To appreciate this statement to the full one is helped by a glance at the diagram, where *c* and *p* represent the relative sizes of cocci and ultramicroscopic particles.

Like as the faintest suspicion of a touch destroys a bubble, so does the presence of these minute particles affect the surface of the cocci, with perhaps not quite so dramatic a result.

Disease affects the colloidal contents of the blood serum, rendering it possible for the micro-organisms to thrive by adapting their life or surface tension to the new conditions, and the object of giving drugs is so to alter the colloidal state or surface tension of the serum as to make it incompatible for the micro-organisms or the inimical enzymes to survive.

En passant one may remark that the enzymes are all colloidal.

The value of the calcium salts, such as the chloride, iodide or permanganate, is due to the fact that they stimulate the leucocytes to increased work in the form of phagocytic action, a result produced by altering or affecting the surface tension.

With the object of testing the effect of colloidal mercury on micro-organisms, some experiments were carried out for me at the laboratory of Mr. Seyler, county analyst for Glamorgan, and it was found that 1 in 1,000 of a 1 per cent. solution of colloidal mercury supplied by Merck stopped the growth of the *Bacillus coli communis* on agar, which means that 1 in 100,000 of the drug was effective.

In colloidal mercury we have, therefore, a very powerful antiseptic. A 1 per cent. solution of hydrargyrum colloidalis is a greenish-brown transparent liquid, without any smell, but has a faint metallic taste. It is non-irritant, non-corrosive, and relatively non-toxic. As a drug it can be used both externally and internally. Externally it has a very good cleansing effect on wounds, when applied in solutions of $\frac{1}{2}$ to $\frac{1}{4}$ per cent.

In ringworm of both the large and small spored varieties, as well as in two cases of alopecia areata, colloidal mercury has been very beneficial.

In these cases my rule has been to remove the grease on the scalp with petrol before applying the drug, otherwise it has no opportunity of coming into close enough contact with the disease.

As a mouth wash mercury in this form is very effective in very filthy states of the mouth, whilst as a spray its effect has been extremely good. In typical diphtheria cases a few applications of the spray have produced an effect almost as rapid and satisfactory as that following the injection of antitoxin. For tonsillar patches of all sorts it is of extreme value, though for mere redness or inflammation of the tonsils and pharynx it is not quite so effective.

Administered internally it is of value in acute gastritis, either of babies, children, or adults. I usually prescribe for babies 3 minims of the 1 per cent. solution to a drachm of water, and for adults 20 to 30 minims. The ease of administration compares favourably with that of, say, grey powder.

It is in syphilitic cases, however, that the great advantage of colloidal mercury is seen. I have not seen any unpleasant symptoms, such as salivation, sickness, or distaste for food, but in one patient who was taking 6 drachms daily the bowels were evacuated too freely until the dose was reduced by half.

One patient who came to me in the first stage of the disease with a hard sore on the dorsum penis was able, after taking the drug for twelve months, to state a complete freedom from rashes or sore throat.

Patients with secondary rashes have responded well and readily to the treatment, but the best or most striking effects have been in cases generally reserved for the iodide of potassium or calcium.

A long-standing tertiary infiltration or inflammation of the scalp had resisted all attempts to remove it. Potassium iodide was impossible on account of the coryzal symptoms, and although calcium iodide was easily taken without any unpleasant effects, the result was not satisfactory. After four weeks' treatment with colloidal mercury the scalp and forehead began to clear rapidly, and at the end of ten weeks the patient was quite free.

In this case the dose was 6 drachms daily.

Another case was that of a soldier who had contracted the disease in India, and presented tertiary sores of a very troublesome and unpleasant nature. Colloid mercury was applied

locally and given internally, with rapid and very satisfactory results, although all other previous attempts had completely failed.

An interesting case of locomotor ataxia, seen also by a well-known brain specialist, who suggested the daily application of blue ointment to the spine, was placed by me on colloidal mercury, with a most satisfactory result. The bladder trouble has disappeared and the shooting pains down the legs are less severe and less frequent.

A case of spastic paraplegia, however, quite failed to take the drug even in the smallest doses, on account of the severe "depression" it produced.

Organic nervous lesions which fall into the category of syphilides respond to a certain degree to the internal administration of colloid mercury, but the other organic nervous lesions do not respond at all.

THE ETIOLOGY OF IRITIS.

