HYDROTHERAPEUTICS
IN
FEBRILE CONDITIONS.

MELROSE. APRIL. 1882.
**Introductory Remarks** -

Nothing strikes me as being more satisfactory in the State of medical practice at the present time, than the tendency to prescribe fewer drugs than formerly in the treatment of disease. I believe that the great fermentation of medical men will look back upon the drugging, blistering, poulticing practice of the present time and recent past, with as much amused astonishment, as that with which we regard the bleed-for-everything treatment of our fathers. I would vain hope that the habit of administering certain drugs in a given case, in a routine way, because recommended by some treatise or book (without due investigation as to whether or not applicable to that particular patient) is falling into disrepute. But my own experience teaches me, that with many practitioners, the 'daily bottle' is still the rule. I have no wish to underrate the value of drugs when given with a definite object, and with due regard to dose, form and time. But I dominantly think that there are many diseases which are far better and more successfully treated without any drug.
any drug medication whatever. When investigation and experiment have informed us fully concerning the physiological action of the various articles of the materia medica, drug giving practice will be placed upon a scientific and unobjectionable footing, but not until then.

The point which has tipped many an arrow shot from the ranks of the Homoeopathists and Hydropathists against the Allopathic army, has been a charge of want of principle, of a differing, various, contradictory, many drug way of treating disease. Dr. Sharp of Rugby, a Homoeopathist, in his 'Essay on Medicine' gives a list of twenty drugs which has been given to a gentleman suffering from indigestion, by a leading physician, during eleven months.

And this formidable list he says, 'does not include the adjutants, camphor, sault, carota, with which they (the drugs) were combined.'

ought we to be surprised if this gentleman began to think his doctor intended to go through the Pharmacopoeia until he found a drug to do him good? Can we be astonished that there are people

"Essays on Medicine, W. Sharp M.D. 10th Ed. page 440"
to put faith in Homeopathy and Hydropathy, while systems profess to have principles to guide them, a definite form of treatment for every disease, yet one capable of modification to suit the peculiarities of the individual. We may draw comfort from knowing that the number of doctors professing Homeopathy is steadily decreasing—and also from the fact that Hydropathy, even in Hydropathic Establishments, is not now believed in and used as a complete system of medicine in itself, but the exclusion of all other methods and agents. And what is the explanation of this, true & pleasant as it is, surely that scientific medicine is talking to itself all that is good in both these systems, leaving there nothing but a name, thus deprived of the sap which gave them life, they must fade, perish & disappear. The Homeopaths have done good service by urging the importance of Diet & Hygiene in the treatment of Disease. The Hydropaths by adding to this the many-sided applications of water, have shown what nature can do when placed under favourable conditions—with this view of medicine there to do in the following pages.

Dated: April 14, 1883. page 667.
Hydrotherapeutics not quackery.

The use of water, internally and externally, as a therapeutic agent, is still regarded by many medical men as a species of quackery—Thus they lose to them the means of treatment most efficient and valuable. Dr. J. Playfair rightly says—"That we should be chidden from the use of such potent therapeutic agents as bathing, massage, systematic muscular exercise, which ever we may please to call it, or Electricity, or Hydrotherapeutics, and the like, because in unworthy hands they have been abused, seems to me to be almost worse than an abuse itself. The true scientific position is, undoubtedly, that we should endeavor to rescue such means of treatment from abuse, and lay down rational rules for their employment."

Dr. Wiener Weber writes—"Thus a more or less modified water cure has at last become a branch of rational medicine, at least in France and Germany, and a new impulse has been given to it lately by the employment of various forms of baths in the treatment of fever. In this country there is as yet, very little systematic relation between the special treatment of fever and other diseases."

Systematic treatment of fever, from the view of pathology. 1883. pag. 64.

Hydrotherapeutics.
Hydrotherapeutic and the general medical treatment, and the experience gained at hydrotherapeutic establishments is not communicated and discussed in our medical societies and scarcely even in the general medical journals. This is much to be regretted, for there can be no doubt that hydrotherapeutic measures might be more widely introduced with great advantage into our hospitals as well as into our private practice, but this is not likely to be the case as long as the medical profession has not fuller opportunities for studying the effects of water treatment!.

