Meeting X.—June 3, 1885.

Dr H. D. Littlejohn, *President, in the Chair.*

Original Communication.

ON THE DANGER OF NEGLECTING, AND ON THE BEST MEANS OF CONTROLLING THE FEBRILE STATE.

By T. M'Call Anderson, M.D., F.F.P.S. Glasg., Professor of Clinical Medicine in the University of Glasgow.

It cannot be denied that even at the present day, in dealing with fevers and inflammations, far too little attention is bestowed upon the element of fever; for it should never be forgotten that fever is of itself, either from its intensity or from its long continuance, a source of great danger, apart altogether from the cause which has induced it. And I have no hesitation in expressing the opinion that thousands of our countrymen are sacrificed annually owing to a neglect, or to a depreciation of the element of fever. This is especially the case with puerperal, scarlet, typhoid, and rheumatic fevers, and with acute phthisis.

No more serviceable nor more generally employed instrument than the clinical thermometer has come into use in the practice of medicine in recent years, but of how little value is it to the unfortunate patient if its readings are limited to aiding our diagnosis, or to giving an opinion as to the probable upshot of the complaint, as I have so frequently witnessed.

Fever is a consuming fire which, so long as it lasts, is accompanied by progressive emaciation and by increasing debility, so that as a rule it demands not inaction, on the lines of the old dogma that fever is an effort of nature to free the system from the noxious elements produced by the disease, and is therefore to be encouraged; not the use of so-called antiphlogistic remedies, but the employment of supporting measures. Of all the wise sayings of the late Dr Graves, perhaps the most sage was his remark—"If you are at a loss for an epitaph to be placed on my tomb, here is one for you: 'He fed fevers.'"

There are probably few at the present day who do not more or less act upon this principle, and who would not admit that the more intense and persistent the fever, the greater is the necessity for the administration of stimulants, given in small doses and at short intervals. But if a patient in danger of death from pyrexia must be well fed and freely stimulated, he must also be otherwise well nursed; indeed, the services of a trained and sagacious nurse are a *sine quâ non* in the management of such perilous cases.

These measures are of themselves calculated not only to mitigate

the ravages of the fever, but also to a certain extent to lower its intensity; but although indispensable to the maintenance of life, they cannot alone be relied upon to bring down the temperature in serious cases.

As you are well aware, the credit of having introduced the cold water treatment of fevers—chiefly in the shape of cold affusion—is due to James Currie, the founder of hydropathy towards the close of last century; but while hydropathy has flourished more and more since his day, the hydropathic treatment of pyrexia was soon forgotten, partly from the dread of an outraged public opinion, and partly because the wished-for result was not obtained, owing to its not having been used with sufficient energy and persistence, or with an abiding faith in its efficiency.

Cold, in some shape or other, is the most natural, and at the same time one of the most powerful measures at our disposal for reducing the temperature, although we must remember that the cooling down of the living body is a much more complex problem than that of cooling a body not endowed with life. This is apparent if we study the effects of the cold bath on a healthy person. The body protects itself in two ways: in the first place the cutaneous capillaries contract, thus limiting the abstraction of heat, and in the second there is a greatly-increased production of heat, so that although after the bath a slight cooling of the body takes place, during it (if it is not too long continued, and if the water is not too cold, thus putting too great a strain upon the regulating apparatus) there is no lowering, but even a slight rise of temperature. It is the same with a fever patient, with this exception, that the regulating power is not so active, and thus he is not so able to resist the cooling process. But still it is the persistent power of the fever patient to keep up his high temperature, just as a healthy person tends to keep up his normal temperature, which is the chief difficulty in the way of treatment.

Some benefit is to be derived from allowing our patient to suck ice *ad libitum;* from icing his food and drink; from sponging the body frequently with iced water or rubbing it with lumps of ice; and in certain cases Liebermeister's suggestion may be tried, viz., that of washing out "the intestinal mucous membrane for a length of time with a constant stream of cold water, by means of a double-action œsophageal tube carried far up the rectum, one pipe of which should be put in communication with the reservoir." In other cases cold affusion may be tried—although patients often object to it—and this may be done by bringing the head beyond the edge of the bed and pouring a quantity of cold water upon it. A more effectual method of treatment is the cold pack; and it has been estimated that three or four packs, each of half an hour's duration, is equivalent to a cold bath of ten minutes. Another useful remedy is the application of iced cloths to the abdomen, as recommended by me some years ago in the treatment of acute phthisis,

and which may be continued for half an hour or more at a time, the process being repeated as often as required, more especially if it is agreeable to the patient, who sometimes asks for its repetition.

The application of iced cloths is made in this way. The night dress is pulled well up over the chest, so as to avoid any possibility of its being wet; and, for a similar reason, a piece of Macintosh is placed across the bed under the patient's body, and another piece between the iced cloth and the bed-clothes. The usual bed-clothes are arranged so that they reach up to the lower part of the chest only, which latter is covered with a separate blanket in order to prevent unnecessary exposure while the iced cloths are being changed. Two pieces of flannel are employed in the process, each being sufficiently large, when folded into four layers, to cover the whole front and sides of the abdomen. One of these, wrung out of iced water, is applied, while the other is left in a large basin filled with iced water at the side of the bed. The pieces of flannel are changed every minute, or so often that *they still feel cold* when removed. The changing of the flannel, especially if two persons are in attendance,—one to remove the bed-clothes and the flannel, the other to apply the piece which is freshly iced,—can be effected with great ease and rapidity, and without exposing the patient to any injurious extent, if the preliminary arrangement of the bed-clothes is made in the way I have indicated. I have thought it right to mention these apparently trivial details, because I have often seen the process carried out in such a way as to be perfectly futile, and because I have frequently been interrogated on the subject.

