved; metacarpal joint of one thumb very tender; pulse 60.</p> <p>24th.—Joints somewhat stiff.</p> <p>26th.—No joint-affection.</p>	None.	7 days.	?	<p>Oct. 19th.— Pot. Bicarb., ℥ij, Aquæ, ℥iiss, every 4 hours. Dose of house- medicine, and a dose of castor oil.</p>	Good.
<p>Nov. 14th.—Right shoulder, left wrist and hands, both hips, left knee and ankle considerably affected, many joints red and swollen, others less so; skin moist; pulse 120, rather hard; tongue furred; more pain at night.</p> <p>16th.—Left wrist less swollen, and other joints distinctly improved.</p> <p>21st.—Pulse 84; but little joint-affection.</p> <p>25th.—Free from joint-affection.</p> <p>27th.—Some slight return in left hand, lasting only a few hours; no further joint-affection; pulse 78.</p>	Systolic murmur at apex; no re-friction, probably this arose from old affection as patient had been subject to short breath before admission.	12 days.	26 days.	<p>Nov. 13th.— In evening commenced the following Potass. Bicarb., ℥ij, Aquæ, ℥iiss, every 2 hours.</p> <p>21st.— Every 4 hours in the day.</p> <p>27th.— Every 2 hours, continued for a short time (about one day), and then every 4 hours in the day till Dec. 2, when a tonic was given, the decoction of Cinchona with ℥ss of Bicarb. of Potassa.</p>	Good.
<p>Nov. 16th.—Left wrist and hand red and swollen, right hand less so, ankles and hips so painful, &c.; pulse 100, rather hard; tongue furred; skin moist.</p> <p>21st.—Pulse 85, not hard; joints much relieved, but stiff, especially left hand.</p> <p>25th.—Left hand and wrist still affected.</p> <p>28th.—No swelling of joints, but left wrist remained stiff and weak for some days; pulse 80.</p>	None.	12 days.	22 days.	<p>Nov. 15.— In evening commenced Pot. Bicarb., ℥ij, Aquæ, ℥iiss, every 2 hours, 25th.—Every 4 hours. A dose or two of house- medicine, and castor oil were given.</p>	Good.

Name.	Date.	Age.	Occupation.	Hereditary Predisposition.	Number of Attacks.	Cause of.	History of present before Plan of Treatment.
Eliza Quin.	Nov., 1854.	15	Servant.	None known.	Second ; first, 6 years since.	None given.	<p>During nearly months, she has suffered from pain in different parts ; she has been laid up about 3 weeks.</p> <p>On admission on 4th, the joints were so little affected that Camphor mixture only.</p> <p>On the 6th, her action became irregular and intermittent.</p> <p>On the 9th, pain in the left shoulder.</p>
Eliza Eck.	Feb., 1854.	43	Widow.	Father had some joint affection.	First. Patient has always been very weakly, especially within the last few years.	None assigned.	<p>About 9 days she had pain in legs and afterwards in knee and ankles came swollen and painful.</p> <p>On the 14th, she was treated with Camphor mixture for 2 days, without relief.</p>
Mary Goves.	Nov., 1852.	18	Servant.	None to rheumatism.	Second ; first about a year since.	None known.	<p>Four days previous had shivering, followed by inflammation in various joints of upper and lower extremities, with febrile symptoms.</p>

Symptoms at commencement and during Treatment.	Symptoms referable to Heart.	Duration of Disease under Potash Treatment.	Total Duration of Attack.	Nature of Treatment.	State of Health afterwards.
<p>Nov. 9.—Affection of left shoulder; tongue furred; pulse 95.</p> <p>11th.—Pain in shoulder removed.</p> <p>16th.—Remained free from pain till this morning; was exposed to cold last evening, and to-day feels both ankles and right wrist painful; pulse 96, hard; some thirst; tongue furred.</p> <p>18th.—Ankles still somewhat tender.</p> <p>21st.—No joint-affection.</p>	<p>Before commencement of treatment had occasional intermission of heart's action, and some systolic murmur at base which disappeared.</p>	11 days.	Doubtful.	<p>Nov. 9th.—Pot. Bicarb., ℥j, Aquæ, ʒvj, every 4 hours in the day.</p> <p>16th.—Pot. Bicarb., ʒss, Aquæ, ʒiiss, every 3 hours in the day only.</p> <p>On the 18th, it was ordered every 2 hours night and day, and to be continued till the 20th, when it was given night and morning only till the 25th.</p>	Good.
<p>Feb. 17th.—Both wrists and hands red and swollen, right shoulder painful, ankles and left knee less affected; pulse 108, rather hard, but small; tongue furred; much thirst.</p> <p>21st.—Wrists less swollen, right ankle and shoulder very painful; pulse 120, hard.</p> <p>25th.—Much improved; no pain in joints; right ankle swollen, but not red; pulse 95; perspires freely.</p> <p>28th.—No rheumatic affection of joints, and no return after this date.</p>	<p>Feb. 20th.—Pericarditis discovered, for which eight leeches were applied to region of heart; no amount of effusion took place, and no symptoms of heart affection over 25th.</p>	About 9 days.	18 days.	<p>Feb. 17th.—Pot. Bicarb., ℥ij, Aquæ, ʒiiss, every hour; ½ gr. of Morphia, night and morning. On account of purging from Colchicum did not commence medicine in full doses till evening of 18th.</p> <p>19th.—Medicine every 2 hours.</p> <p>21st.—Medicine every hour.</p> <p>25th.—Every 2 hours.</p> <p>28th.—Every 3 hours, after that, Decoction of Cinchona and Ammonia.</p>	<p>Patient had a bed-sore a few days after admission, which prolonged her stay in hospital. She left well.</p>
<p>Nov. 16th.—Ankles and knees affected, on right side, swollen; both wrists and back of hands red and swollen; many small joints also; pulse 134; skin hot; much perspiration; urine decidedly albuminous.</p> <p>20th.—No joint-affection, and for the last few days the heart-disease has been most prominent; pulse 96; continued to improve until the 27th, when he was exposed, almost un- covered, to the draught of a poor, an attack of acute pleurisy was induced, and for a day or two there was some pain in joints, which very soon passed off.</p>	<p>Nov. 16th.—Rough murmur at apex, with first sound; action excited.</p> <p>18th.—Friction sound over heart's region; breathing difficult.</p>	Joint-affection 5 days; appetite returning in about 8 or 9 days.	13 days.	<p>Nov. 15th.—Potas. Bicarb., ℥ij, Aquæ, ʒiiss, every 2 hours; 20 leeches to heart; the subsequent pleurisy was treated by means of leeches, a blister, tonics, with iron were afterwards given.</p>	Good, except evidence of the heart-affection.

