

and mentally observe the sensations connected with the practice. After the weight has been transferred five or six times, also be aware of the course of the breath which by then will have become naturally deep and full. Just keep the attention quietly on the rhythm caused by the combination of weight transference and breathing. Begin with about ten minutes and as you get used to the exercise increase to about twenty.

EXERCISE 4. This can be done either sitting up or lying down. Almost empty the lungs. Breathe out for one heart-beat and in for one, then cut out two beats, in for two, and so on until you reach the end of your capacity, without distress. This capacity varies in individuals from about nineteen to about eleven heartbeats. When you reach your maximum, descend again in the same way you mounted, one beat at a time. This is one complete round. Usually after two or three rounds, you will become so relaxed that you will yawn prodigiously, with tears streaming down your face. Some persons react better than others to this exercise.

All these exercises produce not only conscious but also, what is far more important, subconscious relaxation. Each time you return to the sensations, you become subconsciously a little more relaxed; like unstitching a seam in a sail, the removal of each stitch brings you nearer to your objective. In this way, the rhythm of nature is gradually restored with the result that physical and mental health will steadily improve. You will see more beauty in the sunset, enjoy your food more, find greater interest in people and books than formerly, and regain to some extent the physical elasticity and mental resilience of youth.

—Hcal Thysel, March, 1950.

THE PROBLEM OF CLINICAL ARTHRITIS

ERNEST R. EATON, M.D.

The term "arthritis" is often used indiscriminately to designate a disturbed condition or disease in the neighbor-

hood of a joint. This confusion surrounding the subject has been due in no small measure to its nomenclature. Excepting perhaps that of the kidneys, there is no other single group of diseases the classification of which has provoked so much bewilderment.

For many years, every well known basis for classification has been suggested. Most of these have proven themselves inadequate for practical purposes. In recent years a simple classification, well defined and now in general usage in England and the United States, indicates the extent to which this subject has been clarified. Based upon pathology, this classification provides a clear and practical working basis for diagnosis.

The American Committee on Rheumatism, in Philadelphia early in 1928 named the two main types atrophic and hypertrophic, the former representing the proliferative ankylosing type, and the latter the degenerative non-ankylosing type, since 1922, in Great Britain, synonymous terms have been used rheumatoid arthritis for the atrophic type and osteo-arthritis for the hypertrophic type. In this paper we shall use the older and more familiar terms—rheumatoid arthritis and osteo-arthritis.

It is much less disconcerting to separate the disease into two main types which present quite distinctive and separate pathological features:—

1. Rheumatoid Arthritis.
2. Osteo-arthritis.

Over two thirds of all joint diseases readily conform to this classification which is easily adapted to clinical and X-ray diagnosis. Joint diseases which result from gout, meningitis, pneumonia, rheumatic fever, tuberculosis, typhoid fever and venereal diseases are not included.

Every physician is called upon at some time to diagnose and treat arthritis. His professional knowledge should include a familiarity with the two great types and what they broadly envisage. Such an understanding brings rich clinical reward and favors the early recovery of the patient.

1. RHEUMATOID ARTHRITIS

Rheumatoid arthritis, the first group, is a constitutional disease which affects many joints, large and small. The acute inflammatory stage may terminate as such, never to return, or it may become chronic with remissions and exacerbations, to remain so if unhindered in its progress.

The disease may occur in any age group but has its highest incidence among women of the childbearing age. When the spine is involved, more men than women are affected.

The soil in which the seed of this disease grows is usually one of hitherto inferior health. Only with difficulty is the individual raised from childhood. It would seem, because of his physical make-up associated with nervousness, that a certain type of individual is more prone to develop rheumatoid arthritis.

Easily tired, lacking a desire for outdoor exercise, underlying pallor, anemic, no appetite, poor digestion, weakness, nervousness, emotional instability, areas of erythema, urticaria, sleeplessness, muscle wasting, cold hands and feet, and transient fleeting painful joint swellings—these are the early systemic symptoms. When associated with malnutrition and faulty posture, they should give concern at any age.

There is no clear-cut dividing line between the forewarning and the time the sufferer has an unmistakable rheumatoid arthritis. For many months there may come and go slightly painful spindle-shaped joint swellings which at the time seem slight and trifling. After several days they disappear, the intervals between the attacks becoming less and less. Then one day they return with stunning suddenness to result in acute, and later chronic inflammation of the joints—which is the real meaning of the word "arthritis."