The following case of acute phthisis illustrates this method of treatment, as well as other measures relied upon by me for the occasional cure of that disease:—

A carter, 25 years of age, whose family history was not unfavourable, but who was very intemperate in his habits, although he had never previously had an "hour's sickness," was admitted into the Western Infirmary of Glasgow on 20th May 1879, having then been ill for four weeks.[1] This illness set in on a Sunday morning with a feeling of sickness, which caused him to return to bed. In the evening he began to cough, and expectorated blood at first black and clotted, he said; afterwards, bright red. The hæmorrhage continued for four days, but in greatly diminished quantity, and consisted more of a blood-stained spit than of unmixed blood. The cough continued severe all this time, but disappeared in great measure with the hæmoptysis, about the fourth or fifth day. The day after the onset of the hæmorrhage he experienced severe pain in the right side of the chest, referred to

[1] For other cases, see the Author's *Lectures on Clinical Medicine, delivered in the Royal and Western Infirmaries of Glasgow*, p. 156. London: Macmillan & Co.

the mammary and suprascapular regions, aggravated by coughing and by lying on the right side. A week after he lay down the bowels began to be troublesome, moving frequently as often as five times in the twenty-four hours; the stools being thin and yellowish in colour, but not very copious. They had continued in this state when he entered the Infirmary.

Examination on Admission.—The patient was much emaciated, and very weak and exhausted. The skin was dry and hot, with perspirations at night, and temperature 103°; pulse 110, feeble; respirations 40, shallow and noisy; pulse-respiration ratio $2\frac{3}{4}:1$. He had occasional slight cough, with scanty clear mucous expectoration. Decubitus was dorsal. He had a slight flush on each cheek, and slight lividity of the lips. The alæ nasi dilated on inspiration. The tongue was slightly coated and moist. He had anorexia. The bowels were loose. There was no distension of the abdomen; no gurgling or tenderness in either iliac region; no eruption. The urine was 32 ounces, high coloured, acid, of specific gravity 1025; it contained a trace of bile, but no albumen. At the base of the right lung there were signs of moderate pleuritic effusion. At the left apex (especially in the supra-clavicular and infra-clavicular regions) were defective movements, slight flattening, moderate dulness. Moist (subcrepitant), mixed now and then with dry, *râles* were heard, and there was increased fremitus and resonance. At the base of the same lung posteriorly there was marked dulness, with very coarse crackling *râle*, and increased fremitus and resonance; over the rest of the lung there was a general want of resonance, with a mixture of dry and moist (subcrepitant) *râles*. There was no evidence of disease in any other organ.

Treatment.—26*th May.*—He had milk or soup every hour, the latter being avoided so long as there was looseness; also quinine one grain, digitalis half a grain, opium half a grain, every four hours. The opium in pills was increased on the 30th to three-fourths of a grain, on account of the looseness; but on 10th June, as he was sweating a good deal, as the other symptoms were moderating, and as there had been no motion for four days, the pills were diminished to three daily.

On 28*th May* iced cloths were applied to the abdomen for half an hour every two hours (it was afterwards ascertained that they had not been thoroughly used until the evening of 4th June), after which the temperature fell more decidedly. In the later stages they were omitted whenever the temperature was below 100°. At the same date, two drachms of brandy every three hours were prescribed.

30*th May.*—Subcutaneous injections of atropia each night were commenced—$\frac{1}{100}$ of a grain, gradually increased to $\frac{1}{70}$. Eight times during the course of the illness a dose of 10 grains of quinine was given when the temperature tended to be high, which

was generally in the afternoon or evening; and occasionally the body was sponged with iced vinegar and water.

The patient's improvement under this treatment was steady and continuous. On 10*th June* it was recorded that his appetite and general condition were much improved; bowels not moved for four days; pulse 80 and of fair strength; respirations 24; temperature during preceding twenty-four hours never up to 100° F.; cough less, expectoration scanty, and only clear mucus. Coarse *râles* at left base gone; replaced by *râles* partly musical and partly moist. The pill had a markedly diuretic effect.

On 2*nd July* it was noted that the expectoration was still present and yellower, but scanty; digestive organs natural, but motions still inclined to looseness; temperature normal; pulse 86 and of good strength; respirations 20-24. All *râles* had disappeared from left side of chest, except occasional musical rhonchi posteriorly. Diet good, including beef-steaks.

1*st August.*—Diarrhœa and sweats gone; pulse 84; respirations 18; expectoration scanty, muco-purulent; *râles* have completely disappeared from chest; percussion-dulness less pronounced; there is still slight pleuritic effusion at right base. Takes cod-liver oil, ʒvj. per day. 14*th August.*—Percussion-dulness very decidedly diminished. 29*th August.*—Is practically convalescent; no cough or expectoration; temperature normal, respirations 16; no trace of *râle* in any part of chest; pleuritic effusion at base steadily diminishing; at left base the respiratory murmur is still somewhat feeble, and in the left infra-clavicular region there remains flattening, defective resonance, and harsh breathing; there is also some dulness in the supra-scapular region. From 10*th August* to 6*th October* he gained 8½ lbs. in weight.

There can be no doubt, however, that the most certain and speedy manner of reducing the temperature by cold is by the use of the cold bath. In cases of great exhaustion this procedure involves considerable responsibility, because the slight fatigue involved in putting a patient into and taking him out of a bath may prove the last straw which determines a fatal issue from syncope, and because it is apt to appear to the patient's friends to be a very heroic remedy. But although this last consideration need not weigh with us if there seems thereby a chance of saving life, I am inclined to think that the medicinal treatment of hyperpyrexia, in combination with some of the milder methods of applying cold, will come more and more to supplant the use of baths, especially as we are almost daily becoming acquainted with new drugs which act with nearly mathematical precision in the way of lowering the temperature of the body. At the same time, I must admit that I have experienced most brilliant results from the use of the bath, and one case I shall never forget—that of a young governess labouring under typhoid fever of a severe type,

with a temperature of above 105° F. at the end of the third week of her illness. She had profuse diarrhœa, hæmorrhage from the bowels, pronounced hypostatic congestion of the lungs, and she was almost insensible and pulseless. In this case, in addition to giving quinine in large doses, she was put into a cold bath, after which she almost immediately rallied, and although it was some days before the temperature became permanently normal, she made an excellent recovery.

As regards so-called antipyretic medicines, time will only permit of my referring to four—(1.) Salicine and the Salicylates, (2.) Quinine, (3.) Kairin, and (4.) Antipyrin.

Salicine and the salicylates have been much vaunted of late as antipyretics. Thus Dr Lauder Brunton, in his valuable work on Pharmacology, Therapeutics, and Materia Medica, just published, says of salicine, p. 939, "It is an antipyretic;" and of salicylic acid, p. 741, "It is a most powerful agent in lowering the temperature in fever." Now, every one will admit that, in cases of rheumatic fever, these drugs generally speedily bring down the temperature to the normal; but why do they do so? Not because they act upon the heat centre, but because they remove the rheumatism which is the cause of the fever. As a matter of fact, they cut short the febrile movement just as the surgeon's knife does when he opens an acute abscess and gives free exit to the pent-up pus.

