T H E S I S

for

M.D. Glasgow University

entitled

"RHEUMATOID ARTHRITIS:

Some Personal Experiences in its

Treatment."

by

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Introduction.

Rheumatoid Arthritis is a disease which has existed at all times and in all countries. Many different names have been given to the disease; amongst these being Rheumatoid Arthritis, Osteo-arthritis, Arthritis Deformans, Polyarthritis Chronica, Traumatic Arthritis, Arthritis Chronica Villosa and Rheumatic Gout. Many authorities prefer the description of the disease as Arthritis Deformans, but the great bulk of the profession and the public have adhered to the name Rheumatoid Arthritis. They have done so despite the fact that it is now generally recognised that there is no connection between Rheumatism and Rheumatoid Arthritis. There are many types of the disease, and doubtless many causes of the disease — the form that the disease takes depending on the particular causal factor and the causal factor doubtless determining the extent and nature of the damage done to the structures involved.

Bones showing evidences of this disease and which date back to 1300 B.C. are reported as being in the Museum of the Royal College of Surgeons, and recent reports state that evidence of this disease has been found in skeletons resurrected from the

Luxor Tomb.

Considering the great antiquity of the disease and the amount of inquiry that has been given to it, it is surprising to find how little definite is known as to its etiology, pathology and treatment, even at the present time. It is not a rare disease, but the number of cases of Rheumatoid Arthritis with which the general practitioner comes in contact is fortunately small as compared with other types of disease, such as acute Rheumatism, Pulmonary Cardiac affections and Infectious diseases. The numbers are sufficiently large however to compel the practitioner to examine his pharmacopoeia with a view to finding some drug, the administration of which will limit if not stay the ravages of this crippling disease.

To one working entirely amongst the artisan and poorer classes of the community as I am, the problem is to find some remedy the use of which must be within reach of his patients' financial resources which will be of service as a therapeutic agent. We cannot tell patients who are unemployed and in receipt of no other income than unemployment benefit to proceed forthwith to some fashionable spa for treatment. Perhaps it is as well, for spa treatment all too often does not achieve the desired end. We require to have some

remedy which can be easily bought and easily administered, and which will hold out a reasonable likelihood of alleviating the sufferer's condition. In the pursuit of such a remedy, and with the greatest scepticism — as I had previously on many occasions used phylacogens, autogenous vaccines and detoxicated vaccines with most disappointing results — some five years ago I tried Iodolysin in Rheumatoid Arthritis. The results have been to my mind sufficiently good to justify my continuance of its use, and my making use of it as the subject of a Thesis.

Devoting myself as I have done for more than five years now to private practice alone, I have been able to keep accurate observations on the cases treated, and records of their progress or otherwise. Almost all my patients live in houses of two apartments in tenement buildings, walled in so securely as though every effort was made to exclude sunlight and fresh air: the sanitary arrangements and the chances of proper ventilation are far from perfect. The atmospheric conditions, if not the worst in Great Britain, will stand comparison with the worst. The climate is wet rather than dry, and not conducive to make Rheumatoid Arthritis any better whatever deleterious effects it may have on persons affected

with this disease.

My patients have — in the main — no opportunity for observing personal hygiene as it should be observed. They have no bathrooms in their houses; they have not sufficient or proper lavatory accommodation; they do not attend sufficiently to the needs of nature and too often constipation is a convenience rather than otherwise. They do not realise the dangers of unclean teeth and unhealthy gums. I can confidently assert that not less than 90% of the adults I see are suffering from sepsis in some form or other in their mouths, e.g. gingivitis, pyorrhoea alveolaris, enlarged and unhealthy tonsils. Many of these who have artificial dentures do not clean them, or do so most irregularly and promiscuously. The wonder is not that they die, but that they live. The wonder is not that some of them suffer from Rheumatoid Arthritis, but that any of them escape it.

It is under these conditions that I live and work, and, I hope, learn. It is under these conditions that I treat my Rheumatoid Arthritis cases with Iodolysin, and if it is capable of mitigating, limiting or curing the disease in such circumstances — may it not be capable of doing so more extensively and more completely under happier conditions?

Rheumatoid Arthritis.

A general account of conditions included under this title.

I have in the Introduction briefly mentioned some of the various names which have been applied to the condition known as Rheumatoid Arthritis.

Osgood (1) says no entirely descriptive terminology has yet been suggested. He gives a table which I reproduce below, inn which he says — "Under headings of the commonly understood terminology of the Rheumatoid Arthritis and Osteo-arthritis, a few of the more important attempts at classification have been synonymized."

Table 1. Chronic Non-Tuberculous Arthritis.

Authors.	Rheumatoid Arthritis.	Osteo-Arthritis.
(2) Adams (1857)	Polyarticular type.	Monoarticular type.
(3) Charcot (1881)	Rapid evolution age incidence 15-30. Little new formation of bone.	Gradual evolution. Age incidence 40-50. Hyperostosis. Heberden's nodes Malum coxae senilis.
(4) Garrod (1890)	Rheumatoid Arthritis (a) acute. (b) chronic. Stoll's disease.	Osteo-arthritis.
(5) Bannatyne (1896)	Rheumatoid Arthritis (early)	Rheumatoid Arthritis; late.
(6) Goldthwait (1904)	(a) Infectious arthritis. (b) Atrophic arthritis.	Hypertrophic arthritis.

Table 1. Chronic Non-Tuberculous Arthritis.

Authors.	Rheumatoid Arthritis.	Osteo-Arthritis.
(7) Nathan (1906)	(a) Acute infectious arthritis (inflammatory).	Insidious progressive osteo-arthritis (trophic). Senile arthritis. Heberden's nodes.
	(b) Insidious autotoxic arthritis (trophic).	
(8) Primbram	(a) Chronic psuedo-rheumatism.	Osteo-arthritis deformans.
	(b) Chronic secondary articular rheumatism.	
	(c) Rheumatoid arthritis.	
(9) Hoffa & Wollenberg. (1908)	(a) Secondary chronic articular rheumatism.	Osteo-arthritis deformans.
	(b) Primary progressive poly-arthritis. "Arthritis destruens".	

Table 1. Chronic Non-Tuberculous Arthritis.

Authors.	Rheumatoid Arthritis.	Osteo-Arthritis.
(10) Llewellyn Jones & other British authors.	Rheumatoid Arthritis. (a) Acute. (b) Subacute.	Osteo-arthritis.
(11) Nichols & Richardson. (1909).	Proliferating or ankylosing arthritis.	Degenerative or non-ankylosing arthritis.
(12) Osler & McCrae.	(a) Lesions principally in synovial membrane. (b) Atrophic changes in cartilage and bone.	Hypertrophy and over-growth of bone.

Table 1. Chronic Non-Tuberculous Arthritis.

Authors.	Rheumatoid Arthritis.	Osteo-arthritis.
(13) Ely (1914)	Type I Primary proliferation of synovial membrane and marrow.	Type II Primary inflammation of synovial membrane and degeneration of synovial membrane and marrow. Secondary hypertrophy of bone and cartilage.
(14) Fisher (1923)	Type II Primary synovial membrane invasion. Secondary cartilage and bone invasion.	Type I Primary cartilage and bone invasion. Secondary synovial membrane invasion.

Type III. Mixed

Simultaneous invasion synovial membrane cartilage and bone.

Spondylitis deformans.

"Poker back". Spondylose rhizomelic (15).

Strümpeli-Marie type (16).

Osteo-arthritis (17).

Hypertrophic arthritis.

Von Bechterew type (18).

Dent*(19) very briefly classifies cases of Rheumatoid Arthritis into firstly, Poly-articular Rheumatoid Arthritis, and this may be:-

(a) Acute.

(b) Subacute, or

(c) Chronic.

And secondly, Localised, Monoarticular or Senile Rheumatoid Arthritis.

Stockman*(20) discuss/ Chronic non-suppurative Arthritis under two headings only:-

(1) Rheumatoid Arthritis, and

(2) Chronic Infectious Arthritis.

He makes clear that this simple arrangement is a temporary one "necessitated by our present imperfect knowledge of their etiology".

Etiology.

Females are found to be much more commonly affected than males, and whilst Rheumatoid Arthritis occurs at any age, it usually begins between the ages of thirty and fifty. It is believed to be most common among the poorer classes of the community. Predisposing causes are lowered vitality, exposure to the cold, and a damp climate. Heredity, gout, worry

have also been cited as playing a part in the causation of Rheumatoid Arthritis, as well as a Tuberculous family history. It is not however universally admitted that heredity and poverty are predisposing causes. Stockman* (21) states that "Heredity and poor social circumstances seem to exercise no special influence in its causation, and it is unknown why women are so much more subject to its attacks than men".

Davies* (22) says that the most constant factors which he has noticed and which have been too consistently present to be mere accidentals have been depressing surroundings, damp and cold, clay soil, business or domestic worries, injuries or shock, associated with hereditary predisposition.

Trauma is sometimes quite definitely associated with Rheumatoid Arthritis. "The origin may be some slight Trauma, such as a fall on the ice which may start an osteo-arthritis." (Howell) (23).