Name.	Date.	Age.	Occupation.	Hereditary Predisposition.	Number of Attacks.	Cause of.	History of present Affection before Plan of Treatment.
Sus. Reeves.	Jan., 1855.	20	Servant.	Mother and sister have had - acute rheumatism.	Second; first 2 years since. Some heart-affection at that time.	None assigned.	Suffered from gonorrhœa before rheumatic attack, which commenced Dec. 1854, in loins & thighs, then knees &c., became affected.
Sarah Rayne.	Jan., 1855.	17	Servant.	None known.	Second; first about 3 years since, which lasted 6 weeks.	None assigned.	Commenced on the 9th, and on the 10th was unable to move (no treatment before admission;) at the left ankle, then the joints became affected.
Ann Clarke.	March, 1855.	30	Servant.	None known.	First attack.	Cold.	About 14 days since knees and hips became affected; kept at home although quite unable to do anything.

Symptoms at commencement and during Treatment.	Symptoms referable to Heart.	Duration of Disease under Potash Treatment.	Total Duration of Attack.	Nature of Treatment.	State of Health afterwards.
<p>Jan. 4th.—Knees and ankles hot, swollen; both wrists, some smaller joints of hands swollen, tender, all very painful; skin hot, moist; pulse 120, hard; (commenced treatment last night, and joints somewhat easier to-day.)</p> <p>6th.—Has been rather delirious since last night, this came on after the morphia; joints much relieved, and quite moveable; tongue much furred.</p> <p>7th.—Much improved, almost before the calomel was given; no delirium.</p> <p>9th.—Pulse 84, not hard; hands stiff; no gum-affection; no delirium.</p> <p>11th.—No joint-affection; pulse 84; tongue nearly clean.</p>	<p>Pain and tightness over cardiac region; friction at base; dulness in second interspace.</p> <p>Jan. 6th.—Cardiac dulness extends to first interspace; friction heard in second, near sternum.</p> <p>9th.—Cardiac dulness to second interspace.</p>	7 days.	11 days.	<p>Jan. 3d (evening) Pot. Bicarb., ℥ij, Aquæ, ℥iiss, 2nd hora; Hirudines, vj, regione cordis; Morphia Hydrochlor., gr. $\frac{1}{3}$, nocte sumend.</p> <p>6th.—Hirudines, xij, regione cordis; Calomel, gr. ij, 4tis horis. Continued the mixture up to Jan. 13th, every 2 hours; then every 4 hours in the day, for a few days.</p>	Good.
<p>Jan. 15th.—All the larger joints of body acutely affected, and many smaller ones, of both hands and feet, swollen, painful, very tender, and red; pulse 120, hard; tongue furred; skin hot and moist.</p> <p>17th.—Joints much relieved; pulse 105, less hard.</p> <p>20th.—Pulse 110, soft; left shoulder, wrist, and ankle affected; other joints pretty well; shoulder very painful.</p> <p>23d.—Pulse 95, soft; right shoulder only affected; tongue not slightly furred.</p> <p>27th.—Had tenderness of knees on 25th; at present free from joint-affection; right shoulder a little painful when moved much.</p> <p>No joint-affection after this date.</p>	<p>Jan. 15th.—Dulness of second interspace; friction at base, and systolic murmur at apex.</p> <p>23d.—Dulness between third interspace; friction heard at base, and murmur at apex. No cardiac dulness.</p>	12 days.	18 days.	<p>15th.—Pot. Bicarb., ℥ij, Aquæ, ℥iiss, every 2 hours.</p> <p>25th.—Took medicine regularly till 23d, when for 2 days only had it four times in the 24 hours.</p> <p>Repet. Haust. 2nd hor.</p>	Good.
<p>March 25th.—Knees swollen and red; both hips painful, also shoulders; skin hot; perspiration; much thirst; pulse 110, weak and jerking; (aortic reurgitant.)</p> <p>28th.—Much easier; heart's action quieter.</p>	<p>March 25th.—Loud murmur at base, with first sound, and a prolonged murmur with</p>	Of joint-affection, 9 days.	23 days.	<p>March 25th.—Pot. Bicarb., ℥ij, Aquæ, ℥iiss, every 2 hours; a dose of house-medicine; VS. ad ℥iij. Continued the</p>	Went to service; health pretty good, except heart-disease.

Name.	Date.	Age.	Occupation.	Hereditary Predisposition.	Number of Attacks.	Cause of.	History of present Attack before Plan of Treatment.
Jos. Rogers.	June, 1852.	47	Gardener.	Rheumatism from mother.	Second; first about a year ago, of several months' duration.	Cold and damp.	Pains in limbs and joints for 10 days; about 41 since knees, hands and shoulders became swollen, red, &c., which confined him to bed.
A. Hawkins.	May, 1852.	21	Servant.	Not given.	First.	Not given.	About 4 or 5 since left ankle and knee were much swollen, then the same joints of right and other joints afterwards.
C. Garlick.	Aug., 1852.	30	Carpenter	None to rheumatism.	First attack.	Not known.	Six days since joints of lower extremities became affected, then the upper joints.

Med.