But further, you will sometimes find that even although salicine puts a stop to the pain and swelling of the joints, it does not of necessity control the fever. This is well illustrated by a case reported by my colleague Professor Gairdner, of which the following is an outline[1]:—

A female, 35 years of age, was admitted into the Western Infirmary, 4th April 1877, with acute rheumatism of six days' duration, attributed to getting her feet wet. There was a history of a similar attack nine years before. All the joints, except the hips and shoulders, were swollen and painful, and there was pericarditis with evident effusion, accompanied by pain in the præcordial region and headache. On the night of admission the temperature was 103°·8 F., and salicine in 20-grain doses was given every hour, but was changed after three or four doses to salicylate of soda; and although, with the exception of severe headache, all pain had completely subsided by mid-day of the 5th (24 hours after admission), the temperature rose rapidly till it culminated on April 6th in 106°·2 F. Salicine was pushed in large and frequent doses to watch its effect on the temperature; but as this gradually rose to hyperpyrexia, the treatment by means of iced-cloths to the abdomen, above referred to, was employed, with the effect of bringing down the temperature rapidly, and keeping it perfectly under control. She had in all 600 grains of salicine, and 200 of salicylate of soda.

[1] *Glasg. Med. Journ.*, Oct. 1877, p. 435.

In a paper recently published by Dr Holland of St Moritz, giving cases of phthisis treated by means of antipyrin, I find that in six of them the salicylate of soda was tried, and in not a single case was the temperature lowered in the least. To tell the truth, I have no faith in the salicylates as antipyretics except to the extent already indicated, and I am quite willing to have the matter tested, and to compare their effects with those of the other medicines about to be mentioned, if a case—such as typhoid fever or acute phthisis—is selected, in which all chance of a rheumatic element is excluded.

But, while sceptical as to the antipyretic virtues of the salicylates, I have formed a very different opinion with regard to quinine, which I was taught in my student days to avoid sedulously in all cases in which fever is present—though, curiously enough, an exception was made in favour of intermittent fever. It is unnecessary for me to dwell upon this subject, because probably all will admit that quinine is a powerful antipyretic, if given in large doses (10 to 40 grains in a single dose, or in divided doses within an hour). In fact we must, as Liebermeister has remarked, give such a dose as will bring down the temperature for a time to the normal, on the principle that an extremely violent fever, which has occasional intermissions, is much less dangerous than a less violent fever which is continuous, or only shows slight remissions.

The other remedies to which I refer in conclusion have only been employed for a very short time, so that their virtues as antipyretics have not yet been so universally recognised, although in some respects they are decidedly superior to quinine—these are kairin and antipyrin.

Kairin is an artificial alkaloid recently built up synthetically by Dr Otto Fischer of Munich, and is described as being the hydrochlorate of oxy-chinilin-ethyl. This (and other similar bodies) was handed over to Dr Filehne for examination in 1881, who found it a most powerful antipyretic. The dose is 8 to 16 grains every hour until the temperature is reduced nearly to the normal, and generally three hourly doses are sufficient. As the temperature falls the pulse and respiration become slower, and there is generally profuse sweating, which, however, ceases when the temperature is normal. The sweating may usually be prevented by administering an anti-sudorific about a quarter of an hour before the medicine is commenced, such as a pilule of agaricin (gr. $\frac{1}{20}$) (Riegel), or (gr. $\frac{1}{70}$) of atropia. As the temperature falls the patient feels more comfortable, and there is never any really bad symptom unless the drug is impure, in which case cyanosis and collapse have been known to result. But within twelve hours of the commencement of the kairin the urine becomes greenish in colour, and this continues for about twenty-four hours after it is stopped. When the influence of the kairin is exhausted, which

occurs generally in from two to three hours according to the dose, the temperature rises, and then the patient experiences a feeling of chilliness, and even a severe rigor is far from uncommon. (Chart shown illustrating the effect of kairin in a case of cancer of the ascending colon.)

This medicine has an advantage over quinine in so far as it brings down the temperature more rapidly, but it labours under the serious disadvantage that its effects are more transient.

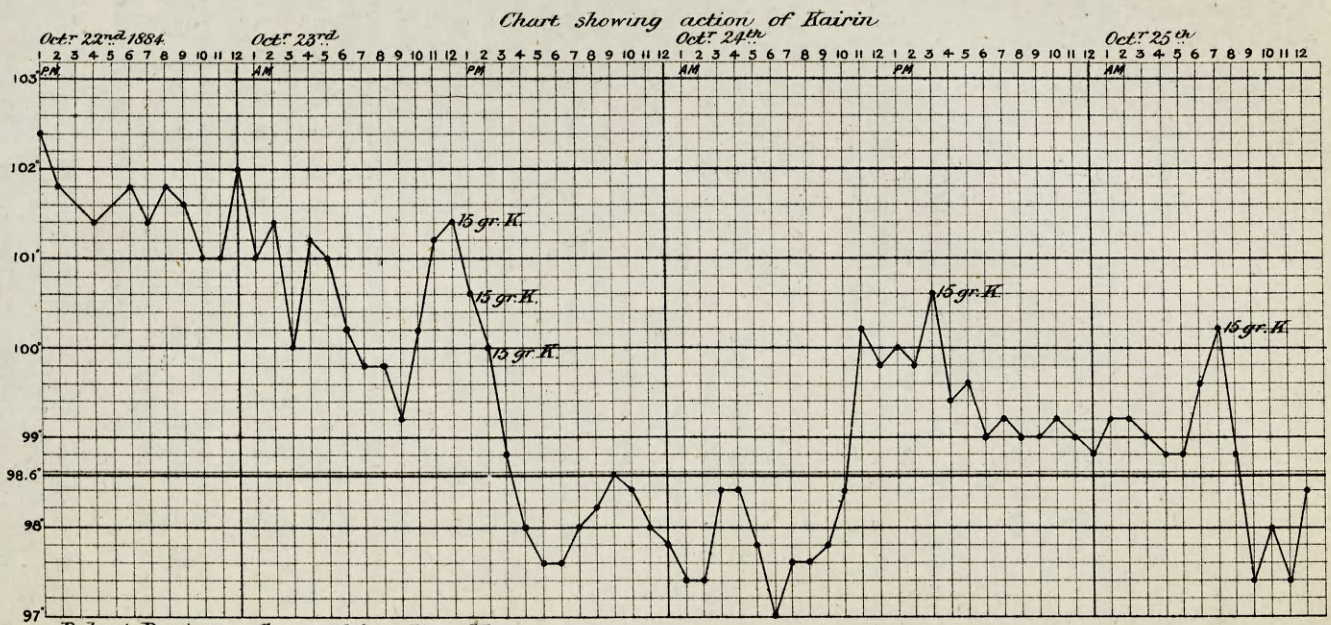
Antipyrin is a medicine still more recently introduced, and is a synthetic alkaloid belonging to the group of chinilin derivatives, for which we are indebted to Dr Knorr of Erlangen. The dose is from 15 to 30 grains, and the first effect of its administration is a dilatation of the cutaneous vessels, which is soon followed by a fall of temperature, accompanied by sweating. The normal temperature is not influenced by it, but where fever is present three hourly doses of 30 grains generally bring it down to or below the normal. (Chart shown illustrating the effect of antipyrin in a case of typhoid fever.)