The pathological changes which take place in rheumatoid arthritis extend from the articular surfaces covered

by the synovial membrane to the cancellated spaces of bone. The synovial membrane is first affected and is swollen, congested and hyperemic. There is an increase in the size and number of its villi, the whole extent of which is filled with blood. The fibrous capsule is also inflamed and thickened.

Microscopically, the swelling is due to numerous distended small blood vessels, proliferating fibrous tissue, infiltration of lymphocytes, accompanied by excess of joint fluid, and a comparatively few polymorphonuclear leucocytes.

As the disease progresses, a typical thickening characterizes the joint changes. Joints both large and small are swollen and spindle-shaped. The amount of effusion is variable, the synovia being increased in the earlier stages and diminished in the later stages.

At this point bone and cartilage are not affected. However, the disease process gradually extends, involving the hitherto intact bone and cartilage. The inflammatory process extends to all of the fibrous tissues in and around the joint. There is marked proliferation of cells of the synovial membrane. A pannus formation resembling granulation tissue advances from the edge of the articular cartilage.

The greyish-red pannus invades the cartilage from the surface while from the adjacent cancelli, vascular connective tissue penetrates the deeper layers. The latter blends with the pannus and eventually brings about destruction of the articular cartilagenous surfaces, forming bony ankylosis.

Intro-articular adhesions, fibrous, cartilagenous or bony, may follow in the wake of rheumatoid arthritis. Muscle contractures, atrophy of muscle and bone, subcutaneous nodules, crippling deformity from pressure and ankylosis, dislocation at awkward angles are all part of the associated changes.

There is a diversity of opinion as to whether the subcutaneous nodules found in rheumatoid arthritis are the same as the nodules observed in rheumatic fever. Frequently these are seen distal to the olecranon, on the dorsal surface of the forearm.

The temporo-mandibular joint is involved more frequently than is usually thought and may be the first evidence of a generally distributed progressive polyarticular rheumatoid arthritis. One or both sides may be affected. There is pain and inability to open the mouth widely. Partial subluxation and ankylosis may occur.

The small joints in the hands and fingers may be involved and in maturity are tragically and typically deformed and impossible to extend. In the early stages, one or more of the middle joints of the usually well tapered fingers may be swollen and painful, the swelling being spindle shaped. Then the fingers may become flexed on the hand with hyperextension of the distal phalanges and adduction toward the ulnar side, making full extension difficult. Sometimes there is a wasting of the muscles between the thumb and index finger. Perhaps the knuckles are first affected, or it may be the wrist—the persistent swelling spreading to the other joints.

In a typical rheumatoid arthritis of the wrist, pain is not usually as severe as might be expected. There is a tendency to drop objects, marked weakness and difficulty in writing, sewing and doing manual work.

A condition may sometimes occur in which the whole hand and wrist is uniformly swollen and puffy, with a resulting loss of use of the hand. The swelling of soft tissue is general and not localized around the joints as in typical rheumatoid arthritis. Any one finger may be affected or again the whole hand. In some instances the swelling may include the entire hand, wrist and forearm.

The elbow joint may undergo changes similar to that of the wrist and hand, typical spindle shaped swelling extending above and below the joint. Usually before

ankylosis takes place the elbow joint steadily assumes a flexed position with limitation of motion. The involvement may be symmetrical and ankylosis may occur with incomplete extension at a broad awkward angle, seriously restricting motion. Pain is not so marked as in other joints although usually present.

In rheumatoid arthritis of the shoulder-joint and spine, neuritic pains and sensations along the cervical and brachial plexus are early symptoms. These neuritis sensations may cause pain to shoot down the arm and forearm to the hand or along the lines of the neck to the head. Pain is often severe and when the arm is abducted to its limit, the shoulder will be elevated, such movement being made possible by the scapula moving against the wall of the chest. The arm is more and more abducted with rotation inward and characteristic marked deformity is present.

When the sterno-clavicular and acromio-clavicular joints are involved, attention may be wrongfully directed to the shoulder joint. The former may exhibit acute pain and marked swelling with aggravation of symptoms on movement of the shoulder joint. The costo-sternal joints may be affected, the symptoms usually being brief in duration.