During my appointment, during the last year, as Visiting Physician to one of the best known Hydrotherapeutic Establishments in Scotland, has given me opportunities for using and studying water treatment, and I can feel to be able to my humble testimony, after a limited experience, to its great efficiency in suitable cases.
That historical sketch of water treatment.

The use of water in the treatment of disease is by no means an introduction of modern times. It is certain that it was used by Galen, Celsus, and Hippocrates, the fathers of medicine.

Coming down to modern times we find systematic hydrotherapies popular in the 15th and 16th centuries in France and Italy and in the 17th century in England. About the middle of the 18th century febrile diseases were treated with cold sponging with success. Towards the latter part of the same century Wright, Currie & Jackson used cold water in the treatment of fevers and published observations demonstrating the good results obtained. After the so-called hydropathic system was founded by Puseonity about 1824 water treatment was handed over to quacks and speculators and only slowly regained its position as a recognised mode of treatment by the scientific practitioners. The revival took place first in Germany, mainly through the teaching of L. Brand.


and the Succeed
The use of baths to reduce the temperature in Hyperpyrexia is, or rather ought to be, generally recognized as the most successful, or indeed the only method of treatment in that deadly fatal condition. The interesting Report of the Committee of the Clinical Society of London upon this subject shows nothing more clearly than that if more frequently and earlier used, the bath treatment would give us better results than we could have dared to hope for some time ago. The cases brought under the notice of the Committee were chiefly those connected with Acute Rheumatism, but there are other diseases with high temperature in which the treatment will be found equally valuable. Successful when a pupil, I saw, in the practice of my late chief, one of those distressing cases of Perpetual Septiciemia in which, after apparent salutary progress for four or five days, the patient is seized with fever. The temperature steadily rises, the pulse is quick and feeble, the tongue dry. There is no pain, no
local mischief to be discovered, yet still the patient grew rapidly worse and perishes, burnt up, as it were, with the fever. The thermometer reaching 108° a long time before death. Having, even in doses producing extreme chilliness, been powerless to reduce the temperature. All other drugs we tried were of no avail. Since this time Dr. Playfair has shown, that by the continuous ap
plication of cold in the form of cloths wrung out of ice, water, even in extreme cases of this kind can be brought to a successful termination. His doubt the treatment in excessively troublesome, and if it is only method likely to be successful, it is ought not to be thought of for a moment. Some opposition also might be met with from the friends of the patient but if the danger of the condition, and the object of the procedure be explained, this cannot form a serious obstacle. I am fully prepared to follow Dr. Playfair should a case of this kind come under my care. Fortunately cases of extremely high temperature are not common, but they will occur probably, sometimes in the practice of every medical man. The question is will he then have the courage to treat the patient with the Cold Bottle.

1 British medical Journal. Nov. 17, 1874.
I contend that the practitioner should not wait for a treemly high temperature before using the water treatment in some appropriate form, but that his patient will derive great benefit from this method, even in slight febrile attacks. If the doctor has accustomed himself to the use of water in such cases, there will be little fear of his failing in his duty should a condition of hyperpyrexia come under his care.

But we must bear in mind the probability that if bath treatment be early used hyperpyrexia may never be developed at all.

How water has been used.

The following is a list of the chief ways in which water has been used in the treatment of febrile conditions—

1. Hot bath. (Above 104°F)
2. Warm bath. (96° to 104°F)
3. Tepid bath. (85° to 95°)
4. Cold bath. (Below 70°F)
5. Packing.
6. Compress.
7. Cold affusion.
8. Tepid Sponging.
10. Fomentations (Poultices).
11. Iced enemas.
of course the effects produced by the different
methods named above vary very greatly both in
kind and degree. Indeed in a given case, after
determining that water treatment is called for,
it becomes a matter of no small difficulty, to
decide upon the best form in which to employ it.
We must be guided by the object in view, the
peculiarities of the particular case, knowledge of
the effects (so far as it goes) of each method of procedure.
For instance, if we wish to reduce the temperature
we must bear in mind the statement of Leboumeister
(a great authority) that the following is the order of
the relative value of the different methods—

1. Cold bath.
2. Cold wet sheet-packing.
3. Cold Affusion.

He says 4. Cold packs have the same effect as 1
cold bath of the minute's duration—