Symptoms at commencement and during Treatment.	Symptoms referable to Heart.	Duration of Disease under Potash Treatment.	Total Duration of Attack.	Nature of Treatment.	State of Health afterwards.
<p>30th.—Knees and shoulder much easier, but wrists now affected; pulse 85.</p> <p>April 4th.—Pulse 68; wrists now well, and other joints also; can move them pretty freely.</p> <p>Patient after this date suffered from palpitation, &c., and was treated for the heart-disease.</p>	the second; some friction near the apex.			Potash till the joints had been free for some time.	
<p>June 29th.—Left hand and wrist much affected; also some joints of right hand swollen and tender; knees, hips, and shoulders painful and tender; pulse 108, full, hard; tongue furred; skin perspiring, with a pungent odour; great thirst.</p> <p>July 1st.—Pulse 72; both hands much relieved; other joints pretty free.</p> <p>6th.—Pulse 64, not hard; appetite good; joints pretty well, only stiff.</p> <p>From this date joints remained quite well.</p>	None.	7 days.	11 days.	June 29th.—Pot. Bicarb., ℥ij, Aquæ, ℥iiss, every 3 hours; a dose of house-medicine.	Good.
<p>May 22d.—Both ankles and knees much affected, red, swollen, and tender; shoulders very painful; pulse 96; (after several hours' treatment) patient febrile.</p> <p>25th.—Knees and ankles relieved; shoulders less painful; pulse 72; tongue much less furred; perspires freely.</p> <p>27th.—Joints nearly well.</p> <p>After this date no joint-affection.</p>	<p>May 23d.—Some murmur, with both sounds at base, and with first sound at apex.</p> <p>27th.—Murmurs much decreased at base, scarcely heard at apex.</p>	5 days.	10 days.	May 22d.—Pot. Bicarb., ℥ij, Aquæ, ℥iiss, every 2 hours; VS. ad ℥vj; 8 leeches over heart; a senna draught.	Good.
<p>Aug. 2d.—Both wrists swollen, red, and painful; both ankles and knees painful; pulse 100, full and sharp; tongue furred; skin perspiring with sudamina; much thirst.</p> <p>5th.—Wrists free from pain; left knee still slightly swollen.</p> <p>7th.—Joints well; no further joint-affection; patient remained a few days febrile, with sudamina.</p>	<p>Murmur with first sound at base.</p>	5 days.	11 days.	Aug. 2d.—Pot. Bicarb., ℥j, Aquæ, ℥iiss, every hour; VS. ad ℥iv; blood much buffed and cupped; Rhubarb draught.	Good; a little weak.

Name.	Date.	Age.	Occupation.	Hereditary Predisposition.	Number of Attacks.	Cause of.	History of present before Plan of Treatment.
John Kitchenside.	Nov., 1852.	35	Brick-maker.	None known to rheumatism.	Second; first 7 years since, which lasted about a month.	Cold and wet.	For about 2 months has had occasional pain and swelling of joints, which became better, and again returned on exposure to cold; for a week has been confined to bed.
James Aldridge.	Dec., 1852.	34	Cabman.	Not stated.	Second; first 8 years ago.	Cold and wet.	About 2 days of shivering; right knee became swollen; several other joints affected.
John Abbey.	May, 1853.	22	Butcher.	None to rheumatism.	First.	None assigned.	About 4 days before admission, had pain in back, then in the arms and legs, which compelled him to keep in bed, and rendered him incapable of movement.
Thomas Temple.	April, 1853.	16	Not stated.	Not stated.	Not stated.	Not stated.	Not given in hospital books; most joints affected some days before, and increasing in severity.

Symptoms at commencement and during Treatment.	Symptoms referable to Heart.	Duration of Disease under Potash Treatment.	Total Duration of Attack.	Nature of Treatment.	State of Health afterwards.
<p>Nov. 12th.—Both hands red and swollen, with some œdema; both knees swollen and tender; tongue furred; much thirst; pulse 88, full and hard; pains much worse at night.</p> <p>16th.—Joints not swollen; wrists and hands somewhat stiff; no thirst; pulse 56; no further joint-affection; pulse fell to 44 before omitting medicine.</p>	None.	4 days.	17 days. (?)	Nov. 12th.— Pot. Bicarb., ℥ij, Aquaë, ℥iiss, every 3 hours.	Good.
<p>Dec. 6th.—Both ankles and knees, both wrists and joints of fingers swollen and painful, some red; hips, elbows, and shoulders, tender and painful; pulse 108, hard; tongue furred; thirst; skin hot.</p> <p>11th.—Joints much relieved; pulse 96, softer; perspires freely.</p> <p>14th.—Pulse 76, not hard; can move joints pretty freely.</p> <p>16th.—No joint-affection; pulse 70.</p>	No cardiac symptoms.	9 days.	11 days.	Dec. 6th.— Pot. Bicarb., ℥ij, Aquaë, ℥iiss, every 2 hours. VS. ad ℥iij.	Good. Patient on 28th had slight swelling of hands, not pain- ful, which passed off rapidly underqui- nine and iron.
<p>May 2d.—Hands, elbows, shoulders, and knees affected.</p> <p>5th.—Joint-affection disappeared; appetite returning; pulse 72. No further joint-affection after this date.</p> <p>This patient was admitted during my temporary absence from hospital.</p>	No cardiac symptoms.	3 days.	7 days.	May 2d.— Pot. Bicarb., ℥ij, Aquaë, ℥iiss, every 2 hours. Patient took a pill and aperient draught before he commenced the treatment, and one powder (Pulv. Ipecac. c., gr. x).	Good.
<p>April 23d.—Both ankles and knees very swollen, painful, and immovable; ankles red; shoulders and wrists painful, the latter red; toes and dorsum of feet swollen and red; pulse 100, full and bounding; thirst.</p> <p>26th.—Both hands affected; joints of lower extremities easier; pulse 84.</p> <p>30th.—Only slight affection of left wrist; 2 days after this date no joint-affection left.</p>	<p>April 23d.— The pulse strong, with first sound at apex; some palpi- tation.</p> <p>25th.—Com- plaints of tightness of chest.</p> <p>May 6th.— Murmurs very slight indeed.</p>	9 days.	?	April 23d.— Pot. Bicarb., ℥ij, Aquaë, ℥iiss, every 2 hours. VS. ad ℥v. Afterwards Decoct. Cin- chonæ.	Good.