Monoarticular or Senile Rheumatoid Arthritis occurs in middle life or old age. This is met with more frequently

in men than in women. It is essentially local and does not lend itself to symmetrical arrangement. In it there is often a history of an injury and there is absence of constitutional disturbance. Usually a large joint is affected.

Luff (24) writes, "In the great majority of cases Rheumatoid Arthritis is a primary disease, but at the same time it is probable that in a small number of cases an antecedent attack of Rheumatic Fever or of some form of septic Arthritis, such as Gonorrhoeal Arthritis or even an acute attack of gout, may have left the joints in such a vulnerable condition that they may subsequently become the seat of true Rheumatoid Arthritis. Any debilitating condition may predispose to this disease, and especially of late years I have seen many cases of Rheumatoid Arthritis which have followed repeated attacks of Influenza.

Buckley (25) gives it as his experience "that the source of infection will be found in the mouth, nose or nasopharynx in 95 per cent of the cases in the form of pyorrhoea alveolaris, septic tonsils, infection of the nasal sinuses or some other septic condition. Of these, pyorrhoea is the commonest. It may be super-

ficial and easily recognized, and this form is the least serious in its effects. Or it may exist as sinuses or abscesses at the roots of one or more teeth, generally, but not always, those which have had their nerves destroyed for purposes of filling or to support crowns, etc., and this can only be discovered if all the teeth are carefully radiographed."

Hale White's (26) opinion is stated as follows:-

"Numbers of patients who are chronically infected from their teeth or tonsils often suffer from ill-health and slight pyrexia for months before the source of the trouble is discovered; very commonly various joints are affected with a long continued arthritis, which is allowed to proceed until incapacitating adhesions and deformities have occurred, all of which might have been prevented had the nature of the disease been recognized. In every example of chronic Arthritis or continued Pyrexia, the cause of which is not at first apparent, a most careful search must be made for the seat of infection."

Osgood (27) calls attention to the

important part which faulty alimentation may play in the production of chronic Arthritis. He says, "Woodward and Wallis (28) and Baldwin (29) have shown a low hydrochloric acid in the gastric juice in cases of Rheumatoid Arthritis, and Clark (30) has found a very close association of gastro-intestinal derangements with the same disease. Pemberton (31) has made a close study which shows that in general thesenpatients have a lowered sugar tolerance and a sort of carbohydrate intolerance. They do best on diets in which the carbohydrate calories are cut down to the lowest level which can be maintained without loss of weight. Fletcher (52) has recently confirmed these observatiohs in 150 unselected cases. Nichols and Richardson, approaching the disease by a careful investigation of the morbid histology of material obtained from 65 early and late cases of chronic Arthritis, came to the conclusion that the changes which they observed in the rheumatoid type might result from a great variety of irritants such as infections, disease and trauma."

Pemberton (33) believes that the changes

found are associated with a low blood supply and disturbances of capillary control.

Pathology.

There is amongst authorities an almost generally held view that the disease is of microbic origin. Luff* (34) states that "it is a disease due to the presence of micro-organisms, which gain access to the blood in the majority of cases probably through some chronic catarrh of the alimentary tract, although the invasion may occur from the mouth, nose, pharynx, or air tubes. After gaining access to the circulation, they find a suitable nidus for their growth in the joints, where they grow and propagate in the synovial membrane, ligaments, cartilages and bones. As a result of their presence inflammatory changes occur which result in ulceration, erosion, destruction and coincidently, as a rule, in hypertrophy also,"

Stockman* (35) describes very fully and clearly the changes which take place in the affected joints. "The synovial membrane is first affected. It becomes swollen, hyperaemic and congested, its connective tissue proliferating and greatly increased in amount

and there are numerous new blood vessels. The fibrous capsule of the joint shows similar inflammation and thickening. Microscopically the swelling is seen to be due to the numerous distended small blood-vessels, to the proliferating fibrous tissue and to a large invasion of lymphocytes with comparatively few polymorphous leucocytes. At this stage there are no bony changes, and the cartilages are still intact. The fibrous tissue around the joints and in them becomes affected, and secondary changes occur, involving both cartilage and bone. The synovial membrane becomes less vascular and more fibrous, its folds adhere to each other, and fat tends to be deposited in it, reaching in old cases to the extent of large fibro-fatty masses.

The cartilages roughen and are worn away. They become thinner over their whole extent, and give more the impression of degeneration and atrophy from pressure and disuse than of active erosion and ulceration. Finally, the underlying bone is laid bare. Connective tissue and blood vessels grow up from the bone-marrow or in from the

sides and the bony surfaces, if in apposition, unite by fibrous ankylosis. Bony ankylosis may ultimately develop.

Sometimes the cartilage undergoes a metaplasia and degenerates into a fibrous tissue with blood vessels through it. This imparts a feeling of roughness and grating on movement. In the bones atrophic changes take place at an early stage, and can readily be made out on X-ray examination or on section. The early changes may perhaps be due to the disease directly, but the later are merely atrophic from disuse."

Clinical Picture and Differential Diagnosis.

The onset of Rheumatoid Arthritis may be sudden or it may be insidious. It may be accompanied with slight pyrexia or there may be no fever. It may make its appearance by affecting one joint, or it may affect several joints almost simultaneously. The attack may commence with pain and swelling with some slight rise of temperature, or there may be no constitutional disturbance, and the swelling may manifest itself with little or no pain. The finger joints — the inter-phalangeal of either or both hands, or the wrist joints are very frequently the first to be affected. The fingers present a poke- like appearance and to the touch are soft. The skin over the affected joints is pale, and the joints can be moved, but movement is usually accompanied with some pain. Gradually the affection spreads to the other joints of the body. The metatarsal-phalangeal joints are early affected. The form and direction of the joints are in time altered — the most manifest changes being

in the hands, wrists, elbows and knees. The upper limbs appear most frequently to be first affected and then the lower limbs. There is a marked tendency to symmetry in the progress of the disease. As the disease progresses, the deformity of the affected joints increases, and there may be actual dislocation of bones. This is particularly evident in the finger joints, the dislocation being usually towards the ulnar side. Wasting of the interossei muscles of the hands early occurs and tends to give the joints a much more swollen appearance than they actually have.

The wrists enlarge and show soft swellings also, and they are not infrequently the site of fibrous ankylosis at a later period.

The elbows share in the disease, and the knee joints are a common seat of the trouble. The appearance of the knee-joints is very characteristic — puffy swellings at either side of the patella, and the knees flexed; sometimes the presence of fluid can be elicited in the knee joints. The temporo-maxillary joint is occasionally affected, and the resulting ankylosis may be so firm as to lead to considerable difficulty in feeding.

I have seen one case where the difficulty of feeding was so great that excision of the temporo-maxillary joint was necessary. The operation was very successful.

The sterno-clavicular joint and the joints of the spine are often involved. Indeed, no joint escapes.

Atrophy of the muscles is very evident in most cases of any standing, and indeed may manifest itself in even a few weeks upon occasion.

The hands are generally moist, and the patient may perspire readily without any obvious reason.

Pigmentation of the skin is sometimes noticed. Dent* (36) describes it as occurring "as brownish streaks over the temporal regions, under the eyes and around the neck; also mole-like discolourations and freckles occur in the face and other parts, especially the forearms. I have seen them also on the knees. The nails are often dull and brittle and show longitudinal striation. Eczema and psoriasis are occasional accompaniments."

Luff* (37) calls attention to certain premonitory symptoms which sometimes exist for a long time before the joints are definitely attacked, and which are probably due to the action of the toxin produced by the micro-organism concerned. He says "They mainly affect the vasomotor portions of the nervous system, and consist of certain Raynaud-like phenomena producing the dead, grey-blue-looking fingers and numbness of the extremities, which precede the classic symptoms of the disease. Tingling, numbness and shooting pains are common at this stage, and about the same time muscular spasms occur which give rise to cramp-like contractions in the hands and feet."

When the disease has progressed for some time, the atrophy of the extensor muscles and the contraction of the flexor muscles leads to the development of the well-known deformities. The disease goes on to complete destruction of the joints and formation of bony outgrowth around them and alterations in the shape of the bones. Rigidity, which is at first slight, may become complete by the interlocking of the

bony outgrowths around the joints. Deformity, which in the early stages is due to the effusion into the joints, is in the later stages the result of the alteration in the shape of the bones, and of bony outgrowths. Crepitus, which is one of the most characteristic signs, is due to the movement of the exposed articular surfaces of bone on each other after the cartilages have disappeared.

Stockman* (38) describes the chief deformities:-

"Hallux valgus: partial dislocation of the long bones of the hands and feet and in the knees, the elbow is fixed in flexion, the shoulder in abduction, while the wrist usually remains straight. Flexion of the hand to the ulnar side is common, and is due to muscular action. Bursae often become swollen; they increase the deformity, and often contain in old cases dense, hard fibrous nodules."

Differential Diagnosis of Rheumatoid Arthritis from other Diseases of the Joints.

