A Clinical Study of Osteo-Arthritis.

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A Clinical Study of Osteo-arthritis.

The reasons which have influenced me in selecting Osteo-arthritis as a subject upon which to write a thesis are not far to seek.
Buxton affords almost unrivalled facilities for the study of the disease. To this Mecca – the promised land of the maimed and crippled, there flock annually some thousands of patients afflicted with Gout, rheumatism and osteo-arthritis. Hence, side by side, these joint lesions at every stage in their development and in every possible variety can be most advantageously studied.
As one cannot but feel that the

helpless and almost hopeless condition of at least some of the sufferers, to whom Buxton is the dernier resort, might have been mitigated or even prevented by earlier judicious treatment, it becomes a duty to the profession to express ones strong conviction of the necessity of more accurate diagnosis of the disease in its earliest stages and as a disease distinct from Rheum: atism or Gout and consequently of a more enlightened method of treatment.
I therefore propose in this paper to epitomise my experience of the complaint and more espec: ially to investigate the conditions of origin and critically examine

the methods of treatment so that I may if possible contribute even in however small a way to the prevention and cure of this most painful of maladies.

I have selected osteo arthritis as a subject in preference to gout or rheumatism, not because the latter do not come under my observation but because it is the most common of the three: makes more hideous ravages on the health and constitution of the patient and because however common and frequent it is met with, it opens up a much wider field for investig: ation and speculation as to its aetiology and diagnosis

in the early stages.
Osteo-arthritis possesses characteristics which are clearly and markedly distinct from those of either chronic articular rheumatism or chronic articular gout. Osteo-arthritis does sometimes follow some previous attacks of gout or rheumatism but such cases do not alter the fact that Osteo-arthritis can and in most cases does arise as an independent and primary disease.
Though by no means extinct Gout appears now to be much rarer than it used to be in the last century, as though the disease itself has descended the fabulous

habits and good old port of our forefathers have in great measure been left behind. Rheumatism so called in its chronic forms is often in reality osteo-arthritis and will therefore come in for mention in dealing with the latter disease as the differentiation is of the utmost importance.

The name osteo-arthritis has been chosen from amongst almost a multitude of other names, which have been given to the disease and in preference to the more commonly accepted one of Rheumatoid Arthritis, because I wish to draw attention to the integrity

of the Complaint. Its many aliases have suggested a hybrid nondescript character which it does not deserve. The name Rheumatoid Arthritis implies a theory in reference to the disease which may or may not be true but which has not been proved, viz: that there is a humoral condition of the blood where: as Osteo:arthritis simply calls attention to a physical fact. It may be objected that Osteo:arthritis implies a pathological condition of the bony structures as well as the joint tissues proper which occurs in advanced stages of the disease, and

that in the great majority of cases the disease does not reach this stage. Nevertheless the inherent possibilities are there and the disease will under certain favouring conditions most certainly advance to the worst stage.
Another advantage of great importance is that the name Osteo-arthritis dissociates the disease from either rheumatism or gout.
Not only the general public ~~but~~ but also the members of the profession are influenced by a name and such names as Rheumatoid arthritis and Rheumatic Gout have caused and are still

causing much well meant but utterly mistaken treatment of the disease. This error might to some extent be avoided by giving the disease a name which would be less misleading. Rheumatoid arthritis is much to be preferred to Rheumatic Gout but Osteo-arthritis is better than either

Charcot's classification of the different forms of the disease is the most convenient viz:
1. Cases in which the disease assumes a primary general and progressive type, attacking numerous joints

particularly the fingers in symmetrical fashion and other joints successively and in similar fashion

2. Localised or monarticular forms of the disease, generally confined to one or two of the larger joints.

3 Heberdens nodes: enlargements of the terminal finger joints leaving free the metacarpo-phalangeal articulations and often erroneously included amongst gouty articular lesions

Dr A. Garrod has suggested a fourth group viz: those cases in which the articular changes affect joints which

have been the seat of other forms of the disease and may be either mono- or poly-articular according to the number of the primary lesions. And still another variety which he says usually follows a local injury, affects the larger joints and is more common in men than in women.
This latter variety however may very properly be included in Charcot's second group.