Deeply imbedded in their compartments, the hip joints suffer less strain but when affected there may be an early involvement of the sciatic nerve. There may be a marked similarity between rheumatoid and osteo-arthritis. Severe pain may be present, aggravated by exercise or lying heavily on the affected side while at rest. Pain may be referred to the folds of the thigh and abdomen or to the thigh, knee, leg and ankle. Although the joint may not reveal so great a degree of damage there is limitation of joint function, more marked than in the other joints. The involvement is more frequently bi-lateral. Women are more disposed to this site than men. A history of trauma may be present which may not have been regarded seriously at the time of occurrence.

The affected hip joint may terminate in true bony or fibrous ankylosis with muscular atrophy of the gluteal region, many times with definite lengthening and then true shortening of the limb. Atrophy of the muscles of the thigh and buttock is present. With ankylosis present, there exists a more or less rigid joint with the thigh flexed.

In many ways the hips resemble the shoulders and the knees correspond to the elbows. Of all the joints affected with rheumatoid arthritis, the knee joint is involved most frequently. It is not difficult to understand why. The slender but firmly built knee joint undergoes many severe sprains, bruises and trauma in its life-long function. The more deeply imbedded hip and shoulder joints suffer less strain. When the knee is weakened, the affected individual becomes a hazard, conscious of insecurity and in constant fear of falling.

Because of the comparatively superficial situation of the knee joint, the spindle-shaped swelling stands out in contrast to the contour of adjacent atrophied limbs. The deformity to be most dreaded is that of flexion ankylosis from tightening of the hamstring muscles. Both knees may be affected.

Rheumatoid changes of the feet and toes are somewhat similar to those in the hands and fingers. However, the changes in the ankles are not so marked as those in the wrist, the ankle joint possessing a quality of resistance which is evolved from its strenuous weight-bearing function. The spindle-shaped swelling in the ankle is not so typical as in the wrist, and is apt to envelop the entire foot. However the clinical features are not unlike those of the wrist, with the exception that permanent changes are not so often observed. The ankle may have a separate involvement with pain and limitation of motion due in part to muscle spasm and adhesions.

The toes are affected to a much lesser degree than the fingers, the great toe being more frequently affected. True ankylosis may occur.

A striking feature of rheumatoid arthritis is its *persistence*. The clinical course is attended by characteristic fluctuations, the lessening of pain being followed by an increase in severity. Exacerbations may follow a lowering of resistance due to ordinary colds, grippe, undue fatigue and over-indulgences.

A common mistake is to neglect rheumatoid arthritis in its early stages when for a period of time there is a characteristic remission. The mild soft tissue swellings of the joints may be so insidious as to pass unnoticed, even when such changes are accompanied by vaso-motor instability, low blood pressure, neuritic and neuralgic sensations, profuse sweating—particularly of the hands and feet, lassitude, nervousness, emotional instability, poor memory, irritability, loss of weight and muscular twitching at night.

If minor joint pains and swellings were regarded seriously and treated in time there would not be the same degree of crippling and deformity. Neglect and delay upon the part of the patient or temporizing on the part of the physician, or both, may lead to disastrous results. Only a small percentage of sufferers are bed-ridden or end their days in wheel chairs, because of damaged joints locked together in bony or fibrous union at awkward angles.

Nervousness plays an important role. Digestive processes are interfered with by giving way to nervousness. Appetite is present but there is no right response from digestion. Loss of sleep, physical and mental strain, severe and constant pain in the joints, all increase nervousness. Anxiety, worry, grief, continuous stress and strain may prove to be factors contributing to whatever may be the direct cause of the disease.

One of the failures in medicine is our inability to successfully cope with those inherited or acquired instabilities of the nervous system which lead to afflictions as grievous as though they were dependent on tangible physical causes. Such emotions, which cannot be weighed or measured, play an important role in rheumatoid arthritis.

Loss of sleep, pain, anxiety, grief and worry contribute to whatever the specific cause may be.