Name.	Date.	Age.	Occupation.	Hereditary Predisposition.	Number of Attacks.	Cause of.	History of present before Plan of Treatment.
Hen. Webb.	March, 1853.	28	Costermonger.	Not stated.	First.	Cold.	Seven days ago in left hip, afterwards ankles, knees, wrists, and hands, became affected.
John Goodhall.	Jan., 1853.	26	Labourer.	None to rheumatism.	First; but patient had some scrofulous affection of left knee-joint 12 years since, which has never quite healed.	Cold and damp.	Eight days since swelling and redness of right knee, upwards shoulders, elbows, wrists, and hands became affected.
William Kell.	Oct. 1853.	20	Carpenter	None to rheumatism.	First.	None known except exposure to a draught.	Six days ago pain in back, joints of lower extremities became and swollen.

Symptoms at commencement and during Treatment.	Symptoms referable to Heart.	Duration of Disease under Potash Treatment.	Total Duration of Attack.	Nature of Treatment.	State of Health afterwards.
<p>March 31st.—Both wrists and hands swollen, red, and tender; many little joints affected; also both knees; pulse 96, hard; perspires much; tongue furred; great thirst.</p> <p>April 4th.—Wrists and knees better; much pain in both pectoral muscles.</p> <p>7th.—Wrists and knees much better; pain in joints, chiefly at night; pulse 64.</p> <p>9th.—Joints well; pulse 52.</p>	None.	8 days.	15 days.	<p>March 31st.—Pot. Bicarb., ℥ij, Aquæ, ℥iiss, every 2 hours.</p> <p>April 2d.—The Potash salt was increased to grs. 52.</p> <p>As this patient complained very severely of pain, several doses of Henbane and Morphia were given.</p>	Good.
<p>Jan. 29th.—Pulse 108, hard; tongue furred; skin hot; much perspiration and thirst; left wrist and hand, right shoulder, right ankle and knee, considerably affected; many of these joints red and swollen.</p> <p>30th.—Joints much easier.</p> <p>Feb. 1st.—Pulse 78; much better; perspires freely of an acid odour.</p> <p>3d.—No swelling of joints; no thirst; appetite good.</p> <p>On the 12th, after exposure to an open window, had return of stiffness, and pain in some of the joints, with coryza, &c.; this yielded to the repetition of the medicine, but was followed by an attack of erysipelas, commencing in the diseased left knee.</p>	Some murmur, with first sound at base.	6 days.	14 days.	<p>Jan. 28th.—Pot. Bicarb., ℥ij, Aquæ, ℥iiss, every 2 hours. VS. ad ℥iv. 2 doses of house-medicine.</p>	Good, except chronic disease of knee-joint.
<p>Oct. 29th.—Both wrists very painful, red, and swollen (these joints were first affected to-day), also both feet and ankles and right knees; pulse 84, hard; tongue furred; thirsty; skin hot; has perspired much.</p> <p>Nov. 1st.—Wrists much relieved; ankles painful; pulse 72.</p> <p>3d.—Left ankle only swollen and red; pulse 58; appetite returning.</p> <p>5th.—Free from pain; can move joints easily; pulse 48, weak.</p> <p>8th.—No rheumatism after this date; pulse rose to 65 on omitting medicine.</p>	No cardiac symptoms.	7 days.	13 days.	<p>Oct. 29th.—Pot. Bicarb., ℥ij, Aquæ, ℥iiss, every 2 hours. VS. ad ℥v.</p>	Good.

Name.	Date.	Age.	Occupation.	Hereditary Predisposition.	Number of Attacks.	Cause of.	History of present before Plan of Treat
William Kell.	Nov. 1853.	20	Carpenter	None to rheumatism.	Second.	Exposure to cold from returning to work too soon after above attack.	Soon after going to work some joints became attacked. was re-admitted.
William Kurm.	Nov. 1853.	13		Rheumatism from father.	First.	Cold and wet.	About 5 days ankles became swollen, red, and painful, and towards knees.
George Jones.	April, 1854.	30	Cabman.	None well marked to rheumatism.	Third.	Cold and wet.	A week since knees and ankles, afterwards left shoulder and bow, became affected.
J. Jackson.	Dec. 1853.	31	Linen-draper's porter.	Grandfather had rheumatism.	Second; first about 3½ years since.		Had been ill some weeks, but joint-affection un- about 4 days since when it commenced feet, extending wards.