Being so recently introduced, my experience of antipyrin is not so great as that of kairin, and I am therefore not prepared to speak dogmatically with regard to it. But while both medicines must be regarded in the light of very certain antipyretics, my present feeling is in favour of antipyrin. It is comparatively devoid of taste, is readily soluble in water (1 in 3 in the cold), so that it may be administered subcutaneously if desired, and it does not discolour the urine. It not only lowers the temperature with at least as much certainty as kairin, but is as a rule more permanent in its effects; the latter too often produces vomiting, headache, and epistaxis, and when the temperature begins to rise a rigor very frequently ensues, which, to say the least, is an unpleasant occurrence, and which may also lead to errors of diagnosis.

Quite recently Mingazzini has tried the effect of giving the two medicines in combination, and his experience is that in this way a more marked and more permanent fall of temperature takes place than when either is given separately; and, further, that when kairin is given along with antipyrin, the former does not give rise to the inconveniences which are apt to ensue when it is given alone. (Chart showing the effect of a combination of kairin and antipyrin in a case of peritonitis.)

Such are the measures which in my experience are capable of fulfilling the object in view—that of combating the element of fever when, from its intensity, or from its long continuance, it threatens the safety of the patient.

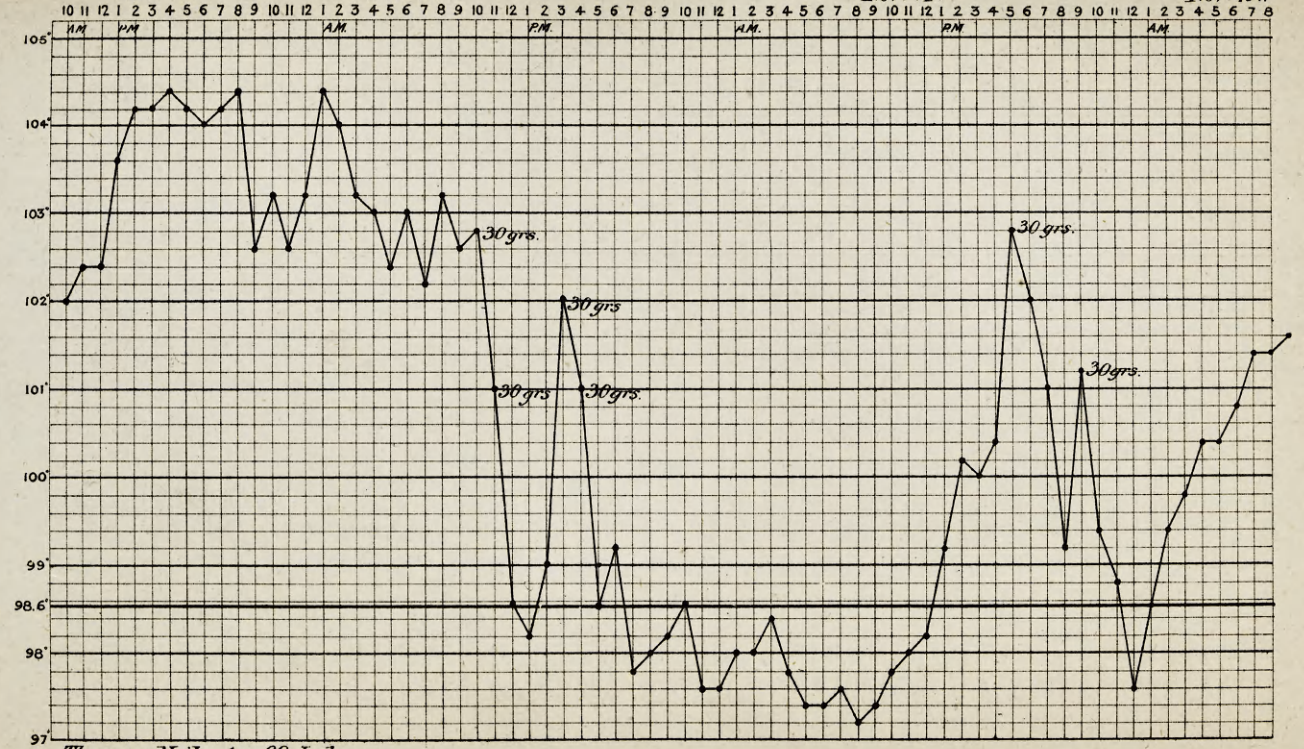
The President, in the name of the Society, thanked Prof. M'Call Anderson for his paper, and the trouble he had taken in coming from the West for the purpose of discussing this most interesting subject with them.



Robert Denison, Cancer of Ascending Colon.

See Journal of Ward II, Vol. O. Page 28.