Aetiology

Osteo-arthritis is essentially a disease of depressed nutrition. Rarely do the causes of depressed nutrition occur singly but rather are

they multiple and to this cir:
cumstance would I attribute
the obscurity and uncertainty
which surround the origin
and causes of the disease.
Nor is it to a particular class
in the social scale of hum:
anity that it is confined.
but is common amongst
persons of every class.
It is induced by causes
widely different in themselves
but operating to produce
a condition of depressed
nutrition.
On the one hand we have
a young woman, a seamstress
perhaps over worked and
~~overf~~ underfed, living all
her life, with possibly the

exception of a few hours each week, in an unhealthy atmosphere with all the mental anxiety and worry attendant on earning a living for herself and possibly some one or more relatives.

Case: Miss K. Dressmaker aged 32. age at onset 31. Has had to earn her living for years, & has worked very hard. Has suffered very much from indigestion and attributes the cause of her illness to mental strain and want of proper food. There is no history of osteo-arthritis, rheumatism or gout in the family and no relative has suffered from

consumption.
On the other hand there is the lady of affluent circumstances with not a care in the world in the matter of earning her daily bread or providing for her family, but on account of a highly neurotic temper: ament together with a dispos: ition to incessant worry the nutrition becomes lowered and osteo-arthritis takes hold.
Case Mrs. M. aged 48: age at onset 42. Has never suffered from any serious illness and has had no mental shock or worry. Is highly nervous and easily worried about trifles. Knees & fingers are chiefly affected.

Age.

Between the ages of 15 and 55 the disease is much more common amongst women than amongst men. Up to the age 15 the disease seems to affect males more commonly than females and beyond the age of 55 the influence of injury causing the monarticular form is seen mostly in males. Of 447 cases admitted into the Devonshire Hospital Buxton during one recent year 349 were females and 98 males.

Dr. A. Garrod found that in 500 cases no less than 411 were in females and only 89 in males.

One common cause of the polyarticular form in women and which accounts to some extent for its greater prevalence amongst them is repeated pregnancies and uterine dis:orders. The drain on the system in childbearing, together with family cares is a fertile cause of the disease. Not during pregnancy is it that the disease advances but often the reverse is the case. The menses being in abeyance and nutrition improved the disease for the time is arres:ted in its progress to relapse after childbirth when farther demands are made on the patients strength by the

worry of attending to the child disturbed rest and lactation

Heredity.
Owing to the fact that until recently, the disease has not been considered a distinct and separate one excepting by a few observers it is difficult to estimate the influence of heredity, but this does not appear to exercise a very powerful influence in the development of Osteo-arthritis. It is more common to find that a history of Gout ~~and~~ or consumption has been present in the family or some other disease producing general debility or other serious nervous disturbance

than a history of pure Osteo:
arthritis.
Climatic Causes:
Cold and dampness are potent causes in the production and progress of the disease. In a great majority of cases the patient dates the onset of his illness from a time of exposure to cold and dampness or to his having lived in a damp house or on a damp soil. It is also of frequent occurrence to see the hands of a patient primarily and most seriously affected if his occupation has necessitated his hands being exposed during cold and wet weather. It is probably much more

certain however that cold and damp are factors only in the sense in which other causes act as depressants to local and general vitality and that there was some predisposing condition of lowered general health, the presence of which was an essential element in bringing about the result.

Influenza again has of late years been one of the most fruitful causes of the disease. To this circumstance may be attributed the great increase in the number of cases. That the disease is very much on the increase I have not the

smallest doubt, and in this opinion I was forcibly corro: borated quite recently.
An elderly doctor in an upplying Cold and damp district in Scotland came under my care for treatment this year. He stated that he had suffered from Osteo-arthritis for a great number of years and has recognised the nature of the complaint in his own case and in others from its first having attacked him. He was quite positive in asserting that the disease is increasing and attributes the increase partly to the ravages made on the nervous system by influenza and partly to

the increased nervous and mental strain and worry.