The Recent Report of the Committee of the Clinical Soc:
before referred to, does not give us much help upon this
point; it states that the height of the initial temperature
of the bath and the degree of its reduction does not in-
fluence materially the degree to which the body temperature
is lowered, and the following figures are given as ex-
camples of this -

Reduction of 13.3° followed a bath of 80° reduced to 60°

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12°</td>
<td>76°</td>
<td>72°</td>
</tr>
<tr>
<td>12°</td>
<td>62°</td>
<td></td>
</tr>
<tr>
<td>11.6°</td>
<td>69° reduced to 73°</td>
<td></td>
</tr>
<tr>
<td>10°</td>
<td>96° reduced to 89°</td>
<td></td>
</tr>
<tr>
<td>10°</td>
<td>76°</td>
<td></td>
</tr>
</tbody>
</table>

Contrast these figures with the following -

Reduction of 2.40° followed a bath of 90°

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3°</td>
<td>90° reduced to 70°</td>
<td></td>
</tr>
<tr>
<td>3.2°</td>
<td>69°</td>
<td></td>
</tr>
<tr>
<td>3.4°</td>
<td>88°</td>
<td>82°</td>
</tr>
</tbody>
</table>

Thus it is evident, that we are, as yet, by no means
possessed of sufficient knowledge to procure the effect
of a bath of any temperature upon a given case.
The subject is beset with difficulties - the acquirement
with the cause of hyperpyrexia, or indeed, of elevation
of temperature at all, is very imperfect, so that we
can scarcely expect to be able to accurately judge of
the action & effect of remedies -

What is the cause of the general elevation of temperature
in a Febrile Condition?

In order to place ourselves in a better position with
respect to this question, we must first consider

Some of the
Some of the varying conditions under which elevations of temperature arise — as for instance —
1. Injuries to the brain
2. — — — — Cerebral part of the spinal Cord
3. Tetanus.
4. Foreign Substances in the blood.
5. Infebrile states — (Surgery etc.)

A hypothesis to explain the pathalogy of fever must embrace equally the fever following central lesions & that occurring after blood poisoning — we conclude as follows —
1. In health the temperature of the body is regulated by a nervous influence exerted by the nerve centres upon the chemical changes which take place in the tissues & this influence we will term nerve-tension.
2. Any alteration in this nerve tension, by modifying chemical changes, will affect the temperature of the body.
3. This alteration of nerve-tension may be caused by —
   (a) Primary disease of the nervous system —
   (b) Abnormal conditions acting upon the nerve centres —
4. If the nerve tension be diminished the affinitis of the blood and tissues are lost, so far, uncontrolled & the result is hypostatication and Pyrexia.
b. This modification of nerve tension & pyrexia act & react upon one another, & are mutually increased, thus a progressive rise of temperature takes place until a point is reached unaccomplished by.

6. If the abnormal condition acting upon the nerve centres be developed gradually, nerve tension may continue to exercise control over the nutritive and oxidative changes, but in a less degree.

Keeping in mind this hypothesis, we understand how it is that the more the nerve centres are affected the higher the temperature and the quicker it rise.

How does the external application of cold reduce the temperature?

My answer is that it does so through the nervous system - After the balance between nerve tension & tissue change is lost, & increased temperature results, this elevation of temperature is itself a cause of further diminution of nerve tension & consequently of higher fever.

If by the use of cold sufficient heat be abstracted from the body to allow the nerve centres to resume their regulating power over tissue changes active reduction of temperature will follow. It is then obviously of the greatest
Of the greatest importance that the cold should be applied before the nerve function is entirely abolished. Which disaster we may conceive occurring at different temperatures in different individuals. And again that the cold should be continued until the primary cause of the impairment of nerve tension has ceased to act.

In the first case the cold cannot restore the bodily function when once destroyed.

In the second place to withdraw the cold too soon would leave the patient in no better position than he was originally — from the bodily consideration we may perhaps explain those cases in which the temperature continues to decrease after the patient is removed from the bath. That is to say the revived nerve tension is able to continue to exercise control for a time, but the primary cause of the fever again acting, re-enforcing nerve tension, a second time the temperature rises. The bath is repeated with a like result as at first — or perhaps 2 or 3 times — in the end perhaps successfully.