Chart to show the action of Antipyrin

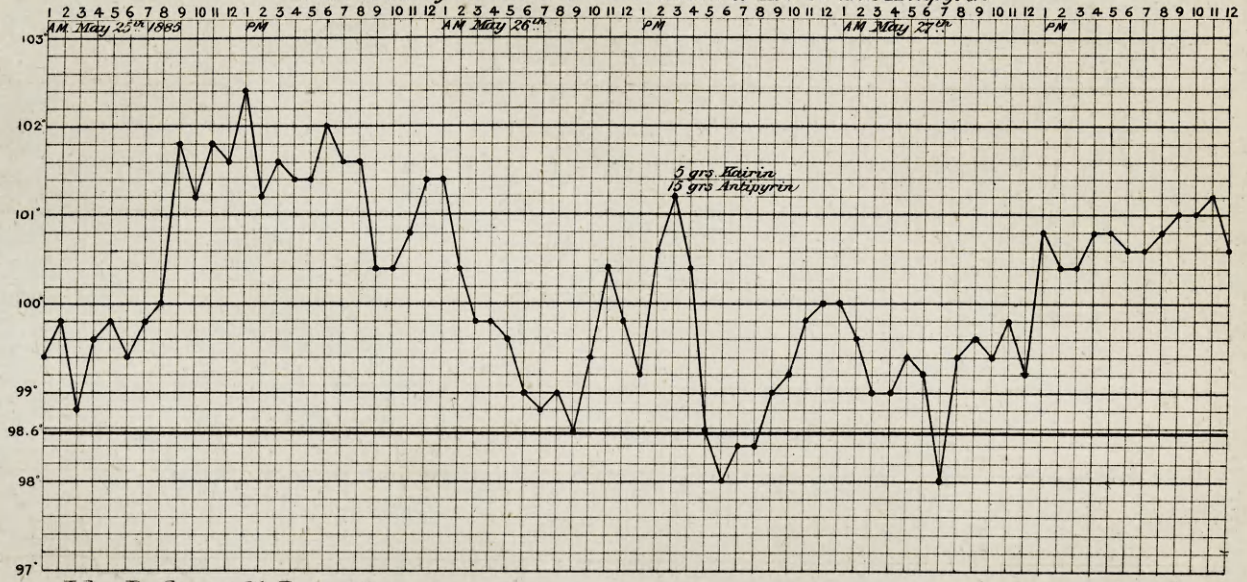


Thomas Neil, Age 28. Labourer.

Journal II. O Page 57.

Typhoid Fever

Chart showing action of a combination of Kairin and Antipyrin



John Boyle aet. 14 Peritonitis

Prof. Grainger Stewart said it was a matter of gratification to himself, and he was sure also to every member of the Society, to have had the advantage of hearing Dr M'Call Anderson on such a subject. The Society was much indebted to him for coming to Edinburgh and giving them such an interesting and practical paper. Any one accustomed to teach must have noticed the teaching faculty manifested in the statements laid before them, the clearness with which facts were marshalled, the lucidity with which every statement was made. To begin with the latter part of the paper, it seemed to him that if any of them were in doubt with regard to the powers of the two newest antipyretic drugs, kairin and antipyrin, they had in the tables before them evidence of considerable value to satisfy them on that point. Those of them who had had opportunities of trying these drugs would agree that the German observers had not claimed too much in saying that they had powers equal to quinine as antipyretics. He did not know that in the meantime he would be prepared to say absolutely that he would have the same confidence in them as in quinine for reducing temperature. If he had an anxious case of pneumonia with the pyrexia threatening life he would still give the preference to quinine. At the same time, he thought it quite possible that these new remedies, either singly or in combination, possessed some advantages over quinine, in respect that some of its disagreeable effects might perhaps be avoided. He should like to ask Dr M'Call Anderson if he was in the habit of using salicylate of quinine, a drug introduced by Dr Graham Brown when Resident Physician to the Infirmary. This drug had a remarkable power of diminishing temperature, and while sometimes it seemed to have an unfavourable action on the heart, yet, as a mere depressor of temperature, he would claim for it a high place. Among other things, he thought they were bound to recognise the fact that Dr M'Call Anderson had done good service, by the suggestion he made a number of years ago with regard to the lowering of temperature by the method he had described so clearly that evening. By this plan there could be no doubt that, if carried out as indicated, it was of great service in the way of lowering temperature and diminishing the discomfort felt by patients in the febrile state, while it did not involve the dangers which some of the more complete methods of applying cold were attended with. The first part of the paper opened up a question in which Dr M'Call Anderson had interested them a few years ago when he published his treatise "On the Curability of Acute Tubercular Disease." In the profession generally there had been a good deal of scepticism with regard to his opinions on that subject. It would be interesting to have the opinions of members of the Society elicited. For his own part, he had no doubt that cases of acute catarrhal pneumonia of great severity with high temperature not unfrequently yielded to

treatment. It was a different question with regard to a truly tubercular process. Did they ever get a recovery in such cases? Dr M'Call Anderson claimed that he had seen this take place. There was one fact he could contribute of some importance, that he had seen post-mortem obsolete miliary tubercles over the surface of the peritoneum, pleura, and pericardium, and throughout the substance of the lungs and liver. It was clear that such cases must have passed through attacks of widely diffused tuberculosis without succumbing to it, the death being due to some other disease long after the tubercular action had run its course. This seemed to point to the correctness of Dr M'Call Anderson's view that the unhealthy action might subside, and a practical recovery of health occur.

Mr Joseph Bell, on the call of the President, said that he felt indebted to Prof. M'Call Anderson for his paper, which had given him a good deal of information. There was one thing surgeons were anxious to get, a reliable drug to give prior to certain operations, more particularly some of the more common ones on the urethra, such as the passage of a catheter. There were some urethras that would bear any amount of handling, but there were others that could not be touched without causing febrile disturbance. He did not know how frequently this happened till he began to note the temperature in every one of his cases where this had to be done. He had for some time past been in the habit of preparing his patients every time instruments required to be passed by giving a large dose of quinine shortly before. In most cases the quinine did very well. In others it did not suit at all, and he was glad to hear of such a drug as antipyrin, where the effects were as good and not so lasting. As an example of the way in which some of these cases were affected, he might mention one case, in which the temperature after the passage of an instrument went up on several occasions to over 106° F., and yet all the time did well surgically, no cystitis nor any other mischief occurring, and the stricture being cured.