Previous existing nervous instability is increased by pain which becomes more constant and may be so severe that even the weight of the bed-clothes is unbearable. The constant annoying pain seems worse in bed. There often arises hypersensitiveness to pain. Frequent dependence on drugs and relative or true exacerbations of pain when these drugs are stopped bring lowered morale, mental depression, occasionally melancholia and true psychosis. Insomnia is present even though the pain is relieved on rest. However, severity of pain does not have the same degree of relation to the progress of the disease as might be expected. Enforced inactivity due to the malady adds to the mental fear and dread consequences of the disease itself.

Fortunate is the person who, sooner or later, reaches that state where rheumatoid arthritis becomes quiet and remains at rest. If unhindered in its progress, this form may slowly extend its area in painful fashion to follow a downward course of permanent disability. Again, destruction may take place rapidly, joints locking together in bony union at awkward angles, such damage being beyond repair. However there are persons who, after being wheeled in a chair or bed-ridden for a long time, finally do move their joints with less pain and stiffness. Even in advanced rheumatoid arthritis they gradually straighten their bent knees and elbows and open their hands sufficiently to grasp a walking cane.

It cannot be too strongly emphasized that every crippling rheumatoid arthritic joint had its beginning in mild soft tissue swellings, that for many months came and went. Such early joint changes should never be regarded lightly. The benefits of early recognition cannot be over-stated.

There are many wide gaps in our understanding of the etiology, which is uncertain and unknown despite the

enormous amount of work in this field of medicine in the past few years.

When on the sick list with rheumatoid arthritis, many influences of mind and body are at work. Enforced inactivity makes for mental depression, so do illness of relatives, loss of money or employment, and previous ill-health. Circulatory disturbances, fatigue, mental and physical strain, trauma, emotional stress, physical or mental shock, endocrine disturbances, infection, damp dwellings, psychogenic factors, child-bearing are among the many contributing factors. Nothing can be done about heredity but many harmful factors of environment can be changed.

Fatigue should be avoided. Poor health and personal problems often are the cause of fatigue which is an important consideration. Adverse factors of temperature, poor illumination and noise should be corrected when possible. The hours spent after work deserve the same consideration as do the hours spent at work. Strenuous exercise is not for the sufferer with rheumatoid arthritis. It is better to rest *in* one's work than rest *from* it.

Exposure to damp and cold perhaps is the oldest of all predisposing causes. Many persons with rheumatoid arthritis seem to be affected by storms, cloudy weather and sharp winds. Unusual drought and rainfall, particularly damp sites and soils, seem to aggravate the disease. Pain and stiffness seem to occur with changes in weather.

From the Navy viewpoint, rheumatic fever, as a forerunner of chronic arthritis, highlights one of the Second World War major medical problems. Rheumatic fever ranked about one tenth in importance during the war. It ranked fourth among all diseases and non-combat injuries as a cause of sick days, and fifteenth as a cause of separation from the service by medical discharge. The Medical Statistical Division of the Bureau of Medicine and Surgery of the Navy is making a statistical study of twenty-one thousand cases of rheumatic fever that occurred in the Navy during the Second World War. This data under study

may yield interesting information of much value in other related aspects of the disease, such as rheumatoid arthritis.

Psychogenic factors have always played an important part in rheumatic diseases, particularly in time of war, not so much precipitating the onset but rather as a contributing factor in the course of the disease.

Often chronic arthritis of the rheumatoid type makes its appearance following acute arthritis and many common acute infections. In the Navy and Marine Corps in each thousand chronic cases 529 had acute arthritis for a principal antecedent condition.

Articular results of faulty union of fractures, wounds, trauma, internal derangement of joints, traumatic rupture, dislocations, muscular strain are often the first evidence of progressive rheumatoid arthritis.

A history is of great importance. Everybody is either sick or well. When on the sick list with arthritis, the patient is ill and feels ill. A history is of inestimable value in the treatment of individuals with rheumatoid arthritis. In addition, a concise history sheet provides a valuable contribution in lending aid to a better understanding of the patient.

The physical examination should be tactful and unhurried, and thoroughly engage every necessary diagnostic procedure at the disposal of the examining physician, with a view to determining the true mental and physical status of the patient. The examination should be thorough in every detail, with particular attention to flexion of the spine, pain and range of motion of the joints, fluid in the joint capsules and muscular atrophy of adjacent limbs. Special attention should be given the feet and ankles, the lower extremities should always be measured and a rectal examination should be made. The results should be carefully recorded.