As a result of influenza there is a general malnutrition as well as a special nerve malnutrition.

Certain psychical condition associated with anxiety and ~~are~~ distress of mind are common causes in the pro:duction of this grave malady. Mental grief, business cares and worries, bereavement and anxiety are too frequently immediate antecedents of the onset of the disease.

Shocks of the nervous system also are not infrequently followed by an onset of Osteo-arthritis.

Looking on the dark side of things is often a cause of lowered nutrition. A life in which the stimulus of hope and pleasure are taken away or where the life is entirely engrossed in affairs which give mental distress and worry - these conditions also produce a lowered state of nutrition

Phthisis

What relation there is between tubercle and osteo-arthritis has not yet been established. That there is some intimate link binding the two diseases is only too apparent to any one who has observed numerous cases of the disease.

and inquired into the anteced:
ents. In a great number of cases
one finds that some relative
or relatives of the patient in
a close degree have suffered
from Consumption and in
some families whilst one
or more members develop
Osteo-arthritis another
member may be a prey to
Consumption. It is possible
that both diseases owe their
origin to a common cause
but why one member of a
family should be attacked
by Osteo-arthritis whilst
another develops Consumption
we do not know.
A few years ago Max Schuller
Bannatyne and Wohlmann

claimed to have discovered a micro-organism in the synovial fluid and blood of patients suffering from Osteo-arthritis.
The organism is said to be a short bacillus and has not been found in the synovial fluid from dis:tended joints due to other causes.
Should these discoveries be con:firmed by subsequent investig:ations the pathology of the disease will be greatly advanced and a secure foundation for more successful treatment be laid.
If such a special micro-organ:ism be found to exist we have the probable explanation of the toxic influence upon the nervous system in these cases

and it will solve the difficulty which has in several instances presented itself to my mind. This is as to why certain people in no way apparently predisposed to the disease should after attending on patients who suffer from it acquire the disease. Several instances of this kind have come under my notice. Miss R. aet 50 developed Osteo-arthritis at 42. At first the joints of the right hand were only affected being swollen and painful. But soon the disease showed itself in the other hand extending to the wrists and elbows. and so on until all the other joints were affected.
During a time of severe pain

and weakness she was confined to her bed for a period of some weeks and was taking Salicylate of Soda, which induced fre:quent and profuse perspirations. Near the beginning of her illness a person was engaged to nurse her. Miss D. aet 35. She was a perfect stranger to the patient and had come from some distance to nurse her. The nurse had up till this time always been in good health and there was no history of Osteo-arthritis or even gout or rheumatism in her family. It was necessary for the ~~patie~~ nurse to sleep in the same bed with the patient and during the time of the

profuse perspirations. A week or two after beginning her duties the nurse began to complain of pains in the hands and soon showed unmistakably that the disease in her case also was Osteo-arthritis. She is convinced in her own mind that she contracted the disease through sleeping with her patient when she was perspiring profusely. Many instances also of persons in good health in attendance on patients at the Devonshire Hospital have come under my notice. Persons who were in good health with no tendency to the disease and with

no other apparent cause for its onset than constant attendance on people suffering from the disease I have known to contract it.

Symptoms.

That the symptoms of the disease in its early stages are in some cases obscure and insidious in development cannot be denied but in other cases to the practised eye they are pronounced and easily recognised. Very often they are masked by ailments which individually may appear trivial, but which taken together all point to

a condition of deranged health and impaired nutrition. An instance of this kind I was much struck with lately. An old lady of rather a neurotic and worrying temperament complained of constant pain in the back for some days which proved after examination to be due to a condition of chronic constipation of the bowels, aggravated by haemorrhoids. At the same time and for many weeks there was a slight rise in temperature and an accelerated pulse with slight high tension. For a week or two also at the onset

of her illness, the urine shewed a small trace of albumin, but without any tube casts. She complained also of pains in the limbs extending between the joints, but not in the joints themselves. There was also profuse perspirations at times, not due to the taking of diaphoretics, and especially in the palms of the hands. This condition of affairs continued for a space of about two months before the articular trouble began to show itself, but afterwards the disease settled itself in the joints of the fingers and wrists

with wasting of the muscles and all the concomitant symptoms of osteo-arthritis. On the other hand I have recently seen a young woman of 24, the earliest symptoms in whom was distinct crepitation in the temporo-maxillary joint on the left side and enlargement of the sterno-clavicular and knee joints.