But we can readily understand that there is a limit to the endurance of the body. The above remarks are the result of a desire to elucidate, if possible, a confusing difficulty.
It is impossible, in a paper of this kind, to discuss in detail the in which each of the twelve water applications first in the list has been used. Indeed, the subject could scarcely be done justice to in a large volume. I will therefore take Scarlet Fever and Acute Pneumonia as examples and make a few remarks upon the treatment of these diseases, adding one or two illustrative cases.

**Scarlet Fever**

This disease has been subjected to all the variety of treatment which have prevailed, from time to time, amongst medical men. It has been bled, dressed with drugs innumerable, it has been left alone and it has been treated with water.

Mr. Bay Chavasse, the author of the popular work "Advice to a Mother," insists strongly upon what he terms his "Fresh Air Treatment of Scarlet Fever." He condemns in strong terms the use of purgatives, soaps on, and so forth, and believes cold and tepid sponging are dangerous as likely to drive the disease internally! It seems as though he regarded the disease as originally one of the skin. But, although he argues for the fresh air...
he cannot overcome his predisposition in favour of drugs. He administers a mixture containing sulphuric acid, which he considers a specific in Scarlet-fever, as much as quinine in a jal and sulphur in itch.)

**Water treatment in Scarlet-fever—**

1. **Cold affusion.**

The method pursued by Leavitt & Jackson was to place the patient in a tub and throw over him four or five fulls of cold water. They maintained that this treatment not only reduced the temperature but sometimes "extinguished" the fever altogether. The treatment was adopted in the early stages of the fever when the skin was hot and dry and the rash bright red. They state that after the cold affusion temperature fell perspiration broke out and the patient fell into a refreshing sleep.

2. **Cold-wet-sheet-packing.**

By other medical men the cold-packet has been used with advantage and success. Three or four or more blankets are spread out upon the bed. A sheet, having out of cold water to them placed upon them, the patient then spread upon that sheet, which is then wrapped closely round him from his neck to his ankles.
The blanket is next drawn over the sheet and tucked closely in at the sides. The pack may be continued from half an hour to an hour, as often as may seem necessary. The pack is especially in malignant cases with non-development of the pulse, or in cases of its too early recession. Dr. Willie and Gee have recorded successful cases of this kind. With the earlier hydroetherial hot fomentations to the throat were applied at the same time as the cold pack. But if commenced at the beginning of the attack, cold compresses to the throat will be found more agreeable to the patient and more efficacious in controlling the inflammatory condition in and about the larynx.

3. Cold Bath

With the German physicians the cold bath, or tepid bath cooled down, is the most popular method. They consider the pack, sponging, & compresses as being more annoying to the patient, & less powerful in abstracting heat. It cannot be denied that there is considerable difficulty in treating adult patients with the bath, especially in private practice.

4. Cold & Tepid Sponging

The most commonly employed hydrotherapeutic measure is cold & tepid sponging of the body.
This process though not capable of reducing the temperature to any great extent, is nevertheless very practical to the patient, who will frequently fall into a refreshing sleep when it has been done—We have no reason to believe that it can drive the disease internally.

5. Warm baths.

Warm baths, containing disinfectants during convalescence from Scarlet fever, is an important measure in preventive medicine.

6. Cold water drinking.

In spite of popular belief, the patient may be permitted to drink freely of cold water during the fever.

Acute Pneumonia.

I desire to enter a strong protest against the universal use of jacket poultices in this disease. I can imagine nothing more calculated to distress the patient than to enwrap his chest with a heavy clagg, swelling mass of poultice. If the poultice is to remain hot for any length of time, it must be spread at least an inch thick! The weight of such a mass upon the chest of a patient, already perhaps labouring for every breath, must indeed be trying. If the poultices are frequently changed, the patient...
The patient is raised up, turned over &exhaled every two or three hours. If they are not frequently renewed, they become cold, hard and dry, and very irritating to the skin. What is the gain, to place again all these disadvantages of poultices? The poultice is not only but a local warm bath, while it remains hot, but unfortunately it has not the good effect of a cold bath, when the heat is lost. It has never been shown that poulticing exercises any curative effect upon the disease. I believe the majority of cases of acute pneumonia will be best treated without any local application to the chest at all. If there is pain, the heat pack, or if this be objected to, one or two teaspoonfuls of camphor or turpentine is generally all that is necessary. A colostrum diet, with stimulants when required, is found the best food.

