vegetation, it has often been found that the rock consists of granite in process of disintegration, in common language, "rotten granite", holding an immense amount of moisture, and largely charged, as Friedell has shown in the case of Hong-Kong, with fungi, which, with the addition of high temperature, give, when exposed to the air, the conditions required for the generation of malaria. In yet a third class of cases, it has again and again been found that the cause of the fever has been traced to the condition of the drinking water in wells left uncleansed for ages, and charged with malaria, the result of the decomposition of organic matter accumulated in them. In every known case of malarial fever occurring in ships at sea, the cause of which has been investigated by competent persons, it has been traced to one of three causes: (a) either recent charging of the systems of the victims with malaria, by residence in a malarious locality, as is seen every day in our invalids returning from India; or (b), the genesis of malaria in the holds of ships by the decomposition of vegetable matter, e.g., chips left by ship-builders, acted on by bilge-water and high temperature; or (c), a still more frequent cause, the issuing to the crews of drinking-water taken from places notoriously malarious, as in the famous example carefully recorded by Boudin. If chill after exertion could generate a genuine paroxysmal fever with its sequels, this class of fevers ought to prevail as a common disease among the maritime population of all countries, which is not the case.

5. Dr. Inman dismisses with a sneer the examples I gave in my critical notice of Dr. Munro's paper, of malarial fevers following immediately on disturbance of the soil in Hong-Kong and Paris. But the facts cannot be sneered away. It was not the workmen engaged in the above operations, heated by day and chilled by night, who alone suffered, but the population exposed to the emanations from the soil, as recorded by many observers quite as competent to note natural phenomena as either Drs. Oldham or Inman.

At Hong-Kong, at the time indicated by me, four officers of Artillery, of whom my friend Major-General Barrow, C.B., is now the sole survivor, occupied a bungalow at a considerable height above the level of the hill-side on which excavations for building were being carried on. They enjoyed perfect immunity from the fever which prevailed lower down. At last, a young and inexperienced officer insisted on scarping away part of the hill-side, to give more room in rear of his own bedroom, thus exposing a large slice of soil to the air. The result was an attack of remittent fever that cost him his life, with the dangerous illness of two of his brother officers from the same cause; and the immediate abandonment of the house was rendered doubly necessary from the prostration of most of the servants, who, up to this time, had escaped. Will a reference to the stale joke about "Tenterden steeple and the Goodwin Sands", explain such a fact as the above? There is not a coffee-planter in India who could not give Dr. Inman many such examples from his own experience.

6. Dr. Inman justly enough points to the fact that chills cause bronchitis and pneumonia, and, as in the case of the servant-girl mentioned by him, congestion of the kidneys, and he might have added, rheumatism in all its degrees. Who disputes so familiar a fact, known to every adult person in this realm? What Dr. Inman fails to see is that, when men die from any of the above causes, we do not see in their organs after death the changes observed with an uniformity as remarkable as the phenomena of the disease itself, in those who perish from malarial fevers—the diseased blood, the pigmented organs, the diseased spleens and livers, the tinted skins, in a word, the whole train of morbid appearances characteristic of the malarial cachexy. If Dr. Inman, instead of taking his notions on malarial diseases at second hand, will pay us a visit at Netley in the coming summer, it will give me pleasure (as much pleasure, at least, as can be derived from the contemplation of so sad a sight) to show him, by the hundred, men with the stamp of malaria on them so plainly marked that those who run may read; and on the shelves of the museum the results of the action of an agent, that, call it by what name we please, works on the organs of man, in a way not explicable by the "chill" theory of Dr. Oldham or his supporters.

THE TREATMENT OF ACUTE RHEUMATISM.*

By THOMAS S. DOWSE, M.D., F.R.C.P.Ed.; Medical Superintendent of the Central London Sick Asylum, Highgate.