As a rule the disease begins with certain premonitory symptoms such as numbness in the fingers or feet, tingling or hyperaesthesia and cutaneous pain of a burning character. There is also frequently a complaint

of a periodic pain in some part of the spine or a sensation of a cold & hot feeling down the back. Digestive disturbances are also the rule in the onset of the disease. Commonest of all the premonitory signs of the disease in my experience is the pigmentation of the skin, attention to which has been called by the late Dr Spender of Bath. The disseminated form of pigmentation which may or may not be accompanied with ~~freckles~~ the defined areas of pigmentation called freckles is the condition which I have oftenest observed as an accompaniment of

the earliest symptoms of the disease.
No one of course would conclude that because a person is the subject of freckles he is necessarily predisposed to Osteo-arthritis but when the disseminated pigmentation of the skin of a yellowish hue is seen in a person, who in other respects shows a tendency to the disease, the diagnosis is advanced a stage.
Another symptom upon which Dr Spender placed great importance in the diagnosis is a pain of a neuralgic character in the ball of the thumb. This symptom is

no doubt often met with in the disease in its early stages but I cannot think that it is as Dr. Spender seems to believe pathognomic of the disease.
The general symptoms which usher in the disease are debility, dyspepsia, loss of appetite, general weakness loss of flesh and short sharp pains in the limbs & joints. A frequent symptom is the presence of moist wet hands due to excessive secretion of the sweat glands.
The symptoms which first attract the serious attention of the patient are the swelling and stiffness in an about

the joints. The swellings are usually but not invariably accompanied by pain at first slight and fleeting and quiescent when at rest but the pain may be absent altogether even when the joints are moved. The swellings are due to hyperplasia of the articular ends of the bones and cartilages; liga: ments, tendons and fibrous attachments of muscles and to increased secretion in the synovial capsules. Accompanying the various articular swellings there is often oedema of the parts differing from ordinary oedema in not being so

marked and varying at times in extent. Thus the tubular ferment, oedema and pain may be more marked at different times of the day in the morning or after meals. These exacerbations are very pronounced in the early stages and give an acute or subacute character to the disease. By & large as the disease progresses the joints become firmer and less puffy. The progress of the disease is symmetrical, the small phalangeal joints of the fingers being usually first affected advancing up the limb to the trunk in time. When the terminal joints of

of the fingers are first attacked there is usually well marked deflection of the terminal phalanges to the radial side which results as Garrod says from excessive formation of osteophytic out-growths upon the ulnar side of the joint. The ulnar deflection, when the metacarpo phalangeal joints are affected is much commoner and more marked in the majority of cases. The pain swelling and deformity which follow render the patient almost helpless and a cripple. A very striking symptom of the disease is pain and

crepitation in the temporo:
maxillary joint: when this is
present it may almost
be taken as pathognomonic
of osteo-arthritis.
The muscular atrophy
which accompanies the dev:
elopement of the disease is
most marked and is pro:
bably due to a central nervous
lesion in common with the
articular trouble.
It affects the extensor muscles
chiefly and between each
metacarpal bone of the hand
there is an elongated de:
pression due to the wasting
of the interossei muscles.
The appearance of the space
between the metacarpal

bones of the thumb and forefinger is also characteristic of the disease, the space being hollowed out and sunken. The soft pad on the palmar surface of the thumb is also shrunken and wasted. The reflexes of the limbs are usually increased and especially of those in which the joints are most affected.
In the monarticular variety the symptoms are similar to those of polyarticular osteo-arthritis, except that the local signs are confined to one particular joint. Whether the monarticular variety is a distinct and