Rheumatoid Arthritis may be mistaken for quite a number of other joint affections. Amongst the most common are Gout, Rheumatism, Gonococcal Arthritis, Infective and Septic Arthritis, Tuberculous Arthritis, Syphilitic disease of the joints, Still's disease, and Raynaud's disease.

Gout.

Occurs most commonly in men; Rheumatoid Arthritis mostly in women. Gout is largely a disease of the well-to-do, over-cared and too well nourished. Rheumatoid Arthritis is common amongst the poor and ill-fed, although it is not exclusively confined to them. Patients with Rheumatoid Arthritis do well on a generous diet, whereas patients with Gout do best on a restricted and plain diet. The initial symptoms in Gout are sudden. In Rheumatoid Arthritis they are ordinarily slow. Gout frequently attacks the feet first, usually the big toe. Rheumatoid Arthritis shows a preference for the hands or wrists, either

metacarpo-phalangeal joint or carpo-metacarpal joint being attacked, and other joints are rapidly affected, which is not as a rule the case with Gout. The skin over a gouty joint looks red, glossy and inflamed and is tender to the touch — often exquisitely so. A Rheumatoid Arthritic joint is pale, does not display the amount of swelling, and is not very tender to the touch. As Stockman says, it is a "cold swelling".

Pain in the joint is much more marked in Gout, and much more sudden in its onset.

Gout does not affect the joints of the cervical vertebrae or the temporo-maxillary joint, and in its general distribution never extends so far as Rheumatoid Arthritis.

Sodium biurate is the causal agent in Gout, being found in the joints and in the blood. It is absent in Rheumatoid Arthritis.

Rheumatism.

Rheumatism usually attacks the larger joints. In Rheumatoid Arthritis the small joints are particularly liable to be attacked. Rheumatism, if acute, shows a much higher temperature than Rheumatoid Arthritis. It responds readily to treatment by salicylates,

and on recovery there is no permanent deformity of the joints. Rheumatoid Arthritis does not respond to treatment by salicylates, and never leaves a joint without more or less evidence of its presence.

Rheumatism very frequently causes Cardiac disease, e.g., Myocarditis, Endocarditis and Pericarditis, but whilst there is not absolute unanimity amongst authorities as to the exact effect of Rheumatoid Arthritis on the heart, all admit that its effects, if any, are much less serious and much less common.

Rheumatism is more common in the young than Rheumatoid Arthritis.

Subacute or chronic Rheumatism may present more difficulty in differentiation from Rheumatoid Arthritis. They áre more insidious, and the chronic forms are often accompanied by the formation of fibrous nodules over the tendons, but they do not form bony or cartilagenous deposits in the joints as does Rheumatoid Arthritis. They respond to treatment by salicylates.

Gonococcal Arthritis.

More common in males than in females. A history of an attack of Gonorrhoea or evidence of Urethritis may be obtained on examination. It usually follows a month or so after the date of infection. It attacks the knee joints most commonly at the outset, but may spread to the ankles, elbows, shoulders, feet and hands. The pain in the joints may be very great, and it may be mistaken for subacute or acute Rheumatism, but the temperature is not as a rule much elevated, and it does not respond to treatment by salicylates. A careful search should be made for the gonococcus, particularly in women. It may be obtained from the affected joints, as the disease is due to the presence of the gonococcus in the joints. The history, finding the gonococcus, and the severity of the pain, help to distinguish gonococcal Arthritis from Rheumatoid Arthritis.

Infective and Septic Arthritis.

The onset is acute, and the patient is obviously critically ill, with high temperature and evidences of general infection.

The lymphatic glands are enlarged, the spleen is enlarged and there is marked leucocytosis.

The larger joints are most affected and by their colour and "feel" show the presence of an acute inflammatory condition. The pain is much more severe and sudden in onset than in Rheumatoid Arthritis.

Tuberculous Arthritis.

Also known as "Tuberculous Rheumatism of Poncet". Other evidences of tuberculosis may be found. It usually attacks young adults, and is characterised by periodic effusion into the joints, which effusion may be provoked by slight injury. The diagnosis from what is known as monoarticular Rheumatoid Arthritis may be difficult, but X-ray examination of the affected joint and the tuberculin test may be helpful in assisting one to differentiate the two conditions.

Where the vertebral column is affected in Rheumatoid Arthritis, the condition may easily be mistaken for spinal caries.

Syphilitic Disease of the Joints.

Other evidences of syphilis may be found, and a positive Wassermann reaction may be obtained. Although there may be a fair amount

of effusion in a Syphilitic Arthritis, there is comparatively slight pain produced on movement of the affected part. The condition responds to anti-syphilitic treatment.

Still's Disease.

Still's disease occurs in children. It is common in young girls. The spleen is enlarged and also the liver. The lymphatic glands are increased in size. It is associated with defective development, and is usually a fatal disease. It affects most commonly the knees and wrists. By some authorities it is believed to be a modified form of Rheumatoid Arthritis.

Osgood (39) says "We have been unable positively to identify Still's disease as a separate entity."

Raynaud's Disease.

Scleroderma of the hands and feet is met with in Raynaud's disease, but it does not occur in Rheumatoid Arthritis. X-ray examination is useful also as the characteristic changes found in the ends of the bones in Rheumatoid Arthritis are not found in Raynaud's disease.

Treatment in Rheumatoid Arthritis.

Rheumatoid Arthritis, at any rate when untreated, is a progressive disease leading in some cases to absolute crippling and incapacity, and in others to differing degrees of incapacity depending on the severity and progress of the attack. Some cases appear to have the disease arrested "spontaneously". It advances so far, but no further. Generally speaking, however, it would seem that the sooner treatment is begun, the better the results obtained. As Rheumatoid Arthritis attacks a constitution already debilitated for some reason or other, anything of the nature of a lowering treatment should be avoided. On the contrary efforts should be directed towards raising the general condition of the patient to a higher level.

Howell* (40) says that treatment should be preventive of occurrence and of relapse, and corrective of deformities. He classifies treatment on the following plan:-

A. Cause (1. Sepsis.
(2. General Health.

B. Results
(1. Rest.
(2. Manipulation.
(3. Operation.
(4. Appliances.
(5. Specific and Accessory.

This classification is very comprehensive, and covers the main points that one has to heed in treating this intractable disease.

1. Sepsis.

Every effort should be made to find the primary source of infection and to remove it. Teeth, gums, tonsils and nasopharynx should be carefully examined. Wholesale extraction of teeth, unless for good reasons, is not to be recommended. On the other hand, no good purpose is served by failing to extract teeth hopelessly decayed or lying loose in septic gums. Where the tonsils are diseased, enucleation is better than removal by the guillotine, as the septic focus may be missed when the tonsils are only partially removed.

The stomach and intestinal tract should receive careful attention and constipation in particular should be corrected by suitable laxatives.

The genito-urinary apparatus must be carefully examined, and if discovered such disorders as cystitis, pyelitis or pyosalpingitis (in women), given appropriate treatment.

The lungs should also be examined for bronchiectasis or other septic conditions.

Wherever possible, a septic focus should be removed, although in a number of cases none may be found, and in that event one is compelled to treat the results — or what are believed to be the results — of some toxic agent or agents unknown.

2. General Health.

As has already been stated, every effort possible should be made to maintain and improve the general health of the patient. Residence in a dry warm climate, avoidance of damp and cold, an outdoor life as much as possible, and plenty of good nourishing food are to be enjoined.

Alcohol in almost any form should be forbidden, but particularly heavy wines, beer and stout. Acid fruits, condiments

and pickles should be forbidden.

A liberal diet should be allowed, which may include chicken, fish, soups, meat, eggs, milk, bacon, cheese and light puddings. Plenty of water should be taken daily between, rather than at, meals.

B. Results.

1. Rest.

Where the joints are painful, and in particular when the lower limbs are affected, rest is advisable and necessary.

The pain should be relieved by soothing application, such as heat, A.B.C. liniment or wet Carbolic dressings (1 - 30). Aspirin (grs. 10) may be given for the relief of the pain, but its continued use is not to be recommended. Where there is more stiffness rather than pain, gentle massage with warm olive oil is helpful. Whilst at rest, great care must be taken to prevent the development of deformities, e.g. fingers which are becoming flexed may be fixed for a portion of the day or during the night on a splint fixed to the palmar surface of the hand and left free

for movement at another period of the day. It is never advisable to fix for any considerable period of time a Rheumatoid Arthritic joint. Adhesions will certainly form, and there will be a certain amount of loss of movement in the joint so treated. As soon as possible in all cases the patient should be urged to initiate and maintain the natural movements of the joints.