Water Treatment of Acute Pneumonia.

In common with other acute inflammatory diseases pneumonia has been treated with the bath, several cold packs, submersion and others have strongly recommended the use of clothes dapped in cold water, well wrung, & thus applied so as to force the chest. Especially the affected side. These compresses are repeated every five minutes. A local chest pack has also
has also been used with success, it is found to aid in
with pain & dyspnæa & to lower the temperature.
It is in my opinion in every way preferable to
potash. The patient may be allowed to drink
cold water.

The cases appended illustrate to a greater or less extent
the benefits of hydromepanics in Scarlet Fever and
Acute Pneumonia.

There is acknowledge much information drawn from the
following works, not specially referred to.

Science & Practice of Medicine. Allain. 4th Ed.
Theory & Practice of Medicine. Britton.
Trans. of the Clinical Soc. of London.
The Water Cure. J. M. Gully M.D.
Treatment of Disease by Water. A. Forreston, M.R.C.S.

et. al.
Scarlet Fever

Case I.

I. M., a little girl aged 6.

First seen as case on the afternoon of Sep. 6.

Pat. was lying in beds with pain in the joints. She had vomited several times during the morning. The mouth had not been opened for several days. Her face was flushed and hot, tongue furred. Pulse 110, full, bounding. Temp. 101°.

The child first complained of being ill the day before. There was Scarlet fever in the neighborhood at that time.

The mother had previously a dose of Calomel.

Sep. 7th kept moving on calling. I found the child too weak to walk. She was in a delirious condition. The mother reported that the child had become rapidly worse since my first visit.

The tongue was dry and furred. The skin intensely hot and red.

The character of the pulse was very different from that of the day before, being now smaller and quicker, with obvious signs of approaching cardiac failure. Temperature 106°. 5°.

No passage from mouth or bladder.

She was at once placed in a bath, temp. 95°. Cooled down by adding cold water to 65°. She was kept in the bath for 20 minutes & then put to bed. Temp. immediately after the bath 103°. Pulse & general appearance very much improved. Temp. two hours after bath 102°.7.

(Therm. chart not shown on this chart.) On seeing the child...
about 3 o'clock the same evening. I found the temperature
had risen a little (103.5° F.) but the child had altogether
a better appearance. The rash was now plain on the
neck, chest, & abdomen. Plate 120.

From this time the case went on well. Although the temp.
rose on the five days to 105° F., the child seemed so well
that no second bath was given. The compresses were
applied to the throat throughout. The chart shows the
daily temperature, no drug was given but a little infusion
of potato in milk for the throat.

It is difficult to account for the initial high temperature
yet I think we may safely say, both on account of
the time of its occurrence, and the appearance of the rash
that it was not due to the development of the maculae until
the second rise of temperature from the 8th to the 10th being
probably due to that. Diversity beyond this explanation
that it was due to sudden severe action upon the nerve
centers from the first dissemination of the poison.
Scarlet Fever.

Case II.

A.C. Age 13

There is nothing specially of interest in this beyond that from the 5th to the 8th day of the illness the patient was treated with two cold packs of half an hour duration, a day. Cold compresses were applied to the throat thrice a day. The case did remarkably well — no drug was given.

The diet consisted of milk, strained rhubarb and rice, and buttery of beefsteak. — The patient has enjoyed better health since this attack, than he had had for years. — See Chart.
Acute Pneumonia.

A.D. a lad aged 9 years.

The mother of this patient is a high intelligent lady. She has attended a course of lectures upon Hygiene. She received a Certificate. The temperature, when I was not present, was taken by her. The red water. Sponging was from when I happened to go, it was sent for. No other application was made to the chest, no drug was administered after the 4th day of the disease, when I first saw this case. The patient although a delicate boy, is extremely ill for some time. Made an excellent recovery. The chart (showing the cold) shows how erratic the temperature is in Acute Pneumonia. 

I hereby certify that this thesis was composed & written by myself.

Portland, the 8th day of May, 1883.