definite type I am much in-
clined to doubt. It is more
probable I think that the
patient is marked as a
victim of the disease but
owing to some injury perhaps
or other cause the disease
gets the upper hand only in
the joint which becomes
affected. Under favouring
conditions it is possible
that all the other joints would
become similarly affected
An instance illustrating this
supposition has come under
my observation during
the last two years.
Last year an elderly gen-
tleman came to Buxton
suffering from intense

pain in the left shoulder joint
He was a tall and heavy
man and his history was
that a few months before
I saw him he had slipped
from a height full on his
shoulder. At first there
was very slight pain and
little inability to use the
joint but as time went on
he had intense pain & stiffness
None of the other symptoms
of the disease were present
excepting the pigmented
character of the skin over
all the body. A skiagraph
of the joint at this stage although
indistinct showed partial
destruction in part of the
cartilages and head of the bone.

After treatment the pain was considerably relieved and he returned home in better spirits. This year he paid another visit to Buxton and was able to tell me that the joint had been very much better since his visit last year and that the improvement had continued during the winter. The special point about his case however is that this year there are distinct evidences of the disease in the joints of the fingers, with pain stiffness and slight swelling.
Had the predisposition to the disease been present in his system before the accident

to the shoulder joint or was
the nervous shock, due to the
accident and loss of sleep
the starting point of the disease?

Diagnosis

It would hardly be possible
to name a disease, the diagnosis
of which is of greater import-
ance than that of osteo-arthritis.
Its ravages are so terrible
and progressive that unless
its symptoms are early and
clearly recognised and
properly treated, the patient
may have entered upon his
career of almost hopeless
inactivity and uselessness
for the rest of his life.
The success or failure of the

treatment depends I think to a greater degree than in most other diseases upon its correct differentiation from the diseases with which it is usually mistaken. These latter are of course Gout and rheumatism. In Gout we have almost invariably a history of the disease in the family whereas in osteo-arthritis there is not only no history of Gout but probably a history of the influence of some debilitating disease such as phthisis. In Gout the joints primarily affected are usually ~~the toe~~ those of the toes: in Osteo-arthritis

the fingers. In gout there are deposits of urate of Sodium in the affected joints and the viscera are also liable to be affected. In gout the temporo maxillary joint is rarely or never affected. Gout is more common in males than in females. Rheumatism has a tendency to run an acute or subacute course whereas in Osteo: arthritis the disease is slow in its beginning and of a progressively destructive character. The heart is liable to be affected in Rheum: atism but in Osteo. arthritis with the exception of its rapid action it is seldom

changed. Neither Gout nor Rheumatism is symmetrical in ~~its~~ their character whereas in Osteo-arthritis one of the principal features is its liability to attack the joints symmetrically.

The extreme atrophic change in the muscles are not present in the case of either gout or rheumatism.

The pigmented colour of the skin, the loss of flesh and wasting of the muscles, the unremitting nature of the pains, the history of nervous shock, malnutrition or history of other debilitating causes should be sufficient to give a warning to be on

the outlook for osteo-arthritis until the symptoms have become more pronounced. Then the particular joints affected, viz: the joints of the jaw and neck, and those of the fingers, the olive shaped and boggy appearance of the diseased joints and the wasting of the muscles, should enable the observer to tell with certainty the nature of the disease he has to deal with.

Treatment.

So many difficulties come into the mind when the treatment of a case of osteo-arthritis is taken in

hand that it is hardly to be wondered at that until quite recently the cure or even the alleviation of the sufferings of the victim of osteo-arthritis was looked upon as almost an impossibility.

In patients of affluent circumstances the difficulties are not nearly so great, but in those who owing to various circumstances are unable to give up their whole time and thought to the cure of the disease the task may well cause despondency and even despair.

The complete change in

everything pertaining to the patient, which may be nec-essary: change in soil on which he is living, change of climate, change of occup-ation, the persistence and perseverance which are necessary in following out the treatment are means to this end which few can hope to obtain. Not least of these is the patience required by the sufferer in persevering against great odds in the uphill path, the only path which at present we can offer to him for the cure of his malady.