2. Manipulation.

At the earliest possible moment after pain has subsided, the patient should be made to go about as much as possible, short of actual fatigue. He should be instructed to massage one hand with the other, to flex the fingers, to endeavour to extend his arms above his head, to make his legs as straight as he can, and to execute every movement that the particular joint ordinarily performs. Where, in spite of his best efforts, there is failure to secure the necessary movement, the aid of a masseur may be invoked, in the hope that massage by breaking down adhesions, preventing their formation, and also preventing atrophy of the muscles and the development

of deformities, the desired movements may in time be accomplished. In some cases freeing the joints under an anaesthetic and fixing the part in the position of greatest utility is necessary. X-ray photographs are useful as showing the presence or absence of bony outgrowths, which if present would permanently limit or prevent movement of joints.

3. Operation.

Osgood (41) asks, "Have we a rational surgical attack on these joints themselves?" He proceeds, "Surely not in the acute stage, unless occasionally to relieve the hyper-tension of a joint by aspiration; perhaps not until the disease seems well under control. Then we are inclined to believe that the local progressive intra-articular changes, especially in the cartilage, may be checked and function conserved by the operation, which has been called synovectomy. Goldthwait first advocated and practised the removal of joint fringes and pannus. The operation as it is understood today was introduced, we believe, by Mr. A.H. Tubby* (42) in 1908,

who removed all the proliferated synovial membrane and pannus from three knee-joints, with relief of local symptoms and conservation of motion. Lately Sweet* (43) and Jones* (44) reported a larger series of encouraging results.

Is it not probably conservative surgery, when we believe the process arrested, to remove these painful villi and the mass of pannus, which eventually causes destruction of the articular cartilages, before this irreparable damage has been done? If deformities have occurred, and complete or nearly complete ankylosis has taken place, resection will often bring about better weight-bearing lines by depriving the joint of all motion and will establish painless function. Manipulations of the joints after the carefully outlined methods of Sir Robert Jones (45) are often of great value in correcting malposition, and even restoring motion. No successes have followed our attempts at arthroplasty on the knee-joints of these wasted limbs. Two stiff hips with limited or absent knee-joint motion represent an enormous handicap, and while in these old cases perfect arthroplasties are as rarely accomplished in the hip as in the

knee, some form of pseudo-arthrosis, like that of Sir Robert Jones*(46), the reconstruction operation of Whitman*(47), or even a simple excision, allows the patients limited locomotion, with or without crutches, and makes it possible for them to sit in a chair with comfort. It is a fearful hardship to be obliged to be continually either completely upright or completely downright. To be able to receive attention without attracting it, is a great blessing."

The above statement by Dr. Osgood represents the present position of Surgery in relation to the crippling deformities of Rheumatoid Arthritis. It is better to have an ankylosed and useful joint than a deformed or displaced and useless joint. Great progress has been made in the technique of these operations, and as they have passed out of the experimental stage, one is justified in advocating operation wherever there is a reasonable likelihood of success.

4. Appliances and Splints.

Howell*(48) gives the main objects of appliances and splints in the treatment of Arthritis as follows:-

(a) To rest an injured or inflamed joint.

(b) To correct a deformed one.

(c) To obviate the evil effects of gravity or body weight.

(d) To enable the masseuse, by their easy removal, to apply at regular intervals the physiotherapeutic measures necessary in each case.

The splints and appliances may be made of any firm material and devised so as to correct the existing or threatened deformity. They must be frequently removed so as to permit of free movement of the affected joints.

5. Specific and Accessory.

(a) Vaccines. (b) Heat. (c) Heliotherapy. (d) Spas. (e) Drugs.

(a) Vaccines.

Buckley* (49) states, "The microbe responsible in the great majority of cases belong to the family of streptococci, and considerable progress has been made by bacteriologists in the identification of different strains by

cultural reactions. Vaccines prepared from such streptococci have given excellent results in the hands of many observers." Vaccine treatment holds out greater promise of success than any other means at our disposal. At first autogenous vaccines were alone used, but more recently mixed stock vaccines have also given good results. He advises an initial dose of five millions, the injections being given at weekly or longer intervals, and the dose gradually increased according to the reaction obtained which varies with the type. He also reports a few cases in which vaccines appeared to have no effect until small doses of thyroid gland were given at the same time.

(b) Heat.

Radiant heat has been much used in the treatment of Rheumatoid Arthritis, and is certainly useful in the relief of pain and stiffness. Other important changes are effected by its use: it diminishes the local blood pressure, and assists in the absorption of fluid. It is a remedy than can be applied in the acute stage and when the patient is

confined to bed. Its use is not however restricted to acute cases, as it is a serviceable agent even in chronic cases. Electricity in the form of the faradic and constant currents and electric baths have been used. Stockman* (50) advises massage of atrophied muscles and the faradic and constant currents perseveringly applied to them, although he believes the improvement is trifling if the joints remain stiff. Electric baths have been credited with modifying the course of the disease.

Electricity, with the exception of ionization, has proved disappointing in Buckley's* (51) hands.

Davies* (52) says that ionic medication has fallen into disrepute, due, he thinks, to faulty application. His conviction is that we have in ionic medication, properly applied, in conjunction with constitutional measures directed to the maintenance of the patient's strength, the only means of dealing satisfactorily with rheumatoid affections, but to get the best out of it, the medication must be concentrated upon the affected joints

through the shortest practicable circuit, and not allowed to waste its energies upon the righteous and unrighteous alike. He uses tincture of iodine and carbonate of lithia and works out their action as follows. Iodine travels from the negative to the positive pole, and lithia from the positive to the negative. The iodine when applied to a joint, passes through the joint on its way from the negative to the positive pole; the lithia does the reverse. They meet in the diseased tissues, join forces, and converting the insoluble deposits into soluble forms, these are taken up by the blood stream and expelled from the system by the excretory organs. He concludes "Nothing could be more simple, more appealing to reason, or more substantially justified in practice, when the due limits of the possible in any given case are intelligently observed".

(c)Heliotherapy.

Howell* (53) says, "The value of sunlight in the treatment of arthritis has been known for centuries". Recently there has been a resurgence of faith in sunlight in the treatment of many morbid conditions, and many of

the large hospitals have had artificial sunlight apparatus installed. There is not however, so far, sufficient evidence of its efficacy in treatment of Rheumatoid Arthritis for one like myself with no experience of its use, and no authoritative pronouncement to guide me to say anything either for or against its employment.

(d) Spas.

Spas have been wholeheartedly praised, and with equal wholeheartedness condemned, so far as the treatment of Rheumatoid Arthritis is concerned. If one strikes a mean between the two extremes, one probably approaches as near as possible to the truth. It is reasonable to argue that as spas are situated in healthy districts, where the climate is mild and dry, and as they are conducive to an improvement in the general health of a patient — which improvement is ordinarily very necessary in the class of cases with which I am dealing — they form an important adventitious aid in the relief of Rheumatoid Arthritis cases.

Stockman gives it as his opinion that in cases of Fibrositis and Panniculitis, spa treatment often proves of value. The skilled application of moist and dry heat relieves the sufferings from the Fibrositis and enables massage and passive movements to be more easily and effectively carried out. But in all cases the most that can be attained is a certain varying degree of improvement.

Mineral waters by the mouth, peat and sulphur baths, radioactive baths, the plombière douche, and many other forms of spa treatment all have their advocates.

Davies* (54) writes — "Excellent as many of the methods of spa treatment are in cases of ordinary Rheumatism, they are unreliable as curative agents in Rheumatoid Arthritis, and unfortunately this conclusion is borne out by the number of chronic cases which struggle from spa to spa year after year, buoyed up with hope, only to return home in the end disillusioned, helpless cripples".

(e) Drugs.

There are very few drugs that have not been tried in the treatment of Rheumatoid Arthritis. Tonics such as iron, arsenic, Fellowes' Syrup of Hypophosphites, cod-liver oil, etc. are all useful in increasing the powers of resistance of the patient to the inroads of the disease. Aspirin and sodium salicylate have been used for the relief of pain, and many external anodynes for the same purpose, and if the external applications effect the end in view, there is general agreement that their use should be preferred.

Guaiacol has many devotees, but Stock-man (55) says, "that Guaiacol and other drugs of the phenol series, although highly praised by certain writers, show no strikingly evident benefit. They are all antipyretics and in the blood must have some antiseptic action, but as they circulate either as feebly-active ethereal combinations and sul-phuric and glycuronic acids, it is unlikely that this amounts to much."

Luff*(56) who claims to have used Guaiacol

in several thousand cases does not hesitate to aver that, "it is capable in the great majority of cases of arresting the disease, of diminishing the size of the joints, and of permitting increased movements. It also relieves pain markedly, and is useful in sub-acute and chronic cases. The guaiacol probably acts by inhibiting the growth of the specific micro-organisms in the intestinal tract, and after absorption by combining with the bacterial toxins and assisting in their elimination." He advises the use of Guaiacol carbonate in cachets beginning with 5-10 grains thrice daily, increasing to from 15-20 grain doses, and that the treatment should be continued for at least twelve months.

Stockman* (57) has often seen benefits from the injection into the joints of 1 c.c. or more or less of 1-40 carbolic acid solution every two or three days.

Potassium Iodide either alone or in combination with Syr. Ferri Iodide has been used, and from many received a meed of praise.