As a mere humble clinical observer, I should not have ventured to trespass upon the valuable time of this Association, if I did not feel that, in the relief of suffering humanity, as far as our honest endeavours extend, we are each and all of us upon one common level. The

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end and aim of medical science is not to record an age of special originality, unless it have a direct bearing upon an improved treatment in the art of healing, and the simplest paths of learning in this respect must not be ignored. The rapid advances which have been made of late years to throw a flood of light upon a hitherto darkened spectrum, must claim at all times our warmest approbation and most careful scrutiny. Yet there are some, and by no means unessential, points in the treatment of diseased states which no aids at our command can reveal, save the practised eye and careful observation of the painstaking practitioner. In the few remarks which I am about to make to you, I shall not allude to any obscure theories, but I shall confine myself strictly to the practical part of my subject. The essential nature of my treatment of acute rheumatism is both eliminative and pyretic. I believe it is usually admitted that the *materies morbi* circulating throughout the entire body in this disease is of an acid character—lactic, if you will; and, although there might be some doubt as to whether this be correct or not, still it is quite certain that we have a condition to deal with in which acidity is the most prominent feature. I am not aware that its causation has been explained in any more definite way than that it is in all probability the product of malassimilation producing faulty tissue-metamorphosis. The vagueness of such a definition as this must at once be admitted. It is quite certain that especial individuals are prone under fixed laws to the generation of this rheumatic factor; that the like individuals are especially subject to a nervous condition known as chorea, and that these alternate in the same person is a matter of daily observation; but the relation which this has to the etiology of acute rheumatism, on the one hand, and chorea, on the other, has never to my mind been explained.

It is the rule (not, however, without its exceptions) that the poison of rheumatic fever is generated in an especial type of constitution, and characterised by a definite train of symptoms and signs which are well known, and need not be here enumerated. In addition to these, however, we have fibro-serous inflammations and muco-congestive complications.

It would be useless for me, in the short space of time allotted to the reading of this paper, to attempt to describe fully the various opinions which have from time to time been put forward in reference to the treatment of this disease; but, under all circumstances, the chief point of clinical interest to the physician must be to prevent inflammation of the heart and its membranes. For some time, the alkaline treatment so much advocated by the late Dr. Fuller held unbounded sway, and the admirable tables drawn up by Dr. Dickinson in 1869 prove most incontrovertibly that alkalies have the power to prevent endocardial and pericardial inflammation. In this year, Sir William Gull and Dr. Sutton somewhat startled the profession by bringing forward a number of cases successfully treated by mint-water; in other words, by adopting careful regimen, mechanical and physiological rest, and allaying pain by opiates. Under this treatment, the average duration of the acute symptoms was seventeen days. Some years ago, when I was registrar at Charing Cross Hospital, the treatment of this disease occupied my serious attention. Dr. Salter gave three grains of quinine every three hours, whilst Dr. Headland gave alkalies. I then found that the course of the disease was cut short by the quinine, but that the tendency to heart-complication was greater than when it was treated by alkalies. From a careful survey of the various modes adopted in the treatment of acute rheumatism, including vapour-baths, lemon-juice, tincture of iron, aconite, hydrochlorate of trimethylamin, blistering, and others, I am inclined to think that its progress can be cut short by the means which I shall immediately explain to you, and that cardiac inflammations can be avoided. I am right in stating it to be an admitted rule that, if valvular disease of the heart or pericarditis supervene upon an attack of rheumatic fever, it does so within the first week or ten days. This is to a certain extent undoubtedly correct. I am one of the few who believe that inflammation of the endocardium is a constant attendant of the acute rheumatic state, not giving rise in many cases to valvular lesion at the time, but predisposing to subsequent change, which reveals itself under circumstances apparently the least provocative. It is quite true that in acute rheumatism no absolute *bruit* referred to the sounds of the heart can, in the majority of instances, be detected, and at the base the sounds will be clear and natural in rhythm, but at the apex they will be attended by a characteristic turbulence and commingling, which, with the hurried action of the heart and feeling of oppression in the epigastrium, will be indicative of hyperemia of the mitral valves.