From a practical medical viewpoint, to aid and guide in the recognition and evaluation of rheumatoid arthritis, the red blood sedimentation rate is the most useful labora-

tory test thus far in common use. Repeated observations give important and valued information in following the course and treatment of the disease. Like many other laboratory measures the sedimentation rate is not always infallible and is influenced by various factors such as proper technique, sex, temperature, menstruation, pregnancy, pyelitis and the need for doing the test immediately after the blood is withdrawn.

Again, the red blood cell sedimentation rate findings may not be in agreement with the clinical findings of rheumatoid arthritis. As infrequently is the case, other causes may be found responsible for a rapid sedimentation rate.

The sedimentation rate will prove of appreciable prognostic value in patients who reveal nothing more than the end results of rheumatoid arthritis, the ravages of which have been long since extinct. In these cases, the pain and deformity are caused by adhesions and contractures which indicate the need of surgical orthopedic measures. Orthopedic measures in many of these cases, if carried out efficiently and conservatively, correct deformity and improve joint motion.

In chronic arthritis, the blood count with the Schilling hemogram reveals only slight changes regardless of sex, age, duration or severity. However changes do occur in the productive stage when a greater number of young cells appear and there is a leucocyte increase. There is a tendency to increased blood uric acid.

Out of sixty-two blood cultures at the United States Naval Hospital in Brooklyn in 1933, only one was positive. After nine days cultivation, this positive culture showed the presence of diphtheroid bacilli.

According to certain investigators, serum of patients with rheumatoid arthritis agglutinates with hemolytic streptococci of the Lancefield group A, but this opinion is not confirmed by many others who failed to secure favor-

able results from a trial with penicillin over a long period of time.

The cholesterol level is of value in confirming a low metabolic rate in rheumatoid arthritic patients with suspected hypothyroidism. The ratio of free to total cholesterol is also of value along with the hippuric acid test in evaluation of liver function.

Rheumatoid arthritis is now included in that list of allergic diseases such as serum sickness, acute rheumatic fever, psoriasis, lupus erythematosus, etc., which are characterized by alteration and disturbance of collagen.

A complement fixation test for gonococci may be of more than dubious differential and therapeutic value but it should be remembered that gonorrhoea is not always responsible for spur formation, involvement of the os calcis and spine, as frequently claimed.

A test for the determination of a deficiency of Vitamin B₁, as pyruvic acid, will often be found of helpful value in treatment. Patients with this deficiency suffer excessive fatigability.

A radiographic examination should be made. It may be many months after the onset of rheumatoid arthritis before X-ray changes are observed. Because the radiographic examination is negative it does not follow that clinical diagnosis should not be made. Clinical data, including a brief history of the duration, distribution and joints involved, should be made available for best X-ray interpretation.

When the radiographic examination does show evidence of joint changes in rheumatoid arthritis there is present, according to the degree of progress of the disease, characteristic soft tissue swellings, effusion, thickening of the capsule, narrowing of the joint space suggesting thinning or destruction of the hyaline cartilage, osteoporosis, bony destruction along joint surfaces, complete erosion of articular surfaces. In maturity there may be revealed ankylosis with partial or complete dislocation.

An arthritis described by Reiter as urethritis, conjunctivitis and arthritis (non-gonorrheal in nature) and now termed Reiter's Disease is generally regarded as rheumatoid arthritis.

Intermittent hydro-arthritis is a rare disease of the joints, the cause of which is unknown. It is perhaps a slow progressive rheumatoid arthritis. The symptoms, but not the pathological changes have complete remissions. The same pathological changes in synovia are seen in rheumatoid arthritis.

Felty's syndrome will also be regarded as part of adult rheumatoid arthritis with associated leucopenia and splenomegaly.

Psoriasis and arthritis do occur together and quite independently, the pain and stiffness in the joints varying in severity with the skin condition. In many cases by the same token the joints improve with the degree of favorable response of the skin.

Rheumatoid arthritis may also be in close association with Raynaud's disease, scleroderma, Parkinson's disease and Paget's disease. The joint condition in childhood known as Still's disease is the same as that of rheumatoid arthritis in an adult.