Intestinal antiseptics for the treatment of flatulence, stasis and colitis should

where necessary be employed. Kerol capsules, sodium sulphocarbolate, salol, cyllin and calomel may all be tried.

For sleeplessness paraldehyde and bromides are of use, but sleeplessness does not appear to be a marked feature of the disease.

Dr. Watson Smith (58) writes recommending intramuscular injections of Guaiacol-iodine camphor oil in Rheumatoid Arthritis. As in certain cases collapse has followed its use, he advises great caution if administering large doses.

O.W. Nathan of New York advocates prolonged and absolute rest with the administration of Thymus extract. He gives 10 to 20 grains of the latter thrice daily over a period of several months.

Other Methods of Treatment.

1. Non-specific therapy in Rheumatoid Arthritis.

Campbell* (59) states that though protein shock therapy cannot be regarded as an ideal method of treating Rheumatoid Arthritis, he is of opinion that it offers a greater probability of success than any other method at present known.

Of 70 cases treated, he returns 58 as deriving benefit and leaving hospital with pain and tenderness diminished, and every appearance that the infection was arrested. Of the remaining 12, four were cases of long standing in which the infection had already died down leaving permanent joint changes, and in eight others the infection was not arrested.

Of the 58 cases that derived benefit from the treatment, 40 have been able to resume their ordinary employment for periods from 1 to 3½ years without any recrudescence of the joint trouble.

16 cases relapsed, and two could not be traced.

The protein used in Campbell's cases was typhoid vaccine because of its reliability and less danger of undesirable effects. The initial dose administered was 100 million bacilli in 5 c.c. of normal saline injected intravenously, and this was followed at intervals of from four to six days by doses of 125, 150, 200, and 200 million bacilli. If no improvement was shown after these five injections, it was deemed useless to continue treatment.

The injections were given in the morning, several hours after breakfast, and to lessen the discomforts of the chill, extra blankets and hot water bottles were provided. No food was given until the discomfort had passed off. The reaction did not appear to be dangerous, and all effects of the injection usually passed off in from 24 to 48 hours.

The fact that some cases relapsed after leaving hospital suggested the advisability of giving several injections after the activity of the process seemed to be arrested.

2. Bier's Method of Treatment by Passive Congestion in Cases of Rheumatoid Arthritis.

A.W. Wakefield (60) describes the method as follows:-

Congestion should be produced by the bandage for any length of time up to 22 hours out of the 24, due care being taken that the pressure does not injure the part.

Out of 20 cases there were only two which were not relieved in any way. One of these was aggravated by the treatment.

In all the other cases congestion was relieved to a varying extent. In a few cases only slight and temporary relief was obtained. In most cases the pain decreased or entirely vanished in the most striking fashion about an hour after the first application of the bandage, and for some weeks the patient continued to improve with this treatment. The patient then appeared to acquire a tolerance towards congestion, and the pain began to recur. After stopping the treatment for a week or two, the bandage again gave more or less relief in some cases,

while in others it seemed to lose all effect.

In only one case was pain entirely and always relieved by congestion.

Stiffness was only improved in a small proportion of cases and in some of these improved mobility was only temporary.

Swelling was but little affected by Congestion. Wakefield concludes, "After an extensive trial of this form of treatment for Rheumatoid Arthritis, I have come to the conclusion that congestion is far from being a panacea, but that it is as valuable a means as any we possess of combating this fell disease".

3. Endocrine Treatment of Rheumatoid Arthritis.

H.K. Thompson* (61) says that the large group of conditions described collectively as chronic Arthritis may be divided into three classes, namely, isotrophic or undifferentiated, atrophic (which corresponds closely to so-called Rheumatoid Arthritis) and hypertrophic (Osteo-arthritis). Cases of Chronic Arthritis of the isotrophic group represent the primary residua of infective foci. They may remain as such without bone changes, or may develop changes of the hypertrophic, or possibly of the atrophic type, in which event a disordered endocrine system may be demonstrable either as the immediate causal agent or as a complementary phenomenon. The cases of the atrophic group offer some evidence of endocrine dysfunction. In many, features associated with hyper or dysthyroidism are present, while in a few other endocrine foci seem more probable. Cases showing changes of the hypertrophic type present evidence of endocrine hypo-function, seemingly of the thyroid with low

metabolic race, slow pulse, low blood pressure, and generally lowered tone. These are generally amenable to gland therapy.

Various authors of note have on different occasions called attention to the occurrence of thyroid gland disease and Rheumatoid Arthritis. In a book by E.T. Blake*(62) called "Myxoedema and the Goitres" attention was directed to this feature.

McAlister*(63) and Llewellyn*(64) have both advised the use of thyroid extract in selected cases of Rheumatoid Arthritis.

Llewellyn called attention to cases of Exophthalmic goitre associated with Rheumatoid Arthritis, and pointed out that such cases displayed soft swellings rather than bony hypertrophy, whereas myxoedema more freqnently displayed evidence of Osteo-arthritis.

Midleton (65) after many years of observation believes that very few cases of long standing Arthritis exist without some degree of thyroid failure. He advises the administration of small doses of thyroid to begin with and carefully watching the pulse and blood

pressure to increase the doses from 1 grain daily to as much as five grains thrice daily. The thyroid medication where results are satisfactory should, he states, be maintained indefinitely.

4. Treatment of Rheumatoid Arthritis by Induction of "Mild Delirium", Suggestion and Massage.

Dr. Ivy McKenzie (Glasgow) has treated Rheumatoid Arthritis by induction of mild delirium, suggestion and massage. The agent by which the mild delirium is caused is unknown to me, but I have heard him explain his mode of working, once the patient is in that condition. Acting apparently on the hypothesis that Rheumatoid Arthritis is of nervous origin he induces the delirium, and having done so "suggests" to the patient that he moves his joints and continues to keep on moving them; that a patient previously confined to bed should get up and walk and continue to do so. To expedite matters, he avails himself of the services of a masseur acting under his instructions. His method of treatment is very interesting, and I have seen two cases in his wards at the Victoria Infirmary who confessed themselves much better since they came under Dr. Mackenzie's care.

5. Treatment with Iodolysin.

The method of treatment which I have employed for several years past and which in my hands has given me more satisfaction than any other is with Iodolysin. I have not confined myself exclusively to the use of this drug and neglected other aids where possible to employ them. I have, even under the most difficult or seemingly impossible circumstances, endeavoured to employ massage — often of the most amateurish description; impressed on the patient the fact that he will recover the movements of his joints if he but perseveres in endeavouring to use them; and if such was discovered, I have tried to remove any source of infection; and it has always been my custom to allow the patients a very generous diet. Where one joint has been principally involved, I have on occasions advised the use for several hours daily of a bandage applied in a suitable place in an effort to passively congest the joint so affected. I have used but rarely any other drug whilst administering Iodolysin.

"Iodolysin" has been placed on the market

"Iodolysin" has been placed on the market by Messrs Allen & Hanbury. It is said to contain 43 per cent of Thiosinamin in chemical combination with 47 per cent of Iodine. Thiosinamin alone is but sparingly soluble in aqueous media and transient toxic symptoms are said to have followed its use. Alone it has been recommended for the removal of scar tissues, exudations, etc. In combination with Iodine it is readily soluble in water, and is as a general rule well tolerated. By the manufacturers "Iodolysin" is recommended as a fibrolytic agent for the removal of all forms of pathological fibrous tissue and assert that it has given strikingly successful results in the treatment of Rheumatism, Rheumatoid Arthritis and Arthritis Deformans. It is also credited with good results in eye infiltrations, such as Glaucoma, and its employment is advised in strictures of the oesophagus, rectum or urethra, in pyloric stenosis, arterio-sclerosis, Dupuytren's contraction and Osteo-arthropathies.

"Iodolysin" may be administered either hypodermically or orally; for the latter

purpose it is presented in the form of "Kapsol" gelatine-coated capsules and as a flavoured solution. An ointment of "Iodolysin" for local application is recommended as a useful adjunct to treatment. The use of the "Kapsol", alternating with occasional hypodermic injections, is believed to give the best results. At the commencement of treatment one "Kapsol" daily after breakfast may be taken, and this is increased to two and later to three a day after meals. Patients are advised to take a saline draught each morning while undergoing treatment.

Elderly people — especially if of a gouty disposition — are said to show an intolerance to the drug. If this occurs, discontinuance of its use for a few days and then resumption of treatment with a smaller dose is recommended. The intolerance usually shows itself by the development of cutaneous eruptions, although gastric symptoms may also be present.

Iodolysin is, as has been stated, a combination of Thiosinamin and Iodine. The only reference I have found in the literature of treatment of Rheumatoid Arthritis to its

use is in an article by Buckley (66) in which he briefly states, "it is useful in many cases, especially in periarticular fibrositis, but it sometimes sets up gastric irritation and other toxic symptoms. The dosage should be carefully graduated to suit the case, and the effect watched".

I saw one case last year, a comparatively young girl treated in Glasgow Royal Infirmary who had made an excellent recovery under "Iodolysin" treatment. She was demonstrated as showing the efficacy, in her particular instance, of this method of treatment.