BY

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In a leading article in the BRITISH MEDICAL JOURNAL of July 16th last, my opinion that rheumatic iritis is a very rare disease is referred to, and I am rightly quoted as holding an extreme view. Mr. C. W. Jennings, of Philadelphia, on the other hand, believes that it is a common disease. This divergence of opinion is probably due to a difference of diagnosis rather than to a difference in the incidence of the disease. It is extremely unlikely that certain forms of iritis are more prevalent, to any considerable extent, in some countries than they are in others, and it is much more probable that the explanation is to be found in the grouping and labelling—that is, in the personal equation. Critical inquiry in many cases will, I believe, show that the "rheumatism" which produces rheumatic iritis is not true rheumatism, but a gonococcal or other toxæmic infection. No one now, I suppose, believes in gonorrhoeal rheumatism, the vestigial term remains as a mere *façon de parler*; but we all accept the fact of a gonorrhoeal arthritis. We still make use of the antiquated term much in the same way as we still call our bronze ha'pence "coppers." We can, if we like, keep our strychnine in a sulphate of magnesia bottle, as long as we remember the fact. Nevertheless, there are manifest objections to doing so, and in like manner the sooner we get rid of the term "gonorrhoeal rheumatism" the better.

My views concerning the rareness of rheumatic iritis were published in the BRITISH MEDICAL JOURNAL (July, 1908), and I will not trouble you any further with them. With regard to the differential diagnosis of gonorrhoeal from other forms of toxæmic iritis, there is as yet no extensive literature, but the chief distinction seems to me to be that in the former the arthritic (or periartritic?) symptoms are more pronounced.

It has been, I think, too much the custom to classify all cases of iritis that are not obviously specific, or gonorrhoeal, or traumatic, or occurring in gouty patients, as rheumatic, including amongst them a number of cases due to various forms of toxæmic absorption. As time goes on we may expect a more limited definition of the term "acute rheumatism" than the present all-embracing one of a polyarticular synovitis with pyrexia; and when that time comes there will be a corresponding fission in the definition of rheumatic iritis.

From Mr. Kenneth Campbell's letter in the BRITISH MEDICAL JOURNAL of July 23rd, 1910, criticizing the leader above referred to, it is clear that he is not only a supporter of my view, but also that he goes a step further than I have ventured to go with regard to the existence of rheumatic iritis, for he excludes rheumatism absolutely as an etiological factor in iritis. In the present state of our knowledge I have not made this final renunciation, because careful observers say that they have seen cases as a result of chronic rheumatism, and cases are also reported as occurring in acute rheumatism. It is desirable that full details of all cases of iritis occurring during the acute stage of rheumatic fever should be recorded. It does not follow, because a patient has an intercurrent attack of iritis during rheumatic fever, that it is due to the same virus. Moreover, it may be that occasionally the arthritis is not rheumatic.

The incidence of iritis during the acute stage of rheumatism is universally allowed to be extremely rare, but a case in which it followed shortly after is recorded by Forster,¹ of Lowestoft, and it is a most interesting and instructive one. The patient, a girl aged 12½, had an attack of acute rheumatism in which the acute symptoms lasted fourteen days and then subsided. Three days later chorea came on, and when it had lasted four weeks a monocular iritis developed, followed by endocarditis. It is to be noted that the iritis did not develop during the acute stage of the rheumatism. Eventually the child got quite well. Here the sequence of events is so marked, so obvious, that to argue that we are not dealing with cause and effect would appear to require the strategy of a dialectician. Strategy has no place in a scientific discussion, and we must allow that if cases such as this were frequent there would be nothing more to be said. But the fact of their extreme rarity requires very great consideration, especially when we remember how common are cases of so-called rheumatic iritis. The weakness of the position is shown if, instead of arguing from the particular to the general, we reverse the process. A patient is brought to us with so-called rheumatic iritis. How do we know that it is rheumatic? Having excluded syphilis and gonorrhoea, and found that at some time the patient has had acute rheumatism, we label the case and pack it away in a mental pigeon-hole as an undoubted instance of rheumatic iritis. Perhaps if we had asked the patient if he had ever had measles we should have received also an affirmative answer. If, however, the patient has not had acute rheumatism we inquire about rheumatic pains, and rest satisfied with our diagnosis if we can detect more or less evidence of swollen joints or aching limbs.