Dr Byrom Bramwell desired first to express the pleasure with which he had listened to Prof. M'Call Anderson's paper. He agreed with Prof. Stewart that there was some pathological evidence in favour of the view that acute tuberculosis was curable. He had met with more than one case in which what appeared to be tubercle in the pleura and lung substance was cured by fibrosis. He also thought he had seen cases in life in which what appeared to be tubercular meningitis went on to a favourable termination. He was not by any means alone in holding this view. Dr Bristowe, for instance, in a recent number of *Brain* had reported two cases which appeared to be of this nature. With regard to the case which Dr M'Call Anderson had related, he was not sure that he could agree with him in thinking it to be one of acute phthisis. He would like to ask him how he

would distinguish between such a case and one of pneumonia undergoing a slow resolution. He remembered one case in which this difficulty in diagnosis had occurred. A sailor who had been ill for some weeks at sea came under notice with dulness over both apices, and fine metallic crepitations. The case appeared to be one of acute and rapid tuberculosis. Contrary to expectations the patient gradually and slowly mended under the dietetic and antipyretic treatment. He (Dr Bramwell) then came to the conclusion that probably the condition had been one of double pneumonia at the apex, a very rare condition. During the stage of resolution it was practically impossible to distinguish between such a condition and acute phthisis. He did not see anything in the clinical symptoms of Dr M'Call Anderson's case as they were read which appeared to him inconsistent with the view he had just suggested. In Dr M'Call Anderson's previous cases there was evidence of peritonitis, but in this case it was not so. The diarrhœa that occurred could hardly be brought forward as an evidence of tuberculosis. It would be difficult to realize that there could have been any tubercular ulceration of the intestines to have caused it. He had ventured to express this opinion with all deference, as it was difficult to grasp all the particulars of a case on hearing it read for the first time. The general question of fever was a difficult one. Some authorities, and Nothnagel, for instance, deprecated treating of fever. Hysterical rises in temperature were interesting, but Dr M'Call Anderson had not alluded to them. Some of them were doubtless fictitious, but there were others in which the patients were carefully watched, and all sources of error eliminated, and yet the temperature rose to an extraordinary degree without any danger to life. Notwithstanding such cases, they must agree with Dr M'Call Anderson that when the temperature reached a high point it was usually injurious, and must be actively combated. They must also agree with Prof. Grainger Stewart, that credit was due to Prof. M'Call Anderson for introducing such an easy method of reducing the temperature, more particularly where it was due to some localized lesion such as peritonitis. With reference to salicin and salicylate of soda there was one point he should like to mention. Long before Dr Maclagan of Dundee drew attention to the value of these drugs in the treatment of rheumatic fever, Sir James Simpson was in the habit of prescribing "the bitter principle of willows," as he called it, in the treatment of rheumatism. He did not know if Sir James had prescribed it in rheumatic fever. In mentioning this fact, he did not wish in any way even to appear to detract from the great merit due to Dr Maclagan's original discovery.

Mr A. G. Miller corroborated Dr Bramwell's statement regarding Sir James Simpson's recommendation of salicin. He remembered its being used in the Cowgate Dispensary 25 years ago instead of quinine, as it was so much cheaper. Dr M'Call Anderson, in the

earlier part of his paper, speaking of giving food to fever patients, mentioned also the administration of stimulants, by which he supposed alcoholic stimulants were meant. It seemed to him that the two, food and alcohol, should be widely separated. Alcoholics administered in fevers might act in a totally different way from that of giving nourishment. In peritonitis, by administering opium life could be maintained on a much smaller quantity of food. He believed that alcohol acted in much the same way. Another point he wished to mention—the high temperatures in connexion with operations on the urethra mentioned by Mr Bell. He had had several instances of this. In one quite lately, after bougies were passed, the temperature went up to 106°·2. The next morning it was sub-normal. The patient was apparently not one bit the worse. This raised the question, What was fever? Dr M'Call Anderson seemed to have taken for granted that high temperature meant fever. Such cases as these, and the hysterical cases referred to by Dr Bramwell, seemed to indicate that fever was something more; therefore a remedy that simply brought down temperature was not necessarily an antipyretic. With reference to salicylate of quinine, when he had charge of the erysipelas wards, he found that the combination of carbolic acid with quinine enabled him to bring down the temperature. With smaller doses of quinine ♏j. or ij. of carbolic acid to 5 of quinine acted as well as 10 or 20 of quinine alone.

Dr Clouston said many of them would like to hear from Dr M'Call Anderson the probable reason of the fall of temperature in those cases he had mentioned, whether the drugs acted by controlling the diseased nutrition in those localized conditions, or whether they acted by depressing the nervous action. High temperatures were caused in very different ways. High neurotic temperatures were, no doubt, caused by direct excitation of the nervous system. In complicated cases, as mania with the puerperal state, medicines like quinine acted apparently as purely nervine depressants in a direct way on the nervous centres. He had seen quite as marked results in puerperal mania from the use of quinine in doses from 10 to 20 grains, as Dr M'Call Anderson had obtained with the new medicines.

Dr Hunter (Linlithgow) said it might be within the recollection of members of the Society, that he had read a paper before them on an "Epidemic of Typhoid Fever, with special reference to its Treatment by Antipyretics." He then produced charts to show that the treatment by antipyretics resulted in a lower death-rate than had been obtained by him by any other method. The antipyretics used were the salicylates, chiefly the salicylate of soda. Dr M'Call Anderson might recollect reading a paper in the *Lancet* by Dr Tomkins of Manchester, on the treatment of typhoid fever by sodium salicylate, in which he stated that he had found the latter drug a most trustworthy antipyretic. That it did depress

they must allow. A more extended experience had led him to combine with the soda salt four or five grains of quinine. From this combination he had got the same results as from the more expensive salicylate of quinine. With regard to the general question of fever there was one idea that occurred to him during the discussion. Every patient did not bear fever alike. Some had a temperature of 105° or over, and did not seem much put about by it. Others, children especially, in whom convulsions were apt to occur, suffered greatly. Lower the temperature and the sufferings at once disappear. The child goes to sleep, and the mother would say that the draught her child had got must have contained an opiate. In cases in which no grave symptoms appeared there might be no treatment required beyond watching. An objection to quinine was its expense. A cheaper antipyretic was sulphate of cinchonidine, which was very trustworthy. Another valuable antipyretic not alluded to, was a combination of carbolic acid and iodine. He had used this in a case of typhoid, in which the high temperature was probably due to blood-poisoning induced by the intestinal ulceration, and with excellent results.