Reports on Cases.

I have treated, or commenced treatment in about 60 cases of Rheumatoid Arthritis with Iodolysin. Most of them I have however lost sight of. I have endeavoured to get in touch with as many of them as possible, and have communicated with them by letter to call on me. Fourteen letters were returned to me as "Gone - no address"; others their relatives communicated with me as having left the city or gone to hospital; and several were reported "dead". The response to my enquiries has been rather disappointing. No reply was received from a good number — possibly many of them were seeking advice and relief elsewhere, and did not wish to inform me of the fact. A good deal of difficulty was experiemced in some cases in prevailing on the patients to persevere with treatment when no immediate improvement was manifest. Of 18 cases only can I speak with any semblance of authority. Eleven of these have shown marked and definite improvement, and I append below reports on these eleven cases. Four cases, although they persevered with treatment, showed no improvement, and

three others could not continue treatment with "Iodolysin" as even one capsule daily caused marked gastric disturbance in two cases, and one developed a most intense irritation of the skin.

To the four cases which showed no improvement and three of those which did improve, but to my mind rather slowly, I administered "Iodolysin" hypodermically, one injection weekly. It made no material difference to the four cases which had not responded to treatment by mouth. The other three improved more rapidly, but one of these three cases developed a most annoying eczematous condition at the site of each injection.

As might be expected, the improvement was most marked in those cases in which treatment was begun shortly after the onset of the disease.

In 15 of my 18 cases I was able to find a definite septic focus, or to obtain a history which seemed to supply one, and, in ten of the eleven cases which improved, this

was forthcoming. In three cases I could not satisfy myself that I had found the "vera causa".

Case 1.

J.C. Aged 36 years. Postman. Called to see me on Sept. 18th. 1925. He walked into my Surgery with the aid of two sticks. His history was that he had been off work for two months because of pain, swelling and stiffness in both hands, wrists, feet and knees. His shoulders, elbows, hips and back had not been affected. He had consulted his own doctor, who first of all told him he was suffering from Rheumatism, but later described his disease as Rheumatoid Arthritis, informing him that he would not again be able for his work as a postman.

On examination his fingers showed fusiform swelling, his wrists were slightly swollen, and there was considerable wasting of the muscles of the forearm as also of the interossei muscles of the hand. His knees were markedly swollen and stiff. They creaked on movement and were painful. His toe joints were also slightly swollen and tender on pressure. There was no pigmentation of the skin, but the hand sweated very freely. His tongue was clean; his teeth,

with one or two exceptions, very good. Examination of his throat and nose revealed nothing abnormal. He was not constipated, and there was no history of venereal disease. He had a slight purulent discharge in his left ear, which had followed an attack of earache about six months previously. His urine was normal, and a Wassermann Test was returned "negative".

Treatment.

I prescribed Hydrogen Peroxide drops for his ear, and instructed him to have the discharge carefully swabbed out every 3 hours and also to have dry boracic acid powder blown in afterwards. I put him on one Iodolysin capsule for a week and a teaspoonful of Epsom Salts first thing in the morning. I also strongly urged him "to keep on walking" and using his hands and wrists as much as he could.

At the end of one week he reported himself again. His joints were somewhat better, and he had less pain. His ear was still discharging, and I advised him to

see a dentist and have two teeth on the left side of his mouth which were slightly decayed, extracted. I increased his Iodolysin, ordering two capsules one after his morning and evening meals.

A week later he again reported himself with the teeth extracted, and the story that the dentist had told him there was an abscess on the root of one of them. The discharge from his ear had ceased. He was walking better, the swelling in the joints was less, and he could move his wrists, knees and fingers more freely. I directed him to take 3 capsules daily, one after the three principal meals of the day, and to discontinue treating his ear. I told him to wash out his mouth carefully, and brush his teeth after each meal.

He reported regularly to me until the month of December. His progress was sustained, and I advised him to see about resuming his work again. He had to pass the Post Office doctor before being allowed to resume work. This he successfully did, and I saw him on February 13th. 1926. There is still a little

swelling and creaking in the knee joints, but his hands and feet have made an excellent recovery. He is now taking one capsule daily, and performing his full round of work which is as follows:-

He reports at 6 a.m. Sets out on his round delivering his letters at 7 a.m. This takes him until 9.30 a.m.. He is off duty until 1 p.m., when he sets out again returning at 3.30 p.m. or thereabout, and then again sets out to deliver his evening mail, finishing at 5.30. p.m.

He is a country postman, and confesses that at present he feels very little more tired after his day's work than he was a year or more ago.

Case 2.

Mrs. L. aged 60 years. 9-para: 2 alive. Two died with Rheumatic Endocarditis, one with Cerebro-spinal Fever, two with Pneumonia, and of the remaining two she does not remember the causes of death, which occurred in infancy. I have known her for almost 20 years and attended the two children who died of Rheumatic Endocarditis. She herself had always enjoyed good health until towards the end of July 1925, when I was on holiday, she developed a pain in the right lower abdomen. A doctor who saw her told her she had a slight attack of Appendicitis. He saw her only once. On August 2nd. 1925 I visited her and diagnosed "Appendicitis with abscess". I sent her into hospital and she was operated upon the same day — an abscess was found, and a drainage tube inserted. Two days after her operation she developed pains in her right wrist, her finger joints and knees. The pains were accompanied with swelling. The pain and swelling persisted, and there was deformity of the right hand, rigidity of the wrist,

the fingers over-extended, and the interossei muscles much wasted when she was discharged from hospital nine weeks after her operation. She had refused to be removed to the medical side of the institution, and had to be removed home in an ambulance.

On her return home I was sent for again, and diagnosed her condition as "Rheumatoid Arthritis". Her gums were very unhealthy, and she had some difficulty in opening her mouth wide. She has also been constipated at all times, but takes Laxative vegetable tabloids to correct the constipation.

I ordered her to clean her teeth and gums with Euthymol tooth paste, and after some weeks, she had her few remaining teeth extracted. I gave her one Iodolysin capsule daily, and arranged for her to have her hands, wrists, arms, knees and legs massaged daily with warm olive oil, and enjoined her to use her left hand, which was not so much affected, to bend and overcome the hyper-extension of her right hand. I also impressed on her the necessity of keeping her legs in motion, and in particular to bend and straighten her knees as much as possible.

I increased the Iodolysin to two capsules after one week, and at the end of another fortnight I gave her three capsules daily. Her improvement has been dramatic. After four weeks' treatment she could make an excellent attempt at closing her right hand, and she could make movements of her right wrist, such as I had not hoped for so soon. Her knees improved, although she is not yet free from swelling in them.

Now February (1926) she is able to be out of bed several hours every day, and can close her right hand. When she opens the right hand, the fingers resume to some extent the over-extended position.

She is still under treatment — two capsules daily — and still has her hands and legs massaged. She has occasional bad nights with pains in her joints — she attributes the pains to wet weather — but her general condition is marvellously improved compared with four months ago.

The outstanding feature of this case to me was the close association of the onset of the Rheumatoid condition with the evacuation of the Appendix Abscess.

Case 3.

Mrs. S. 62 years. 5-para. Four alive and well. Other child died in infancy. Had enjoyed good health until six years ago, and had negotiated the menopause without any unusual difficulty or trouble. Six years ago she had an attack of Jaundice which confined her to bed for a week. At the end of this time she developed a pain in her right hip which was treated as "Neuritis". She went about with difficulty, and later the pain spread to the right knee, and the toes of the right foot — the left knee and foot were subsequently affected as were the fingers and wrists of both hands. Her shoulders escaped, but the elbows did not. She was treated in various ways by different doctors, but the swellings of the wrists, knees, fingers and feet with the pain persisted. She became a hopeless cripple, and could not get in or out of bed without assistance, and dare not rise from her chair without help. Her fingers would not close, and her knees were semi-flexed, swollen and

painful. She had been in the habit of augmenting the family income by knitting, but for one year before I saw her first in April 1924 she could do no knitting, and could not hold a newspaper in her hands. She lives outwith Glasgow, and such was her condition when I saw her for the first time on the recommendation of another patient whom I had treated for Rheumatoid Arthritis. She had a number of bad teeth and Pyorrhoea Alveolaris, but willingly allowed the teeth to be extracted immediately after my first visit. I treated her with Iodolysin capsules, and gave her one injection of 15 minims of Iodolysin weekly for a month, after which I increased the dose to 30 minims for eight further doses. I saw her almost weekly until July 1925, when I ceased attending her. She could then knit — indeed she knitted at least a dozen jumpers for the female members of my family — she could walk, and she had been visiting friends some miles away. She could hold a book, and turn the pages of it.

I saw her today (28.2.26) for the purposes of this report. She closed her hands — they still show some deformity — bony thick-

ening — she walked round the room without assistance of any kind. Her knees bend well and can be extended almost fully. A good deal of creaking can be elicited in the knees, but that is not surprising considering the long duration of her illness and her condition previous to treatment by Iodolysin. She has not taken any Iodolysin since last July — a period of seven months. She admits that she is still emproving every day. She can now do a great deal of her own washing — so far as light articles are concerned. The interossei muscles of her hands, which were much wasted, now look quite normal.