Thus it seems to me that, in the treatment of rheumatic fever, we have, first, to consider the best way to eliminate the acid products of the diseased state; secondly, to relieve pain. Beyond this, the case can be treated as an ordinary one of functional glandular derangement, or febricula; for, when once the sour secretion from the skin is

eliminated (no matter how acid the urine might be), the pain subdued, and the temperature influenced, we need have no fear of heart-complication arising. Then comes the question, What are the best means, if there be any, to bring about this condition?

During the past three years, I have been in the habit of packing most of my cases in a wet blanket, and afterwards rolling them up in dry blankets, so as not only to promote profuse sweating, but also to increase the temperature. This mode of procedure, which I conducted in a very indefinite manner, gave such good results, that I thought carefully over the *rationale* of the system, and at once adopted a course of wet packing after the manner and with the success which I will relate to you. The procedure is simple. The bed is covered with India-rubber sheeting; over this is laid a blanket which has been wrung out of hot water. The patient is then enveloped in the blanket, and covered with six folds of dry blanketing. By this, the temperature is raised and profuse sweating results: the former, if need be, is assisted by the administration of brandy in half-ounce or ounce doses every hour, and the latter by giving freely warm milk and water. If the temperature exceed 102 deg., then the stimulant is unnecessary. My plan is to continue the treatment for three successive days; namely, for six hours the first day, four the second, and two the third. After the first pack, the patient is free, or nearly so, from pain; after the second pack, the pain has completely subsided, and after the third pack the sour smell usually disappears. In addition to the relief from pain and subsidence of acid secretions, the pyrexial state, with its attendant symptoms, will be found to decrease in direct ratio, and likewise the pulse. The secretion of urine will become more plentiful and the urea will diminish in quantity; yet, although the improvement is so marked in reference to pain, sweat, pulse, and temperature, the urine remains acid and loaded with lithates, and the tongue coated, for some days longer. It not unfrequently happens, especially in young people, when the weather is variable, that transitory pains return in one or more joints; but in almost every instance the pain has been subdued, if not by the first, by the second bath. In reference to cardiac inflammation, I believe that this treatment subdues it more rapidly than any other, rendering the valves less likely to undergo organic change.

But now comes a very important practical question. There can be no doubt that the packing process produces considerable constitutional disturbance. Under what circumstances should this treatment be adopted, and under what conditions is it not practicable? Every one who has had much to do with this disease must be conscious of the anxiety which it gives him when the temperature exceeds 105 deg. or 106 deg., and especially when it is associated with the least sign of cerebral disturbance; and, as my treatment consists in elevating the temperature, it will be apparent that some care is necessary. Thus, according to my experience, it should not be adopted—1. If the patient suffer from incompetency of the aortic valves; 2. If there be much fluid in the pericardium from previous inflammation; 3. If the temperature be over 104 deg.; 4. If the skin be hot, dry, and harsh, without the least tendency to sweating; 5. If there be extreme nervous prostration from habits of drunkenness or other vitiating cause; 6. If the patient be pregnant.

Again: during the time the patient is packed, the following points must be observed:—1. If, after two or three hours, the patient become very restless, with a dry non-perspirable skin, I should advise the treatment to be discontinued; also when the temperature exceeds 105 deg.; 2. If the temperature do not rise, and the patient be sweating freely, give half an ounce, or even an ounce, of brandy every hour in warm milk and water. Thus we have to secure profuse sweating and a mean temperature of 104 deg.; we have to guard against a dry skin and a temperature over 105 deg.

Let us consider this a little more practically. If a healthy child be packed for six hours as directed, whose normal temperature is 99 deg., we find that it will only rise one degree during the whole course of the six hours, and the administration of a stimulant will not cause it to rise any more. It is very different during the pyrexial stage of acute rheumatism, and I have proved most unquestionably that, when the packing alone does not increase the temperature, this is easily brought about by giving brandy in the manner just stated. I have adopted this treatment with excellent results in cases where there has been, in addition to the rheumatic inflammation, a mitral murmur, pericarditis, and pleuropneumonia. In some cases, I give medicine, in others I do not. My rule is this: not to give medicine or solid food until after the third packing, and this means not until the acute symptoms have subsided and the temperature is down to 100 deg.; then some vegetable tonic, with solution of acetate of ammonia, is to be preferred to large doses of alkali or quinine. If, however, the case have been of long duration before coming under treatment, and if it be the third or fourth attack, with probably cardiac disease, then of course the orthodox measures must be resorted to for such complications. If the temperature should