Turning from the clinical aspects to bacteriological investigations, we find evidence pointing to the artificial production of iritis by the rheumatic diplococcus or micrococcus. Although Fritz Meyer, Ainley Walker, and Beaton do not appear to have produced it, Poynton and Paine, in their contribution to the *Transactions of the Ophthalmological Society* (vol. xxiii, p. 39), report that iritic symptoms ensued in rabbits after the intravenous injection of cocci, in one case from ordinary rheumatic fever in a child, and in another from malignant endocarditis of rheumatic origin. In no other case were there symptoms pointing to iritis, although they made repeated experiments. In their first successful case, on the seventh day there was injection of the conjunctival vessels, discoloration of the iris, and considerable exudation into the anterior chamber. But they state that the appearance was not like that of hypopyon. The rabbit died on the tenth day. The symptoms do not appear to have resembled altogether those one is accustomed to see in the condition generally designated rheumatic iritis, and they suggest the possibility of a purulent or metastatic choroiditis. The iritis occurred in the left eye only, but it is not stated into which ear the injection was made. In the second case the injection was made into the ear of a rabbit intravenously, the culture being prepared from the case of a boy who died from malignant endocarditis two years after an attack of acute rheumatism. In four other rabbits that were injected from the same source there was no iritis. In this case the evidence furnished by the authors seems hardly sufficient proof that the endocarditis was undoubtedly due to the *Diplococcus rheumaticus*. Bearing in mind the multiplicity of organisms capable of producing malignant endocarditis, and the fact that the ordinary pyogenic organisms are responsible for the greater number of cases, it seems desirable that further investigation as to the identity of the micro-organism should be made.

According to C. W. Jennings, rheumatic iritis is a common form of the affection, 25.4 per cent. of all cases being due to it. Nevertheless, the absolute connexion of rheumatism and iritis, both clinically and bacteriologically, is still lacking.

In looking through my cases, I find that in the last 80 private patients suffering from iritis, excluding traumatic, there were 4 who had suffered from acute rheumatism at some previous time; 5 per cent. is not a strong basis upon which to erect an etiological superstructure. Many of the other patients confessed to "rheumatic" pains of varying intensity when asked; but do not a large number of patients suffering from any

disease usually acknowledge that they are rheumatic when the leading question is asked? Evidences of rheumatism, or at least of arthritic disease—such as distorted or fixed joints or nodules—were seen in 7, whilst gonorrhoea was acknowledged to have preceded the iritis by not more than two years in 9 patients, and specific disease accounted for 15. I repeat that I think it too frequently happens that if we can exclude syphilis and gonorrhoea, we are satisfied, when we find that the patient has indiscriminate pains in indeterminate regions, to call an iritis rheumatic. In many of such cases further investigation might throw doubt upon the diagnosis. Patients cannot be expected to say anything about diseases which they think have no connexion with their eye trouble, and so it happens that nothing is mentioned by them about a previous septic throat or pyorrhoea alveolaris. Haematemesia and dysentery and dyspepsia are overlooked, and toxæmias of all descriptions are forgotten.

In conclusion, it is desirable that full details of all cases of iritis occurring during the acute stage of rheumatic fever should be recorded. If the physicians of the large London and provincial general hospitals, who see so many cases of acute rheumatism, would help in this direction, a definite conclusion might be arrived at.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, 1903, vol. i, p. 543.

THE NORMAL ORTHOGRADE POSTURE.

BY

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In the course of my clinical work, in order to effect the lasting cure of many throat, nose, voice, and speech patients, I found the absolute necessity of certain measures which, when first adopted by me, were purely empirical. Such measures were suggested by the results of gymnastics, breathing exercises, and voice training as adjuvants to accepted medical and surgical treatment and educational and hygienic routine.

At that time these collateral measures were completely ignored in the textbooks on, and in the clinical teaching of, laryngology and rhinology in this country. But to such an extent had they become part of my own regular treatment and instruction that in 1893¹ and onwards I published clinical lectures and statements advocating regular postural, respiratory, voice, speech, and nerve co-ordination training for the re-education of patients defective in those respects. Continuous experience has naturally led to many improvements in detail for therapeutic application, while incessant inquiry into the scientific basis of such matters has opened up some interesting problems.

The point I desire to refer to on the present occasion is the uncertain signification of the term "normal orthograde," "perfect erect," or "correct" posture. Since the erect posture is the resultant response of man's central nervous system and musculo-skeletal machinery to gravitation—"the chief resistance to be met by terrestrial animals" (Herbert Spencer²)—and the contest is a life-long one, there should be no doubt or ambiguity about what is the "normal" in posture.

Without any precise conception of what is man's normal erect posture in standing, few have denied the importance of a good carriage. The Greeks, indeed, we learn from Aeschylus, Xenophon, and Hippocrates, had several words signifying "upright posture," and such erectness was doubtless one of the main aims and results of their physical training. Among the Latins both Ovid and Cicero spoke of "erectness" as the great human feature. Surgeons recognize the influence of habitual exaggerated faulty postures in producing numerous deformities. Physicians also seek to correct a rounded back and sunken chest, which cramp and crowd the lungs, heart, and abdominal viscera. Anatomists, too, have recognized the vast changes in man which have directly