In this case the striking feature is that the Rheumatoid Arthritis followed almost immediately on her attack of Jaundice.

Case 4.

Mrs. A. aged 59 years. 4-para. All alive and well. She consulted me in May 1924 complaining of Rheumatoid Arthritis for which she had been under many doctors over some years. She had well-marked swelling of knees, wrists and some — not marked — deformity of the finger joints. Her feet were not affected. She dated the commencement of her illness to the birth of her last child 24 years ago. She had then had puerperal fever and been confined to bed for six weeks. Whilst in bed she had complained of pains in her joints, principally her finger joints, wrists and knees. In 1914 she had, on the advice of her doctor, a tonsillectomy done. Her teeth — only seven in number — are bad, and her gums are unhealthy. She will not part with her teeth however, despite all possible peaceful persuasion.

As in other cases I treated her with Iodolysin and made every effort to have her gums made as healthy as possible. I also instructed her in the massage of her

limbs. She has made considerable improvement, and could move about and could do a considerable amount of work in her house for the past fifteen months.

Unfortunately in January 1926 she had a slight cerebral haemorrhage which has confined her to bed since. Although she is recovering from the effects of it, she is not able to leave her bed or stand alone without assistance.

Until she had the cerebral haemorrhage she confessed that she had less stiffness in her joints and less pain than she had known for many years.

Case 5.

Mrs. C. aged 66 years. Widow. Has had four children — three of whom survive and are well — one child died in infancy. Had always enjoyed good health, and her only recollection of illness is when she was 36 years old she was confined to bed for two weeks with Sciatica. Five years ago her present illness commenced with pains and stiffness all over. Her joints were painful, and her fingers, wrists, knees and toes were swollen. She was under treatment, but she did not improve —the stiffness and swellings persisted, deformities of the fingers, wrists and toes became more marked. She had been confined to bed for two years when I saw her first, which was in June 1924. When I visited her, her joints showed the typical appearances of Rheumatoid Arthritis, and her neck was stiff — due I believe to involvement of the intervertebral joints — she could not turn in bed without assistance, she could not close her fingers or bend her wrists or pull up her legs in bed. Any attempt at moving her head caused her

agonising pain. She had but three stumps of teeth in her lower jaw which were purulent at the gums, and which after much persuasion she allowed me to extract. She wore an upper artificial set, but did not take them out at night, and which were far from being aseptic. Her throat, nose, ear, etc. all appeared to be healthy, and she was not constipated.

Treatment.

I ordered her to take her artificial teeth out every night — to clean them carefully, and to wash her mouth out with boracic lotion every night. I gave her one Iodolysin capsule every day for a week, and her daughter, who is the only other occupant of the house with her, I instructed to massage her neck and spine with warm olive oil frequently every day, as her neck was to her the most urgently requiring treatment at that time. The patient I told to bend her fingers and to move her legs. At the end of one week, I increased the Iodolysin to two capsules per day. The following day I was sent for as the

patient was much worse — her eyes were almost closed, she had severe coryza, and her body was covered with an urticarial rash. I stopped the Iodolysin for a week, and the symptoms subsided. During this week I gave her gr. I Thyroid tablets t.i.d. and on and off since I have prescribed small doses of thyroid. At the end of one week I resumed the Iodolysin and continued with one capsule daily for a month. I then increased the dose to two capsules and had a repetition of all the old symptoms. I have not since given her more than one capsule of Iodolysin daily. At the end of six weeks she could move her neck freely, and had no pain. She could move her fingers a little and her knees were freer. When she had been three months on treatment, I advised her to rise and sit up for a little. She was very timorous, but finally consented, and gradually I induced her to take a few steps by pushing an arm chair, the arms of which she held, in front of her. Gradually little by little she gained confidence, and walked with the aid of two sticks. When she was about six months on treatment, she was able

to walk down stairs holding her daughter's arm, and one year after treatment began — in the summer of 1925 — she was able to leave Glasgow and go for a month to the coast. She can now turn the handle of a door, she can knit, rise out of bed without assistance, and walk a little without any aid. She tires easily, but that is not surprising considering her age and her long confinement to bed. There is a notable improvement in the tone and fulness of her muscles — hands, arms, feet and legs. She still takes her one capsule daily and an occasional thyroid tablet. I have on several occasions stopped the Iodolysin for a week or more, but she complained that she felt stiffer, and had more pain when she was without the capsules.

I first prescribed the thyroid because her facial appearance struck me as being slightly like Myxoedema, and her speech was slow.

Case 6.

K.B. aged 62. Spinster. Boarding-house keeper. Consulted me in July 1925 complaining of swellings of hands and knees and inability to close fingers on hands or to bend knees. Her history was that for some months early in 1922 she had felt increasing stiffness and loss of power in her fingers, wrists, elbows and knees, and one morning on awakening, she was unable to rise out of bed. She consulted her doctor, and was treated for Rheumatism. She lay in bed for six weeks, during which time her pains improved, but the stiffness in her joints increased. A year later she had a course of electric treatment — particulars of which she cannot give. In April 1925 her stiffness and pain became worse, and her joints swelled again. She was again confined to bed and treated for Rheumatism. There was no material improvement in her condition she said when I was called to see her. She had not been able to attend to her household duties since April 1925. When I saw her first, she had marked swellings of the finger joints

and wrists. Her knees also showed considerable swelling, and could not be flexed. There was much wasting of the interossei muscles of the hands, the muscles of the forearms and of the legs. She had always been constipated, going sometimes three or four days without defaecation. Her teeth were very good, her gums healthy looking, and her throat and nose showed no discoverable disease. Her Wassermann reaction was negative.

Treatment.

I prescribed Cascara Evacuant at bedtime, and a teaspoonful of Epsom Salts first thing in the morning with one Iodolysin capsule each day for a week. The services of a masseuse were secured, and she was massaged every day. I also instructed her to close her fingers, bend her wrists, elbows and knees, and to persist in so doing. At the end of one week I increased her Iodolysin to two capsules per diem, and told her to get out of bed for an hour, morning and evening, and to attempt to walk. At the

end of another week I increased her capsules to three capsules per day, and made her get out of bed two hours, morning and evening. After several weeks, gradually increasing her hours of activity, she was able to close her fingers on her hands, and to bend her knees sufficiently to go up and down stairs. I discontinued the massage — on grounds of expense — after six weeks' treatment, and had to reduce the Iodolysin to two capsules per diem, because of her complaint of the nauseous taste in her mouth on wakening in the morning. She has made a marked and progressive improvement ever since, and now (December 1925) is able to come to my Surgery — a distance of three miles from her home. She attends to her boarding-house duties, does some of her own washing, and in particular washes her blankets.

Case 7.

G. McD. aged 39 years. Painter. Consulted me in January 1925 complaining of pain and stiffness in right knee and right ankle and back. His hands were affected also and the left knee, but not so markedly. His hands sweated freely. He had been so affected for 18 months. The pain commenced ten weeks after an attack of Influenza, and he gave a history of having been kicked in the right knee when playing football about eight years previously, and the knee then troubled him for some weeks. When I saw him first, he complained principally of the difficulty of getting from his home to his work. He is a carriage painter, and could manage to do his work all right once he had reached it, but he feared he would have to give it up, as he had some distance to travel. His teeth, nose and throat did not show any obvious trouble, and he was not constipated. He imbibed alcoholic liquors rather freely. His knees both gave crepitus, and his right knee was swollen and stiff, as was his right ankle.

He has been under treatment with Iodolysin for about a year. He is much improved and has been able to continue at his work without any interruption. All his joints are much improved, but his knees still show crepitus, although they move much more freely than they did before treatment.

Case 8.

Mrs. C. aged 60 years. A dealer in second-hand goods. 3-para. One died of Hydrocephalus. Other two alive and well; no miscarriages. Consulted me in November 1924 complaining of pain and stiffness in both wrists and hands and hip-joints. Her condition had commenced with tingling sensations in her hands and legs six years previously. She had then been treated for "nerves", but her condition became worse. Her fingers swelled and became painful. Her wrists were affected later, and in time she had great difficulty in walking and climbing stairs — which she required to do in connection with her work. When I saw her towards the end of 1924, she had been at a standstill for several years — making no improvement, if not getting worse. She had eight lower teeth which were swimming in pus, and she was very constipated — a week without a bowel evacuation being not unusual.

On my advice she had her teeth extracted

and regulated her bowels. She was put on Iodolysin and has shown good improvement. She has less pain and stiffness, can walk further and is able to pay much more attention to her business than she had for several years been able to do.

Case 9.