Symptoms at commencement and during Treatment.	Symptoms referable to Heart.	Duration of Disease under Potash Treatment.	Total Duration of Attack.	Nature of Treatment.	State of Health afterwards.
<p>Nov. 22d.—Both knees and left ankle swollen and tender; pulse 100; thirst.</p> <p>24th.—Pulse 66; knees still painful and tender.</p> <p>26th.—Knees moveable, very slightly tender; pulse 60.</p> <p>29th.—Joints pretty well; pulse 55.</p>	—	7 days.	?	<p>Nov. 22d.—The potash draught as before.</p> <p>24th.—One $\frac{1}{2}$ gr. dose of morphia.</p>	Good, and remained so throughout the winter.
<p>Nov. 19th.—Right knees swollen, hot, red, stiff, and painful; right ankle painful; some thirst; pulse 64; from 17th to 19th remained in hospital without medicine, and joints, which at first became relieved, were re-affected.</p> <p>22d.—Patient quite well.</p>	No cardiac symptoms.	3 days.	8 days.	<p>Nov. 19th.—Pot. Bicarb., \mathfrak{ss}, Aqua, \mathfrak{ziss}, every 3 hours.</p>	Good.
<p>April 25th.—Left elbow swollen, hot, and painful; left shoulder very tender; joints of lower extremities pretty well; skin hot, moist; pulse 72; tongue furred; no appetite; these symptoms were present after 24 hours' treatment as an in-patient, and a day or two of similar treatment at home).</p> <p>27th.—Joints much relieved; pulse 56.</p> <p>29th.—Quite free from pain; appetite returning; pulse 48.</p>	Slight murmur with first, and louder murmur with second. At base some friction-sound heard near apex, which has ceased.	4 days.	11 days.	<p>April 24th.—Pot. Bicarb., \mathfrak{ij}, Aqua, \mathfrak{ziss}, every 2 hours.</p> <p>VS. ad \mathfrak{ziii}.</p>	The valvular disease of heart arose during former attacks; patient had had short breath for some years.
<p>Dec. 8th.—Right wrist, both ankles and knees painful, tender, and some joints swollen. Pulse 102, hard; tongue furred; thirst; pain much worse at night.</p> <p>13th.—Right wrist and left knee most affected; pulse 96; appetite returning. After this date no marked joint-affection, but on the 17th a febrile attack came on, like slight typhoid fever, and, during the febrile state, some stiffness in joints formerly affected, but no decided joint-disease.</p>	Slight murmur at base with first sound.	5 days.	9 days.	<p>Dec. 8th.—Pot. Bicarb., \mathfrak{ij}, Aqua, \mathfrak{ziss}, every 2 hours; 2 or 3 doses of house medicine.</p> <p>The febrile attack was afterwards treated in the ordinary way.</p>	Good, except weak from febrile attack.

Name.	Date.	Age.	Occupation.	Hereditary Predisposition.	Number of Attacks.	Cause of.	History of present illness before Plan of Treatment.
James Browning.	June, 1854.	16		Father had rheumatism in knees.	Second; first 18 months since.	Cold and moisture.	Five days before mission legs became swollen and painful and two days before both hands became affected.
William Cragg.	Aug. 1854.	14		Not known.	First.	Damp room.	Six days since disease began in the extremities, and extended to upper.
William Hooker.	Sept. 1854.	29	Painter, a subject of lead colic.	Father had rheumatic fever, and mother some joint-affection.	Third acute attack; first about 10 years ago; second 7 years since.	Not known.	Four days since some colic, rheumatism commenced about two days ago in knees.
Daniel Crawford.	Oct. 1854.	25	Cabinet maker.	Father subject to rheumatism.	Second; first when 8 or 9 years of age.		About 7 days since knees then hands came affected.

Symptoms at commencement and during Treatment.	Symptoms referable to Heart.	Duration of Disease under Potash Treatment.	Total Duration of Attack.	Nature of Treatment.	State of Health afterwards.
<p>June 30th.—Both wrists, and several joints of hands, both shoulders very tender, swollen, and many of the joints red; elbow slightly painful; lower extremities have become relieved.</p> <p>July 1st.—Pulse 84; much perspiration, tongue furred, much thirst.</p> <p>4th.—Right hand much relieved, left shoulder very tender and painful, but wrist and elbow improving.</p> <p>6th.—Complains only of left shoulder, which is tender, but moveable; pulse 84; diarrhœa.</p> <p>9th.—Joints free.</p> <p>11th.—No joint-affection for two days; bowels irritable, tongue red.</p>	No cardiac affection.	9 days.	14 days.	<p>June 30th.—Pot. Bicarb., \mathfrak{z}ss, Aquæ, \mathfrak{z}j, every 2 hours. VS. ad \mathfrak{z}ij.</p> <p>Oct. 6th.—A few doses of chalk and catechu for diarrhœa.</p>	Good.
<p>Aug. 8th.—All large joints in body affected, more painful at night; pulse 105, hard; skin hot; tongue furred; much thirst.</p> <p>9th.—Joints free from pain.</p> <p>11th.—Joints of right arm affected.</p> <p>14th.—Joints pretty well; pulse 96; no joints affected after this date.</p> <p>Sept. 29th.—Both knees swollen, hot, and red, right ankle also affected; pulse 106; thirst; tongue much furred.</p> <p>30th.—Left knee most affected; pulse 108.</p> <p>Oct. 3d.—Only right ankle painful and tender; pulse 86; appetite returning; thirst moderate.</p> <p>5th.—All joints well since yesterday; pulse 78; appetite good.</p> <p>Oct. 4th.—Both ankles swollen and red, knees slightly tender, hands, wrists, elbows, less affected; pulse between 80 and 90; tongue furred; thirst; pain much increased at night.</p> <p>7th.—Some small joints of hands still tender and painful; other joints much relieved; pulse 60; slight diarrhœa; gums slightly affected.</p> <p>9th.—No joint-affection after the 8th.</p>	<p>Aug. 7th.—tenderness over cardiac region; friction-sounds heard over same.</p> <p>10th.—Cardiac dulness extends to second rib.</p> <p>Oct. 4th.—Friction over cardiac region.</p> <p>10th.—No friction heard.</p>	6 days.	12 days.	<p>Aug. 7th.—Pot. Bicarb., \mathfrak{z}ij, Aquæ, \mathfrak{z}iss, every two hours. 12 leeches to heart.</p> <p>10th.—Blister to cardiac region.</p>	Pretty good; free from all rheumatism.
<p>Sept. 29th.—Both knees swollen, hot, and red, right ankle also affected; pulse 106; thirst; tongue much furred.</p> <p>30th.—Left knee most affected; pulse 108.</p> <p>Oct. 3d.—Only right ankle painful and tender; pulse 86; appetite returning; thirst moderate.</p> <p>5th.—All joints well since yesterday; pulse 78; appetite good.</p> <p>Oct. 4th.—Both ankles swollen and red, knees slightly tender, hands, wrists, elbows, less affected; pulse between 80 and 90; tongue furred; thirst; pain much increased at night.</p> <p>7th.—Some small joints of hands still tender and painful; other joints much relieved; pulse 60; slight diarrhœa; gums slightly affected.</p> <p>9th.—No joint-affection after the 8th.</p>	No proof of recent heart-affection; loud murmurs with both sounds at base; has had much palpitation and hurried breathing for many years.	5 days.	9 days.	<p>Sept. 29.—Pot. Bicarb., \mathfrak{z}ij, Aquæ, \mathfrak{z}iss, every two hours. A dose of house medicine.</p>	Good, except old heart affection; breathing now pretty good.
<p>Oct. 4th.—Both ankles swollen and red, knees slightly tender, hands, wrists, elbows, less affected; pulse between 80 and 90; tongue furred; thirst; pain much increased at night.</p> <p>7th.—Some small joints of hands still tender and painful; other joints much relieved; pulse 60; slight diarrhœa; gums slightly affected.</p> <p>9th.—No joint-affection after the 8th.</p>	Oct. 4th.—Friction over cardiac region.	4 days.	11 days.	<p>Oct. 4th.—Pot. Bicarb., \mathfrak{z}ij, Aquæ, \mathfrak{z}iss, every 2 hours. Calom., gr. 1, Opii, gr. $\frac{1}{4}$, 4 times a day. Hirudines xij to heart's region</p> <p>8th.—Omitted draught, and took chalk mixture.</p> <p>10th.—Omitted pills, and continued draught every 4 hours.</p>	Good.