There is no specific cure for rheumatoid arthritis. Even if there were, there would still remain the basic problem of correcting the general health—the unhealthy soil in which the seed grows. Until a specific cure is discovered, different from anything at present in use, treatment must be based upon generally accepted therapy.

One should not practice one form of therapy to the exclusion of a consideration of others. It seems sound sense that the arrest of the progress of the disease can be better accomplished if it is approached from the several angles of therapy.

The primary consideration is the patient. An attempt should be made to give the patient faith in his future

recovery. A thoroughgoing sane optimism goes a long way towards the ultimate goal of good health. The treatment must recognize the important relationship between the disability and the economic, personal, social and family life of the patient. It has been truly said that the patient's response to treatment in rheumatoid arthritis is the detailed personal attention given to his therapeutic problem.

Prevention offers the best answer. A greater degree of recovery may be expected when the disease is not of too long standing. The best results are in younger people when the disease is not too far advanced. It is at this early stage that a physician can do his best. However, he *can* arrest the progress of the disease temporarily or permanently at any stage. For this reason, the condition of every patient with rheumatoid arthritis should not be considered as one of hopelessness.

Each patient requires individual study and consideration, both mental and physical. The confidence of the patient must be secured. The outcome depends on the patient as well as the physician. Usually the patient is cooperative and instinctively knows that in the matter of treatment, he must bide his time.

Always it should be remembered that only in a small percentage of cases, the disease will end in maturity. Remissions and exacerbations are frequent and should be anticipated. They may occur at any time, often making difficult proper evaluation of treatment. A remission may be wrongly regarded as being an improvement derived from the last treatment.

To salvage an individual from rheumatoid arthritis either by preventive or curative measures is "as great a miracle as to create him." The control of rheumatoid arthritis in current post war planning should rest upon a broad practical approach in both prevention and treatment, and a foundation laid, if need be by the State itself, for a wide and intelligent approach to its many problems.

2. OSTEO-ARTHRITIS

The second great group is osteo-arthritis, which appears at or about middle life when men and women are tested for their fitness to continue their struggle for existence. It contributes in no small measure to the high prevalence of chronic disease in older people.

Many persons with osteo-arthritis pursue an active outdoor life. The remark may be heard, as the patient limps along, that if it were not for his stiff aching joints he would be enjoying the best of health.

Systemic symptoms are infrequent. The onset is gradual and insidious. This disease may often be limited to a single large joint, although several larger joints may be involved, the involvement being symmetrical. In the generalized form, many joints including the hands, fingers, knees and feet may be involved. The wrists and ankles are not so frequently affected as in rheumatoid arthritis. The temporo-mandibular joint and the metacarpo-phalangeal point of the thumb are not infrequently attacked.

Stiffness more often than pain, with diminished movement of the joints are the principal clinical features of osteo-arthritis. The earlier symptoms, when noticed, are tingling neuritic sensations in the finger ends. During the menopause, women frequently complain of pain and stiffness in their fingers, knees, hips and lower spine. Many years elapse between the early stage and the later painful one. If they live long enough, one-third of all white women are said to be affected by this common affliction. The incidence is much higher in women than men.

Heredity is a factor. So are nervousness, fatigue, constant wear and tear. There may be over a long period of time oft-repeated minor trauma to joints which are thus subjected to stress and strain. The outcome depends first upon the length of time affected, and second upon the ability of the joint mechanism to repair the damage. The latter is seen in the aging process with its lowered capacity to repair

destructive changes in joint structure and restraining ligaments. The change is degenerative and not inflammatory, as in the rheumatoid type.

Striking and severe changes do occur in hips and knees. It is rather astonishing, at times, how little discomfiture there is in this type of arthritis and yet how advanced may be the X-ray changes. Damp, cold, changeable weather brings stiffness and to some degree pain before signs of the disease are apparent.

There is present a premature aging of the joint segments rather than the general aging process of the body itself. The eyes, teeth and ears are affected by the aging process and so are the joints. There may be in this type an inescapable physiological arthritis, often without distinctive symptoms, which is part of the general aging process. Radiographic examinations of large groups of individuals indicate osteo-arthritic changes in the vertebral and sacro-iliac joints of a majority of individuals over fifty years of age.