Nevertheless nowadays

with our more accurate
diagnosis and knowledge of
the disease in its early stages
one enters upon the treatment
with a greater degree of hope
for improvement if not of
actual cure, than in the past
nor have I found much
difficulty, so great have been
his premonitions of impending
serious illness in persuading
my patient if earnestly
appealed to, that it is only
by strict adherence to the
advice which he gets and
a steady perseverance
in the pursuit of his object
in obtaining his ready a[illegible]
[illegible] compliance in
the means of cure.

The lines of treatment which I follow are these:-

1. Climate.
2. Clothing
3. Exercise
4. Diet
5. Drugs
6. Massage
7. Baths and mineral waters.

Climate.

Given a case of osteoarthritis the first point to be settled is as to the climate which is best suited to his illness. The importance of favourable climatic conditions cannot be overestimated, by anyone who has had opportunities of studying the evil effects

of a damp atmosphere, a damp subsoil and a residence in a locality with little sunshine and cold north and north-east winds. In selecting therefore a suitable resort for patients suffering from Osteo-arthritis care should be taken that that the locality is on a pervious and dry subsoil such for instance as limestone, gravel, or sand. Clayey and damp soils are to be avoided.
There should be an abundance of sunshine with a dry pure atmosphere. Altitude is of little consequence to long

as these are no mists or watery vapours.
The Sea air I have always found to be injurious to the osteo-arthritic patient.
To avoid the damps and fogs of England's climate in the winter a residence of some months in Egypt or Algiers is to be recommended.
Of not less importance than the climate and subsoil is the necessity of a dry house for the patient to live in. Houses which lie low near rivers or lakes, whose foundations and walls are constantly damp are as death traps to the patient.

All conditions of climate which conduce to an improvement of health by stimulating the functions of the different organs by adding tone to the nervous and muscular systems are essential factors in the successful treatment of the disease.

Those conditions of climate which depress and debilitate the system should be avoided.

Clothing.

Light warm clothing should be worn, care being taken not to overclothe especially is this the case with patients whose skin

acts freely, in order to avoid chilling of the surface of the body. The material for under clothing should be woolen and should not fit too closely. Damp feet should never if possible be allowed and the patient should not expose himself during damp weather or during prevalence of cold east or north-east winds.

Exercise.

When the pain is very acute and the joints swollen active exercise will only do harm, but after the acute attack has passed off walking exercise to a moderate extent improves

the tone of the body by stimulating the digestion and counteracts the tendency to muscular wasting.
At the same time the exercise must not be excessive, as otherwise the trouble in the joints will be aggravated.
Diet.
In my opinion more harm has been done to patients suffering from Osteo-arthritis by injudicious dieting than by any other method of incorrect treatment. The danger has mostly arisen on account of the disease having been confounded with gout or rheumatism. The dis:

crimination and caution
to be exercised in the case of
gout and rheumatism with
a positive harm in a patient
with osteo-arthritis
Many articles of diet which
would be withheld from
a gouty patient will be of
great benefit to one ~~wit~~
suffering from osteo-arthritis
A full generous diet with
due observance of the state
of the digestive organs is
urgently demanded
Animal foods with fats
should form a considerable
portion of the patients diet.
Milk in as great a quantity
as possible, if it is digested
I believe to be excellent and

no article of diet will increase the weight of the patient so quickly as this.
Vegetables of various kinds especially celery and Spanish onions are beneficial and often highly appreciated.
The great guide as to the improvement of the patient is his increase in weight. If possible he ought to be weighed regularly and encouraged to try to put on weight. Any decrease should be looked on as a misfortune and the symptoms will certainly improve and abate the greater increase there is

in the weight.
As to the value of alcoholic drinks; in most cases the more generous wines and possibly small quantities of spirits at meal times, by promoting assimilation and nutrition will be beneficial. I have however totally discontinued the use of malt liquors on account of the apparent harm which resulted from their use when I have tried them.