Dr Foulis knew nothing more interesting than the fact that the temperature of the human body, in a state of health, in all parts of the world, was about 98°·4 F. Should the temperature rise above this, then we had fever. Sometimes the temperature of the body in fever went up to 110° F., and in considering the nature of fever, it should always be borne in mind that before the heat or caloric becomes sensible, *i.e.*, affected the thermometer, an enormous amount of such heat became latent. What did we know of the causes which produced such a high temperature in fever? Almost nothing. He would like to ask Prof. M'Call Anderson how it was that he had not mentioned aconite as a means of preventing and reducing fever. He doubted if there was any physician who had not had satisfactory results from its scientific use. It used to be taught that the thermometer and aconite should go hand in hand. An interesting and most important question was, How did all these fever-reducing drugs act? Did they act all in the same way? The cold cloths acted in abstracting heat or caloric from a body hotter than themselves, but it was more important to know how such drugs as aconite, antipyrin, and kairin acted. There was a method of reducing temperature which had not been mentioned, and that was the application of warm moist poultices to the whole abdominal region. He had employed it in many fevers, but particularly in scarlet fever, and at the same time was in the habit of giving his patients as much cold water to drink as it was possible to get them to swallow. This treatment was carried out day and night in the case of scarlet fever, and not a drug of any kind was given to his patients. Constant diaphoresis was kept up by this means. In the course of ten years he had not lost a case of scarlet fever by this treatment, and he held

the opinion, that it was decidedly wrong to administer aperients and such drugs as determined blood to the mucous membrane, rather than to the skin, in such a disease as scarlet fever. Most fevers had a course to run, and could not be cut short by any drugs; but high temperature could very generally be reduced by free diaphoresis and diuresis. It was a most important matter that they should have a better acquaintance with the physiological action of the drugs they employed. It did not become them, as scientific practitioners of medicine, to use drugs of the action of which they knew little or nothing.

Dr Ireland said that if Dr M'Call Anderson were a prudent man he would ask for another night to answer the great number of questions which were being put to him by so many distinguished physicians. He had another question to add to the number. There was always a difficulty in his mind as to whether intermittent fever should be treated in the hot stage at all. It was a complex fever with a hot, a cold, and a sweating stage. When the cold stage was going on they never thought of depressing the temperature. When they came to the hot stage, in which the distress to the patient was greatest, ought they to try to relieve him by depressing the temperature? He had always felt this a difficulty. It was generally held by those who had great experience, that there was no use in giving quinine during the hot stage. It was given in a large dose at the end of the fever to prevent the next attack. The administration of diaphoretics to make the skin moist appeared to be following the natural course, as the sweating stage gave relief. This was a matter of very great interest so far as hot climates were concerned.

Dr Affleck said that with regard to the cases of alleged acute tuberculosis, he quite agreed with the view taken by Professor M'Call Anderson, and at the time he published his papers, he felt inclined to write to him that he had seen cases in which the diagnosis could hardly have been anything but tuberculosis, and where a cure was effected on the lines recommended by him. With respect to the use of antipyretics in fever—having been constantly in the habit of treating fevers by antipyretics and otherwise—he could say that his experience was that the best of them would sometimes disappoint expectations. The fever they were most available in was, undoubtedly, typhoid—a long continued fever—where it was of importance to restrain the febrile action. There was really danger to the system from the continuance of fever, apart altogether from the poison which may be in operation. He thought that both experimentally, as shown by Dr Wood—by applying heat directly to the body—and also in such an affection as sunstroke, there was evidence that there was danger from mere febrile action, and in a long fever such as typhoid it was of consequence to restrain, as far as possible, the course of the temperature. In many cases the fever was not of great intensity,

and they could cut it short by any means in their power, because there was local action going on; but when it attained a certain height there was great danger of it passing out of their control, and the timely treatment or prevention of it was of importance. He had used most of the antipyretics known, and at the present time was using chiefly antipyrin with very great benefit. It had many of the advantages of quinine without some of its disadvantages. It was more easily administered, and did not sicken, as quinine sometimes did. It had yielded favourable results in lowering temperature and keeping it down. It must be borne in mind that by these antipyretics they did not shorten the case, but still it was of great importance to convert a continued into an intermittent fever, so as to break continuity, and give the body a chance to rehabilitate itself. This afforded the patient a better chance of life. They should interfere before the temperature rose too high, because it might pass to such a height that nothing would reduce it and save life. He had a chart with him of a case in which the temperature rose very rapidly from 105° to 108°·2. Cold baths were not available, but the wet pack was applied. The temperature went down, but rose again when the sheet was removed. It was again applied and the temperature again brought down, but the patient died. When the temperature rose over a certain point the heat-regulating mechanism had passed from under control, and antipyretics might be of no use. With regard to initial high temperatures, he agreed that the use of some hot application might be of benefit in the exanthemata. He had used it frequently in the form of a hot pack in scarlet fever. His experience of that fever had not been so fortunate as that of Dr Foulis, because he had seen cases of malignant scarlet fever where no human means could prevent a fatal result. The pre-agonic temperature (so called by Wunderlich and others) in scarlet fever, alcoholism, and injuries of the head—a temperature which suddenly rushed up before death—was one in which antipyretics would have no effect at all; but the high temperatures in rheumatics and typhoid fever were those in which they should be tried. In addition to the administration of drugs, the topical applications for lowering the temperature and the sucking of ice should be tried. As to the question of dieting, the diet he found most suitable was undoubtedly milk. His experience in the typhoid wards was that the severe cases would not take anything but milk; the milder cases might have a little more appetite, and were sometimes gratified with bread puddings, etc. As the case advanced the employment of soups, custards, and albuminoids was indicated. They continued milk till convalescence, and sometimes even through it. A slight change in diet, even during convalescence, might be followed by a rise in temperature, which might bring on a relapse. It was important to attend to this in scarlet fever, where it was much more difficult to make the patients obey,

because they did not feel in their convalescence so weak as those recovering from some of the other fevers. He had seen severe kidney complications from patients taking animal food surreptitiously during their convalescence. He thought it was of importance to employ the thermometer during convalescence as well as during the fever. He did not know how they would find out relapses sometimes if they did not. The pulse was not always a guide, as it was occasionally where the temperature was high. He should mention that they could hardly dispense with the administration of alcoholic stimulants. There were a few mild cases in which they might not be given, but in most they were a necessity. When the first sound of the heart became very feeble, they could not be dispensed with. He often gave alternately with them the diffusible or ammoniacal stimulants, more particularly in cases where there was a tendency to blood stasis.