The hips are not so frequently affected as the other points in osteo-arthritis. When the hips are affected the joint damage and disability are great. *Malum coxae senilis*, as the term denotes, is osteo-arthritis of the hip in the aged. Senescent arthritis, as osteo-arthritis is frequently called, is osteo-arthritis in elderly people. When the shoulder is affected by osteo-arthritis, movement of the joint may be painfully limited.

Many persons in this group, however, have faulty posture, over-eat and under-exercise. Overweight has been likened to a wagon-load of stones drawn by a horse up a hill. The load is too heavy for the haul. Should the horse be whipped or the load lightened? The sensible thing to do, of course, is to lighten the load and give the horse a chance. A reasonable amount of over-weight before forty is not a handicap, but beyond that age, when osteo-arthritis sets in, too much weight may be attended with serious consequences. The strain on the locomotor apparatus from

too much usage affects the spine, knees and particularly the feet.

Heberden described the nodes which bear his name as "little hard knobs about the size of a pea, which are frequently seen upon fingers, a little below the distal interphalangeal point. They have no connection with gout; they continue through life, hardly ever attended with pain or disposed to become sore; unsightly rather than inconvenient, though some little hindrance to the free use of the fingers."

These benign bony enlargements, characteristic of osteo-arthritis, are of sub-periosteal origin, at the distal end of the middle phalanges. They are always located on either side of a phalanx and are usually symmetrical, forming characteristic dorsal prominences on the joints. Women are more prone to this common complaint than men. There is no doubt that the nervous clenching of the hands and fingers plays an important role in Heberden's nodes among women of highly nervous temperament, making them prone to this mild joint deformity.

Osteo-arthritis is characterized by distinctive changes in the articular cartilage, the synovial membrane and the articulating surfaces of bones, and particularly by the formation of osteophytes. The earliest change is in the slight roughening of the cartilage at the point of the greatest friction and pressure. Due to this change in the surfaces of the hyaline cartilage, soft crepitant grating is felt on movement of the point. This becomes more harsh and crunching in sound as the disease advances, at times the grating being distinctly audible on movement.

When the articular cartilage is worn away, bony eburnation occurs and the underlying bone surface is left polished and eburnated and glistens like a billiard ball. In addition to eburnation, there is the formation of new osteophytes. These are the distinctive pathological changes and are distinctive and diagnostic features of osteo-arthritis.

When the knee is involved, the thickened and hypertrophied synovial fringes reveal a characteristic crepitation.

Often lipping of the head of the tibial and femoral condyles causes deformity of the knee joint. Effusion may occur. Osteophytes may increase deformity and limit joint movement. Bony ankylosis only occurs in spondylitis osteo-arthritis, by the coming together of bony outgrowths. These may show facets at points of contact. Although a certain amount of locking may occur due to marginal lipping, the joint cavity itself is never obliterated.

Severe destructive bone changes produce crippling and lameness, often with shortening of affected extremity and improper distribution of weight.

Tendons may undergo degeneration. If a tendon comes in contact with a loose body within a joint, entanglement may occur and a locked joint result. Motion is limited by changes in and about the joint but ankylosis is rare. When present in osteo-arthritis, ankylosis is secondary and not associated with the condition itself.

Radiographic examination in osteo-arthritis reveals narrowing of joint spaces, spurring, lipping and bony outgrowths at the margin of joints. Free loose particles known as joint mice, if present, may be seen in the joints. Near the joint surfaces and especially beneath the bony eburnation, cyst-like cavities may be revealed.

Again, a red blood cell sedimentation rate serves a helpful and practical purpose. If the result of the test is normal the pain and discomfort should then be regarded philosophically and borne with patience.

3. THE SPONDYLIDITES

The unusual and frequent occurrence of spinal arthritis in military life has often been observed. The spondylidites have not the same impressive high rate of incidence in civilian as in military life.

The back is not the strong structure it is generally thought to be. In addition to heredity, dependency upon the type of spondylitis, weak muscle tone, trauma, habitual stooping, occupational strain, long illness and fatigability

are contributing factors. Force and pressure on the back, brought about by manual labor, predisposes the individual to the pain, rigidity and abnormal curvatures of the spine.

For occupational reasons, men are more prone to the spondylitides than women. When the spine is affected, constant attempts are put forth by the sufferer to spare himself in bending his spine.