Name.	Date.	Age.	Occupation.	Hereditary Predisposition.	Number of Attacks.	Cause of.	History of present Attacks before Plan of Treatment.
James St. George.	Nov. 1854.	20	Bar-man, but does not drink.	None known to rheumatism.	Fourth attack.	None known.	Seven days since left shoulder and knee affected; shortly after ankle, shoulder, and hand of right side.
Samuel Styles.	Jan. 1855.	27	Cow-keeper.	None to rheumatism.	First.	Cold.	Four days before had pain in wrists, knees, &c., with febrile symptoms.

Symptoms at commencement and during Treatment.	Symptoms referable to Heart.	Duration of Disease under Potash Treatment.	Total Duration of Attack.	Nature of Treatment.	State of Health afterwards.
<p>Nov. 1st.—Both shoulders, right wrist, and right knee, severely affected; knee much swollen; pulse 112, full and hard; skin hot; perspires much; tongue furred; great thirst.</p> <p>2d.—Pulse 120; lower extremities relieved; right upper more painful.</p> <p>4th.—Wrists only affected; pulse 106.</p> <p>7th.—Left little finger and right third finger the only parts now affected, and these but slightly; pulse 85; tongue clean; appetite good.</p> <p>9th.—Pulse 80; no joint-affection.</p> <p>11th.—Pulse 70.</p> <p>Jan. 20th.—Both wrists, hands, elbows, knees, and hips, tender and painful, hands swollen; pulse 100, hard and full; tongue white furred; skin hot, moist, and sour; thirst; bowels confined.</p> <p>23d.—Pulse 84; right shoulder, wrist, and hand painful; other joints relieved.</p> <p>25th.—Pulse 72, not hard; perspires freely, odour sour; right wrist and left shoulder painful; other joints pretty well.</p> <p>27th.—Some exposure to cold has caused a slight relapse; yesterday joints were free; pulse 72.</p> <p>29th.—Free from any joint-affection, except slight tenderness of left shoulder on pressure.</p> <p>31st.—Remains free from joint-affection; feels well.</p>	<p>Nov. 1st.—Doublemurmur at base, murmur with first sound at apex; friction and increase of cardiac dulness.</p> <p>11th.—Murmurs as before, but softer; no friction. Endo-cardiac disease probably old.</p> <p>None.</p>	<p>8 days.</p> <p>9 days.</p>	<p>15 days.</p> <p>13 days.</p>	<p>Nov. 1st.—Pot. Bicarb., \mathfrak{ij}, Aqua, \mathfrak{z}iss, every 2 hours. Hirudines, xij. VS. ad. \mathfrak{z}iv.</p> <p>Jan. 20th.—Pot. Bicarb., \mathfrak{ij}, Aqua, \mathfrak{z}iss, every 2 hours. Haust. Sen., \mathfrak{z}iss. 30th.—Repet. Haust. Sennæ.</p>	<p>Good.</p>

From an examination of the above table, we arrive at the following results.

In 20 cases of acute rheumatism, occurring in males, the average duration of the disease, under the treatment adopted, was 6·2 days, and the total duration of the attack 11·3 days; in 31 cases of the same disease, in females, the average duration under the treatment was 7·3 days, and the total duration 15·7 days, making in all about 6·7 days for the average duration under treatment, and 13·5 days for the average duration of the attack.

In many cases, especially among the females, as some time had elapsed before they came into the hospital, it might be argued that the disease had partially cured itself, or that some prior treatment might have tended to shorten its duration after admission into the hospital; but the closer investigation of the cases will not allow of such interpretation, for, on selecting a given number in which the disease had continued for a long period before the treatment was commenced, and comparing them with an equal number in which the disease had been treated early, no very perceptible difference can be discovered. There can be little doubt but that genuine rheumatic fever, under all modes of treatment yet known, will run a certain course, and is not capable of being at once extinguished; but, again, it seems probable that its duration, under adverse circumstances, may be almost indefinitely prolonged; of course assuming a more asthenic character, as the powers of the patient become enfeebled.

The complication with cardiac disease, especially when sufficient to influence the effectiveness of the circulation, seemed to have some influence on the total duration of the joint-affection, and, although for a day or so, the limbs appeared almost free from disease, yet the liability to recurrence was well marked; as if a metastatic action from time to time took place, and the system were unable to rid itself entirely of the poison. Such, however, was not constantly the case.

The effects observed during the administration of the

large and repeated doses of the bicarbonate of potash were as follow :

On the Intestinal Canal.—No vomiting was induced ; in the only case in which it occurred, the patient had been taking, up to the time of its administration, strong doses of colchicum, and after a day the use of the bicarbonate in drachm doses was perfectly tolerated, even without nausea. As a rule the patients rather liked the medicine, as it tended to allay the excessive thirst ; when the febrile symptoms had abated, and the appetite was returning, some dislike occasionally arose to its very frequent repetition.