Dr Graham Brown rose to make a statment of a historical nature regarding the thermometer. It so happened that certain manuscript books belonging to an Edinburgh physician who died over twenty years ago had recently come into his possession. That gentleman had attended at the Infirmary in 1803, and it appeared from his notes that it was the regular practice in the clinical wards to take the temperature by means of the thermometer.

Dr P. A. Young rose to mention a fact, showing that, as Solomon had it, "there was nothing new under the sun." It had occurred to him on hearing Dr Bramwell's remark about Sir James Simpson's recommendation of salicin. A relative of his, the wife of a medical man at the Cape, was being treated for rheumatism. Among other things an old Hottentot woman recommended her to take a decoction of willow, which apparently had been known to these people as a household remedy for a very long time. He had been much interested in Dr M'Call Anderson's paper on the Curability of Phthisis, and had adopted the treatment he had suggested, but without the same good results. He now saw that he had not fully comprehended the importance Dr Anderson attached to the application of cold to the abdomen, and trusted that by carrying this out with greater fulness, he would be more successful.

Dr Haddon was understood to object to the cold-bath treatment of fevers and the local application of cold, even when done by means of rubber pipes as recommended by Dr Roberts of Manchester, and to enter his protest against the use of such drugs as kairin and antipyrin.

Dr Allan Jamieson had heard with much pleasure the remark that fell from Dr Graham Brown. It was quite true that the thermometer was used in the investigation of disease long before Dr Aitken introduced his self-registering thermometer. It was the fact of the thermometer not being self-registering that prevented its being so extensively used as it was now. The thermometer had then to be read *in situ* and in the case of

infectious diseases, such as typhus fever, the disease was apt to be communicated to the observer. Hence it fell into disrepute.

Dr Hunter (Linlithgow) asked if the bacillus was looked for in the case of phthisis.

Prof. M'Call Anderson said that so many questions had been asked, that if he had a small dose of antipyrin with him he would be inclined to take it before attempting to answer. There was one gentleman—Dr Affleck—with whose remarks he most thoroughly agreed, and he was glad to hear from him of his success with antipyrin. Dr Ireland had asked him about the treatment of the hot stage of intermittent fever. He certainly would not, as a rule, give antipyrin or any other antipyretic, as the patient's life was generally in no danger from the fever. He had, however, found that three drops of nitrite of amyl often stopped a paroxysm of ague. It did not cure, but it was sometimes useful to be in a position to avert a paroxysm. Prof. Stewart had referred to the subject of the curability of phthisis. He had not intended to have spoken of this that evening, but as it had been introduced he might say a word or two. Probably most of them were aware of the fact that a patient might die of a certain disease, and at the post-mortem tubercles be found in the lungs, which had given rise to no symptoms during life. When they gave rise to symptoms, it was by causing inflammation in the lung substance. They recognised two forms of tubercular disease—pneumonic phthisis and miliary tuberculosis. It was now, however, generally conceded that both of these were essentially tubercular in their nature. It was said in the review on his work in the *Edinburgh Medical Journal* that the cases he had published were cases of pneumonic phthisis. He regarded that in the light of a compliment, as acute pneumonic phthisis was in his opinion the more surely fatal of the two forms, because it produced such rapid and wide-spread destruction of the lung substance. Passing on to other questions, Mr Miller had very truly said that mere high temperature did not constitute fever, as was shown by hysterical temperatures, but every one would admit that the elevation of temperature in such a condition as typhoid was an element of the fever, and a valuable one to them, as it could be easily gauged. If they found a patient with a high temperature in a state of delirium, very rapid breathing, and uncountable pulse, and sleepless, and if after giving an antipyretic he fell into a sound and refreshing sleep, and the temperature at the same time came down, then they had a right to say that for the time they had removed or diminished the fever. Dr Foulis had charged him with not entering into the physiological action of the drugs, but his paper was essentially a practical one, and he was not inclined to enter into theories, nor could he agree with Dr Foulis that they should not use remedies the action of which they did not know. If he did, he would have to retire from the profession altogether, as we knew very little of the

action of the majority of the drugs which were used and found efficacious. He had not mentioned aconite, because he did not believe in it as an antipyretic. He did not think any hospital physician did, at least he did not know of anyone who was in the habit of using it in a case of hyperpyrexia. Dr Hunter had spoken of the value of the salicylates. His opinion differed from the experience which he (Prof. Anderson) had had, and there was one thing he would say, and that was, that he did not think they could gauge the action of antipyretics satisfactorily in general practice. They required to have a careful and skilled nurse to look after the case, and take the temperature every hour, as was done in the cases he had brought before them, and whose charts he showed. They should be careful of testing the value of the salicylates, unless they had an hospital in which their observations might be made with the utmost accuracy. He would, however, remember what Dr Hunter had said, and would be glad to give the salicylates another trial. As to salicylate of quinine, he had no experience of it. If it was a valuable antipyretic, he would be inclined to say that it was the quinine, not the salicylic acid, which did the good. Dr Roberts's method of applying cold by rubber piping had been referred to. They had long been familiar with this use of indiarubber tubing in Glasgow. Leiter's metal tubes were even better than the rubber pipes, as they were much less liable to accidental obstruction, but they were heavy, and patients generally much preferred the use of iced cloths employed in the way he had described.

Meeting XI.—June 17, 1885.

Dr H. D. Littlejohn, *President, in the Chair.*

I. Exhibition of Patients.

Dr Allan Jamieson showed two cases of a rare eruption of the skin—LICHEN PLANUS. The first was a woman aged 48, a patient of Dr Alex. Bruce, who had kindly brought her to him. The eruption had lasted only about three weeks. It appeared first on the chest, then spread down the legs and arms. It was most characteristically seen on the chest, and consisted of papules and patches, the papules presenting the appearance usually seen in lichen planus, —dull red spots, glancing on the surface, in this case round and with a slight depression in the centre. It was accompanied with itching. The case was one of those described by Lavergne as acute lichen planus, in which the eruption spreads very quickly over the body. It was not known to Hebra, who spoke of the great chronicity of