run very high, with tendency to delirium, I believe the best plan is in every instance, whether under the packing treatment or otherwise, to apply ice to the head, expose the body freely to a current of cold air, and sponge it over lightly with a mixture of one part of spirit to two of water, until the temperature falls; then to discontinue this, and to apply a sinapism to the epigastrium. The following case occurred in my practice, from which a lesson might, perhaps, be learned. A young robust woman, aged 19, came under my care with incipient acute rheumatism, but with a dry harsh skin and a temperature of 102 deg. I had her packed in the usual manner at 1.30 P.M.; at 4.30 P.M., there was no action of the skin; temperature, 104 deg.; at 6.30 P.M., still no action of the skin; temperature 106.2 deg.; rapid action of the heart and tendency to delirium. I at once applied ice to the head, bathed the exposed body with spirit and water, and in twenty minutes I was pleased to find the temperature down to 103 deg.; the following morning it was 101 deg. Again: a woman, aged 28, of drunken and dissolute habits, came under my care with the third attack of acute rheumatism; there was considerable prostration and a temperature of 103.2 deg. I thought that I detected a fine murmur obscuring the second sound at the base of the heart. I ordered her to be packed in the usual way; but her temperature continued to increase, until it reached 110 deg., and she died. This is the only case which has terminated unfavourably out of a very large number. Whether the high temperature arose from the treatment, I am unable to say, and, as such cases do occur now and again under any treatment, I must decline to give an opinion.

ON DIPHTHERIA.*

By THOMAS PRANGLEY, M.R.C.S.Eng., Aylsham.

OUR acquaintance with diphtheria being of so recent a date as to render it doubtful whether we have as yet witnessed all its phases, is the excuse for bringing before you such facts and information as I was enabled to gather from notes of fifty-six cases which came under my notice during an outbreak which occurred in my neighbourhood in the summer and autumn of 1868. As it is impossible in a paper of this kind to treat the subject in an exhaustive manner, I think I shall be best employing the time in discussing those points which may guide us in our prognosis and treatment; and shall make reference only to the cases which have fallen under my own observation, without availing myself of the labours of others.

During the epidemic which I witnessed, the disease assumed all degrees of severity; thus sometimes it so little affected the health, that the patient could remain at work, and would recover in a few days. In the majority of cases, however, the disease as a rule ran a much more severe course; in some cases coming on so insidiously, that the patient was in the jaws of death before I saw him—killing not through any local complication, but by general poisoning of the system, characterised by the predominance of asthenic symptoms and the exhaustion of the vital powers. Other cases were characterised by symptoms of apnoea, caused by the extension of the membrane to the nares, larynx, and trachea.

The actual "soreness" of the throat afforded no indication of the severity of the attack; for, though there was generally considerable pain during deglutition, in some cases it was so slight as to be scarcely appreciable. Thus I have notes of two cases of unusual severity, in which there was absolute immunity from pain on swallowing. In one of these, the throat was covered with a large grey membrane, and in the other case, that of a child, who ultimately died, both tonsils were covered with grey slough, and the lower part of the uvula sloughed; but there was no difficulty in swallowing. As a rule, it was more severe with children and in those cases which were ushered in with acute febrile symptoms, and was generally most experienced during the period of the membrane disappearing; so that I began to look upon the statement "that the medicine cut the throat" as a good sign; and the absence of all pain nearly always revealed on inspection a thick mass of grey slough, and was consequently a bad sign.

The variety of forms which the false membrane assumes, and the various conditions of the tonsils, are very remarkable; thus I have seen the membrane in consistence like glazed starch, cream, wet parchment, and a greyish flesh-like pulp of all degrees of colour, from the purest white to almost black. I have seen it in specks, patches, shreds, and in large firm membranes, forming an exact cast of the part it enveloped. I have seen the specks or patches surrounded by a bright red border,

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