The bicarbonate of potash has no marked action on the lower portion of the intestinal canal ; no purging was produced ; the apparent exceptions were three in number, and all of them occurred during the autumn of last year, 1854, when cholera was raging in London ; other patients were then similarly affected, and there was no good reason for ascribing it to the use of the drug.

On the Urinary Organs and Urine.—In two cases, females, there was some irritation of the bladder ; in one it occurred when the patient was convalescent ; the medicine was discontinued, and the symptoms vanished ; in the other it lasted only a day or so, although the use of the bicarbonate was persevered in. No marked increase in the quantity of urine was observed ; this point, however, was not very carefully noted, from the great difficulty of saving the whole of the urine in acute diseases.

On the character of the urine the influence of the medicine was strongly and invariably marked ; this secretion becoming very alkaline in reaction, but not ammoniacal, with a deposition of triple phosphates. I may here state, that I have usually found eight scruples of bicarbonate of potash given to a healthy person in divided doses, sufficient to render alkaline the twenty-four hours' urine, but sometimes more, sometimes less is necessary ; in rheumatic fever, a larger amount is generally requisite to induce alkalinity, and when the febrile symptoms are very intense, for a time even the two scruple doses, given every two hours, have failed to

produce this effect; in the cases in the table, the alkaline state was, for the most part, observed after the lapse of twenty-four or thirty-six hours, in some not for two or three days. I should never consider the patient progressing properly unless the urine produced a strongly marked brown stain upon turmeric paper, and, on the addition of an acid in excess, gave a distinct effervescence; urine of this character, on the addition of such acid, sparkles like champagne; its odour is also peculiar, not unlike toast and water, and in hot weather it is apt soon to become ammoniacal; no urate deposits are ever observed, although the secretion may contain much uric acid in solution.

The condition of this fluid may be frequently noticed with advantage, on account of its strongly marked alkaline reaction, serving as a proof of the medicine being properly administered, a circumstance not always attended to, especially when the doses are ordered to be often repeated. I mention this, as I have occasionally seen this treatment prescribed, although from the neglect of the nurse, most imperfectly carried out.

On the Skin and its secretion.—I can offer nothing very positive with regard to the action of the drug (when given as above directed) upon the cutaneous function; I have some reason to think that it tends a little to diminish the secretion, also to make it less acid; in one or two cases it appeared even to cause neutrality, but I have never found the perspiration alkaline, however long the patient had been under the influence of the medicine.

On the Heart and Circulation.—The large and frequent doses of bicarbonate of potash, certainly appeared to reduce rapidly the frequency of the pulse, and to diminish its hardness; if the table be examined, several instances will be found, in which, after the febrile state had been removed, the pulse was lowered to 48 or 50 in the minute; on discontinuing the medicine, it rose to the normal frequency; no faintness was induced in any case, and in this respect the action of bicarbonate of potash differs much from that of colchicum, digitalis, or antimony; and hence the presence of cardiac affection, such as regurgitant aortic

disease, diminishing the effective power of the circulation, is no obstacle to its employment.

Effect on the Blood.—It is very difficult to examine the effect on the alkalinity of the blood, as this fluid, in every case of acute rheumatism in which I have made the examination before treatment, has given a well-marked alkaline reaction to test-paper; it is, however, probable, and almost certain, that under the influence of the potash, the alkalinity is increased to a considerable degree. On the formation of the clot a great change is produced; and in several instances, when a small quantity of blood, about an ounce or so, had been drawn, to examine this point, a part of the fibrine, which would have otherwise formed the buff, has been deposited much more slowly than usual, and over the whole surface of the previously formed clot. The fibrine, which in inflammatory states of the system, and especially in acute rheumatism, forms the buffy coat, differs in properties from ordinary fibrine, and it is this altered portion which appears to be rendered less coagulable by the influence of the alkaline bicarbonate. Should this be the real effect of the medicine, its importance in preventing and lessening cardiac disease can be easily understood. No other marked influence of the bicarbonate on any organ or function was observed, and in no instance was any injurious effect produced.

Effects of the plan of treatment on the progress of the disease.—Besides the influence on the duration of the articular affection which has been alluded to, I cannot help thinking that an effect is likewise produced on the cardiac disease, to a very considerable and important extent. In no case did the affection of the heart ensue after the patient had been more than forty-eight hours under the influence of the medicine; and it has appeared to me, that even when present on admission into the hospital, or coming on within a short period, its progress was powerfully checked by the treatment, and prevented from producing the terrible mischief which, when uncontrolled, it so frequently induces; this I should be inclined to ascribe to the altered condition of

the blood, and especially of that portion giving rise to fibrinous deposits on the peri- or endo-cardium.

The method employed.—I stated, at the commencement of the paper, the main part of the plan of treatment adopted; certain small deviations were occasionally made, which require to be noticed. In many, even most of the cases, the administration of the bicarbonate of potash was the only means resorted to, from the patient's admission into the hospital until complete convalescence, and I believe that in the majority this would be sufficient for the cure. The use of other remedies was avoided, not from any idea that they would act injuriously upon the treatment, but in order that the results obtained from the bicarbonate might be more fully seen, in the absence of disturbing causes. There can be little doubt, however, that the proper employment of other remedies would often be of great service, if not to the ultimate result, at least to the comfort of the patient; and, among such adjuvants, anodynes, given cautiously, stand prominent.