Drugs.
Very few drugs which we at present know of seem to exercise an influence on the disease in the way

that the Salicylates do on rheumatism or colchicum on gout.
Alkalies are now generally discarded and the drugs which are most often used are Arsenic, Iron, Iodide of Potassium, Guaiacols and Cod Liver oil.
Of these I have found Arsenic of most value. I have quite failed to effect any improvement with Iodide of potassium and sometimes real injury has followed its use.
Iron in anaemic cases and when well tolerated is beneficial but I have not been able to get the good

results from the Syrup of the Iodide of Iron which one would expect from the high recommendation which Dr. Garrod gives to its use. Cod Liver oil is invaluable especially in patients who are badly nourished and debilitated

Of the Guaiacols given internally and applied externally I have to confess failure in their use.

For the relief of pain much may be done by the application externally of anodynes and soothing liniments and these should of course be employed. Patients how-ever ought to be warned

against their too violent application as they may thereby do harm and that they should not expect too much from their use in the way of permanent improvement by massage.
I hardly think sufficient importance has been given to the use of massage as a remedial agent in Osteo-arthritis and the observations of Dr. A. Symons Eccles in this connection are highly valuable. Its influence on the general nutrition of the body cannot be overestimated and its effects in stimulating the joints to throw off the waste

products accumulating in them must be highly beneficial. General massage of the whole body, leaving if necessary the painful & inflamed joints alone will be of great benefit. So few of the attendants who practise massage are really skilful that is of great importance that one should be chosen who is gentle in touch and skilful in his manipulations. The massage bath in my experience is not to be compared to any massage. It is much more satisfactory to prescribe massage daily with baths and douche on alternate days. I have found

great benefit to my patients from electro massage and especially to those patients who are weak and in whom the debilitating effect of some nervous strain or shock is apparent. It is also advisable that besides ordinary massage active and passive move: ments of the joints should be carried out regularly. In stiffened joints gentle and frequent attempts at flexion and extension should be made. But I could not sanction the practice of forcibly ex: tending or flexing a joint which has become wholly

or partly ankylosed as only harm can result from the practice. The amount of movement which can be restored to a ~~[illegible]~~ fixed joint by gentle and persevering massage & passive movements is often astonishing and this form of exercise should always be tried on joints that are fixed. Unless however active movements at this stage are kept up by the patient himself and the muscles are kept in regular and constant use the joint is in danger of falling back into its ankylosed state.

Baths & Mineral waters.
These are now looked upon as being essential in the treatment of Osteo-arthritis and I can speak highly from experience of their valuable effects.
Careful discrimination is of course absolutely necessary in the selection of the form of bath. Serious injury has frequently been done by indulgence in baths either too hot or for too long a time. The relief which is afforded the patient from his pains is a powerful incentive to his continuing to use them, but the relief is at the expense of his

general health and favours a more rapid developement of the disease. Especially is this the case when Turkish baths are taken in great numbers.
Frequently also we see harm done to a patient from too long immersion in the warm baths. As a rule the temperature should not exceed 98° F. The bath should be given every alternate day and the time of immersion from 5 to 10 minutes.
The application of warm douches to the spine and affected joints should be made and can be used

when the full immersion
cannot be borne.
General Turkish and
vapour baths are too ex-
hausting and debilitating
but local applications
of hot air or steam with
suitable appliances are
often beneficial.
I cannot speak with
any commendation of
the systems of local dry
air applications by the
Tallerman or Greville
systems. In my opinion
they only increase the
general weakness and
debility of the patient.
Which it is our duty to
overcome.

With regard to the treatment by electric baths, these do not appear to have the value which is advocated for them by some and this form of treatment in my hands has invariably failed. I do not think that electricity given in this form has nearly the same advantages nor is followed by the same successful results as when given in conjunction with massage

Finally at whatever stage of the disease the patient presents himself for treatment he should be encouraged to try his utmost to hope that by suitable treatment

his illness may become alleviated & to persevere in the lines laid down for his guidance.
By doing so his mind will be brightened, he will have something to work for and by steady perseverance in the treatment if not actually cured the ravages of the disease will be arrested and his life will be rendered more useful and happier.