Miss B. aged 56 years. Tailoress. Had been ill for eighteen months when she first consulted me. Following an attack of Influenza 18 months previous to my seeing her, she had pain and stiffness in the left wrist, which later spread to left elbow, and in time to right elbow and wrist and both knees. Her fingers were involved and her shoulders later, but her feet were not affected. Following her attack of Influenza she had recommenced her work, but had to abandon it as she could not handle the material with which she worked, and she could not dress herself. She had been confined to bed for six months when I saw her first. Her wrists were swollen and stiff. Her knees were markedly swollen, slightly flexed and painful if any attempt was made to move them. She could not close her fingers nor raise her arms above her head. She had no teeth and no septic focus was discovered. I treated her with Iodolysin and urged her to make as much movement of the affected parts as possible and to

massage her hands and knees with warm olive oil. Despite the fact that she was convinced that no one and no medicine could help her, she can now (March 7th. 1926) close both hands, move her wrists, put her arms above her head, bend her knees — which still creak very markedly — and make a fair attempt at walking with the aid of one stick. She is not quite so sceptical now as to the value of medicaments, and can do a fair amount of sewing and other household work. She is still under treatment, and I am not without hope that she will still further improve and in time be able to go about and get outside, which she had not been able to do since shortly after her attack of Influenza, more than two years ago.

Case 10.

Wm. T. McL. aged 25 years. Labourer. Was seized with pains in both knees and wrists on January 1st. 1925. He was seen by his panel doctor and treated for a month for Rheumatism. He did not improve however. I was called in in February 1925 and found him sitting up. His fingers showed well-marked fusiform swellings, his wrists were stiff and swollen, and both his knees showed swellings on their inner and outer aspects. His temperature was normal. He could move about with the aid of two sticks. I elicited a history of an attack of Gonorrhoea in 1921 when he was in India. His Wassermann was returned "negative". The muscles of his legs, hands and forearm were soft and wasted. He was thin, anxious-looking and in poor health generally. His teeth were good, and his nose, throat, etc. revealed no abnormality. His appetite was poor.

I treated him with Iodolysin, and two months later he resumed his work although at that time he was hardly fit, though

much improved. He continued the treatment for several months thereafter, but recently I have lost sight of him. I was told that he had obtained a situation in the country and was keeping well.

Case 11.

Mr. W.D. aged 50 years. Clerk. Consulted me in August 1925 complaining of pain and stiffness in his left shoulder, left leg and right hand. He had for several months previous felt shooting pains in his left shoulder and arm and in his left leg, but only recently had his right hand troubled him, and he had noticed that the fingers were beginning to swell at the interphalangeal joints. His left hand was not affected.

On examination his left upper arm was found to be much wasted. The deltoid muscle was soft and in striking contrast to the corresponding muscle of his right arm which was firm and well-developed. The extensor muscles of his left leg were also atrophied, and his left knee creaked on movement. His left shoulder was fixed. He could raise his arm about three-fourths fully above his head by performing a sort of circular movement and carrying his scapula outwards at the same time. The appearance of the fingers

of his right hand was typical of Rheumatoid Arthritis, which was the diagnosis I made, and which was confirmed by a consulting physician to whom I sent him.

His Wassermann was negative, and there was no history of Gonorrhoea. His teeth and gums were in a wretched condition, but otherwise no source of infection was found. His teeth were extracted, and he was treated with Iodolysin. I also prescribed massage and instructed him to obtain a Sandow's developer and exercise his left arm and leg as much as possible. He was an excellent patient. Within six weeks the swelling and pain had left his right hand, and he could close his fingers readily. Previous to treatment, writing, by which he earns his livelihood, had been becoming increasingly difficult. His left shoulder joint can now be moved, although crepitus is elicited in so doing. The muscles of the arm and leg have not as yet — if they ever will — "filled" out, but the tone of the muscles is vastly improved. They feel firm, and he admits that he walks better, is less easily

tired, and can lift considerable weights with his left arm and hand, which he could not do some months ago.

Remarks on Cases Reported.

Of the 18 patients of whom I have definite information 12 were females and 6 males, which would bear out what is, I believe, the generally accepted opinion of the much greater prevalence of Rheumatoid Arthritis amongst women. With the exception of the young man of 25 years all my patients were over 35 years of age and the majority of them, when they came under my care, were 50 years or more.

Of the 11 cases reported, and which showed improvement, 8 had suffered from the disease for some years, and the remaining three, who all did remarkably well on treatment, had only been affected for a period of some months.

7 of these cases had carious teeth, Pyorrhoea Alveolaris, or other unhealthy condition in the mouth.

I have tabulated below the age, sex, etc. and what seemed the causal agent of the disease in the eleven cases reported.

In case 10 I have attributed the

disease for want of any better cause to the Gonorrhoea of four years previously. His condition was not a true Gonorrhoeal Arthritis, and whether, as is well known, absorption after a long period had taken place into the blood stream from the prostate, or whether the mischief caused by the gonococcus had provided a suitable nidus for pyogenic germs to propagate and send their toxins through the body, it is impossible to say with any certainty.

Cases.	Age.	Sex.	Occupation.	Duration of illness.	Nature and probable cause of infection.
1.	36	M.	Postman.	2 months.	Carious tooth and Otitis Media.
2.	60	F.	Housewife.	9 weeks.	Appendix Abscess. She also had decayed teeth and unhealthy gums.
3.	62	F.	Housewife & knitter.	5 years.	Jaundice. Carious teeth.
4.	59	F.	Housewife.	24 years.	Puerperal Fever. History of Tonsillitis and carious teeth.
5.	66	F.	Housewife.	5 years.	Decayed teeth, Pyorrhoea Alveolaris. Filthy condition of artificial denture.
6	62	F.	Boarding-house keeper.	3 years.	Constipation. 3 or 4 days duration. Intestinal toxaemia.

Cases.	Age.	Sex.	Occupation.	Duration of illness.	Nature and probable cause of infection.
7.	39	M.	Painter.	18 months.	History of injury to knee. No septic focus found.
8.	60	F.	Housewife & dealer in old clothes.	6 years.	Carious teeth and Pyorrhoea Alveolaris. Constipation. 7 days frequently.
9.	56	F.	Tailoress.	18 months.	Influenza.
10.	25	M.	Labourer.	6 weeks.	Gonorrhoea 4 years previously.
11.	50	M.	Clerk.	3 months.	Carious teeth and Pyorrhoea Alveolaris.

These patients all belonged to the working classes who could not have afforded, had it been deemed wise to prescribe it, treatment at expensive spas, nor the very important adventitious aid of skilled massage. The great difficulty is to convince many of them the importance of attending to their teeth, avoiding constipation and rigorously carrying out instruction to keep in motion — even when accompanied with some pain — joints which will otherwise become fixed and hopelessly useless.

The eleven cases reported all showed improvement, improvement obvious to the observer and admitted by the patient.

I do not claim that Iodolysin removed any bony outgrowth or abolished long-standing deformities, but I do submit that results with it when used over a prolonged period will compare favourably with any other known method of treatment. As a frequent visitor to Harrogate, I have seen there many Rheumatoid Arthritic wrecks of humanity undergoing expensive treatment for months, and not showing

anything like the substantial benefit that my patients have shown under treatment with Iodolysin.

I have tried vaccine treatment in cases of my own, and I have seen other cases that have undergone vaccine treatment for Rheumatoid Arthritis, but I have never seen anyone who benefited much, if at all, from its use.

Conclusion.

My experience in the treatment of Rheumatoid Arthritis has shown me that whether the cause is to be found there or not, there is a close association between Rheumatoid Arthritis and septic absorption, most frequently from the mouth and alimentary canal; seven of my cases showed septic conditions of the mouth, one an appendix abscess, and one a history of Jaundice. Two of the first-mentioned seven also gave a history of chronic constipation. If it be true that Pernicious Anaemia is always associated with septic conditions in the mouth, and these septic conditions are the "fons et origo" of such far-reaching and intractable alterations in the blood, it is surely no great stretch of imagination to suppose that similar septic conditions taking a different "turning" and venting their toxins on synovial membranes, ligaments, cartilages and bones are responsible for equally

far-reaching intractable, but less immediately fatal, alterations in the joints of the body.

Nothing but good can follow the removal or healing up of a septic focus whenever and wherever found, and therefore I have always sought to deal as thoroughly as I could with any such focus. Having done so, I have prescribed Iodolysin, the advantages of which I may briefly summarise as follows:-

(1) It is cheap in use.

(2) It is easily taken, and usually well-tolerated.

(3) Removal to hospital or nursing home is not necessary for its use. It can be taken in the patient's own home, no matter how humble that home may be.

(4) The dosage can be easily controlled, and if thought advisable, its effects can be hastened by hypodermic injection.

(5) Its use can be supplemented where

necessary and deemed advisable in the case of those who can afford them by baths, intestinal lavage, and the assistance of trained masseurs.

(6) It is not necessary for the patient to be confined to bed <u>because</u> of the treatment. If his condition permits, he may be up, and if well enough, he can take the medicament and follow his daily avocation.

(7) If treatment is begun early, I believe that Iodolysin continued over a prolonged period will prevent the formation of fibrous adhesions and the consequent bony and other deformities.

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