Of the fifty patients submitted to the potash treatment, few took any preparation of opium; but occasionally the severity of the pain obliged me to have recourse to this drug, and then from a quarter to half a grain of hydrochlorate of morphia was given at night, and discontinued as soon as possible. It cannot be doubted that the proper use of opium is almost always desirable in the treatment of acute rheumatism in its most painful stage. Occasionally a few doses of the ordinary purgative house-mixture were given when the bowels were very confined; although cathartics, judiciously administered, are of great value in the treatment of the disease, their employment was much limited in the above cases, in order to prevent any decided purgative effect from influencing the result of the other treatment; their use was simply confined to the prevention of irritation from the presence of faecal accumulation. Abstraction of blood from the arm was scarcely ever practised, except for the purpose of obtaining a

sufficiency of this fluid for examination, but from the effect which appeared to be sometimes produced even by such small losses, I have no reason to regret its employment; and am fully persuaded that small depletions, in the early stages of acute rheumatism, if the strength of the patient do not contraindicate them, are attended not only with immediate relief to the symptoms, but that they induce a condition of system more adapted for the absorption of internal remedies; at the same time, however, I consider that any blood-letting carried to the extent of producing debility, decidedly injurious, as lengthening the duration of the joint-affection, and much prolonging recovery. Local depletion, usually by leeching, was always practised whenever there was any evidence of distinct cardiac disease, sometimes, when the symptoms were suspicious only; of the use of such local depletion there can be little doubt in the minds of those who have had experience in the treatment of rheumatic fever; its value is, perhaps, more marked when pericarditis exists.

Mercurials were scarcely ever employed; in one case (a male) where pericarditis existed on admission, calomel in grain doses was given every four hours until there was slight affection of the mouth, the result did not seem to be much influenced by such addition to the treatment; in the other, a female having severe pericarditis and some delirium, calomel was also ordered, but before its administration, the symptom for which it was prescribed, namely the delirium, supposed to be connected with the cardiac affection, had almost completely subsided, and no trace of mercurial action could ever be discovered. With regard to the use of calomel or any preparation of mercury in the treatment of rheumatism, my opinion is, that they have no influence over the duration of the disease; but, at present, until further proof of their inefficacy has been shown, I should employ them in all cases in which severe cardiac disease was going on, believing that they have more power in causing the absorption of recently deposited lymph than alkalies or any other known remedies. This point I have recently had opportunities of testing in

cases of pleuritis, in which it appeared that the alkaline treatment by the bicarbonate of potash possessed great influence in preventing deposition, but that when the lymph was already deposited, its value in causing its absorption was far inferior to that of mercurials: I believe the same holds good in peri- and endo-carditis of a rheumatic character.

The mode of administration of the bicarbonate of potash is of much importance. It should be freely diluted; usually a mixture was given containing two scruples of the drug dissolved in an ounce and half of water; but not uncommonly further dilution to a considerable extent was effected by the addition of water, toast and water, or other mild diluent, or by some bland fluid being taken immediately afterwards; free dilution is desirable to promote the speedy absorption of the salt into the blood. In the cases above cited, plain water was made use of as the solvent, but the syrup of orange-peel or any other adjuvant could be employed. Febrile patients, however, often prefer a simple saline solution to a flavoured one, especially when very frequently administered. I believe it is important, also, that the medicine should be given at short intervals, so as to ensure its continued action, and prevent great accumulation, at any one time, which might ensue if the drug were taken in much larger doses and at lengthened intervals. It appears to me that a *certain condition of the blood* kept up for a long period is essential to neutralize the abnormal state of the circulating fluid existing in rheumatic fever.

Exceptional cases.—It is stated at the commencement of the paper that the cases were not selected, but that all patients suffering from acute rheumatism were thus treated. To avoid error, great care was taken in the diagnosis; acute gout, when it occurred, was separated from rheumatic fever, and likewise the acute articular affections depending on or connected with urethral disease. One or two cases of arthritis (mono-articular) were also excluded. A case of albuminuria and extensive cardiac disease is not introduced, the rheumatism forming but a very trivial portion of

the patient's sufferings; but I may mention that under the potash treatment all the rheumatic symptoms quickly vanished.

Plan of treatment advised.—From my experience in the treatment of acute rheumatism, I should advise the following method of proceeding :

To administer the bicarbonate of potash in a diluted form in two scruple doses every two hours, both during the day and night, unless the patient's condition allow of sound sleep, when the dose should be deferred for a time. To use water as the solvent, with the addition of some syrup, if preferred.

For children not above ten or twelve years of age, scruple doses will be sufficient, even less in very young patients; watching the condition of the urine as the criterion of the amount to which the system is under the influence of the medicine.

The occasional administration of mild purgatives, if necessary; taking care, however, when the joint-affection is very prominent, not to disturb the patient much, or to expose to cold; effects which would probably more than counteract any good effect of the aperients. I should advise as a purgative, the infusion of senna or powdered rhubarb, united to the tartrate of potash, as this salt would, to some extent, effect the same object as the bicarbonate.

If the pain of the joints be very severe, a small dose of opium, or some preparation of morphia, should be given at night, and repeated during the day, when necessary.

If any heart-affection be present, or even threatened, local depletion by leeches over the cardiac region, the amount depending on various circumstances, as also the need of repetition. Should the cardiac disease not readily yield, the use of small and repeated doses of calomel, guarded or not by opium, according to the effect on the intestinal canal. My reason for advising the use of mercurials I have before stated. General depletion, in the majority of cases, especially when occurring in large towns, is unnecessary, although it would often relieve the patient in the earlier stages, and cause the more efficient absorption of the medicines.

Peculiarities in the condition of patients, and complications which may arise, may demand small alterations in the plan; and in each case the details of treatment must be regulated according to the judgment of the practitioner.

The diet, in the early stages of the disease, should be strictly antiphlogistic; and too rapid return to an animal food be carefully guarded against, even after the return of the appetite is well pronounced. I then usually prescribe at first white fish, as soles or whittings, and in few days, gradually allow a more nutritious diet.

From what I have hitherto observed, if the early success continues to attend this mode of treating acute rheumatism, I cannot help thinking that the *total* duration of the affection may be reduced to about ten days, provided the patient is quickly brought under the influence of the medicine, and no powerful complicating causes exist.

Lastly, I may state, that I have received from many medical gentlemen to whom my method of treatment has become known, statements to the effect, that they have obtained from its employment, an amount of success in the treatment of acute rheumatism, which no other previous mode had ever yielded them.