There are two forms of spondylitis which belong to the rheumatoid type. First, spondylitis ossificans ligamentosa, which is characterized by ossification of the spinal ligaments, and second, spondylitis muscularis, which is marked by an upper dorsal curvature and atrophy of the vertebral discs.

The early symptoms are stiffness and pain in the spine with limitation of motion. The painful stiffness, if progressive, produces a variable degree of deformity. Muscle spasm may produce pains radiating to the thighs. The pain is worse after exercise, and the patient has difficulty in finding a comfortable position in bed.

SPONDYLITIS OSSIFICANS LIGAMENTOSA

In spondylitis ossificans ligamentosa, ossification of the ligaments produces ankylosis and deformity. Other points such as those of the limbs, shoulder-girdle and jaw may be affected.

This form of spinal arthritis is readily distinguished. The clinical variations depend upon the extent to which the spine as well as the associated joints of the extremities are affected. There are certain types of cases in which the hip and shoulder joints are also ankylosed. They are often referred to as the Marie Strümpell type. Pierre Marie, who is given credit for the term rhizomelic spondylitis, describes this as "extremely pronounced rigidity of the spine and ankylosis of the hip and shoulder joints. Pain and rigidity are the special features, one being a precursor of the other."

SPONDYLITIS MUSCULARIS

Spondylitis muscularis is distinguished by an upper dorsal curvature and atrophy of the inter-vertebral discs. This disease is generally confined to the upper spine and, unlike the former type, the joints of the extremities are not involved. Hump-backed and round-shouldered individuals exhibit a slight degree of this form of spinal arthritis. In this condition, as the name implies, the degree of severity is dependent from the beginning upon its weakened muscle power.

There exists in an individual with spondylitis muscularis, as far back as he can remember, an unnatural bending of his body forward and downward from an erect position. Habitually he carried his head and shoulders bowed forward and down. Secondary to the muscular weakness causing the curvature, atrophic changes occur in the inter-vertebral discs. These changes are due to increased pressure at certain points, brought about by the bending forward of the spine. Sometimes injury may be responsible for the upper dorsal curvature, and again the cause may be heredity, alone or combined with trauma. Occupation as well as the nervous system may contribute to this condition. Prolonged debilitating illnesses, late rickets, as well as old age, are also contributing factors. The spondylitis senilis is the same as spondylitis muscularis.

SPONDYLITIS OSTEO-ARTHRITICA

Spondylitis osteo-arthritis is one of the oldest known diseases, specimens of which have been found in the ruins of prehistoric and medieval burial grounds. The disease is the same as osteo-arthritis found elsewhere in the body. There is no bony eburnation, the articulating vertebral bodies not having movement sufficient for its production. Ankylosis does not actually take place although there is present a tendency to ankylosis. Where the bony changes are marked, motion of the spine becomes limited. Marginal

lipping due to the presence of osteophytes occurs at the bases of the vertebral bodies. The articular processes are enlarged and also characterized by bony outgrowths. In addition to hypertrophy and the marginal osteophytes, disintegration and removal of articular and interarticular cartilages are as characteristic in this disease of the spine as in joints affected elsewhere in the body.

The process is insidious, often progressing slowly without much pain. Neuritic and neuralgic sensations, sensations of formication and sometimes severe pain may be caused by pressure of the bony outgrowths upon the nerves. When fusion of the osteophytic lipping of connecting vertebrae takes place, pain ceases. Pressure or force applied in one form or another may be the chief factor along with heredity and the aging process.

—*Journal of the American Institute of Homœopathy, March, 1950.*

Homoeopathic Treatment of

ASTHMA

By Dr. Fortier Bernoville, M.D.

(Translated from French by

Dr. Rajkumar Mukherjee, M.A., L.H.M.S.)

It contains the Chapters on:—

- (1) Therapeutic Plan of Asthma
- (2) Nosodes and Constitutional Remedies
- (3) Functional and Drainage Remedies
- (4) Asthma with Catarrhal Element
- (5) Asthma with Nasal Flow
- (6) Asthma associated with Digestive Troubles
- (7) Asthma with Circulatory Troubles
- (8) Asthma with High Blood Pressure etc.

PAGES 158.

PRICE Rs. 1/8

Publishers **HAHNEMANN PUBLISHING CO.,**
165, Bowbazar Street, Calcutta-12.