ABSTRACTS

Acute Rheumatism


The previous literature on the experimental production of antigens in animals is briefly reviewed. The author describes his own experimental work, in which rats and rabbits were inoculated intraperitoneally with a mixture of β-haemolytic streptococci and an extract of heart, connective tissue, or skeletal muscle of their own species. The streptococci, which were killed and belonged to the NY 5 strain, were serologically of Group A. Auto-antibodies could be demonstrated in 45 to 85% of cases, the titre varying from 1 in 40 to 1 in 280. These were usually present after a week, approximately 10 injections having been given. Animals treated with streptococci or tissue extracts alone failed to show the formation of auto-antibodies. The rats were killed after 1 to 120 days and histological examination was carried out. There was evidence of both myocarditis and endocarditis, the valves of the left heart, especially the mitral, being the more frequently affected. The significance of these findings is discussed. Harold Jarvis.


It has been reported by other workers that cellular infiltrations in the heart like those of rheumatic carditis have been found in 2 fatal cases of serum sickness; and that polyarteritis, like the occasional polyarteritis nodosa which may complicate rheumatic fever, may be a result of sensitization-cardiac lesions, which show many of the histological characters of the rheumatic lesion, being also found in the experimentally sensitized animals. The work here reported is an attempt to verify these experimental observations.

Rabbits were given 10 ml. of horse serum per kg. body weight intravenously or intraperitoneally; 17 days later 1 ml. of serum was injected intravenously to absorb circulating antibody; 2 days later the initial dose of serum was repeated; 1 week later, and in some instances after longer intervals, the animals were killed. The vascular lesions described could be found after a single injection of serum, but were more widespread in animals receiving a second dose. They were present in 88% of the animals; the coronary arteries were most often affected. The histological appearances of an inflammatory exudate surrounding and infiltrating the vessel are fully described.

Small granuloma closely resembling the Aschoff nodule of rheumatic fever were often found in the myocardium. Inflammatory nodules were also found in the endocardium, leading to fibrotic thickening. Similar lesions were found in the mitral valve and valve ring, less frequently in the aortic and tricuspid valves, and never in the pulmonary valve. The author believes that in histological structure and in site these experimental lesions are identical with those of rheumatic fever, and concludes that hypersensitivity is probably the essential mechanism in the production of the rheumatic lesion. Kenneth Stone.


Valvular tissues of 30 rheumatic and 200 apparently non-rheumatic hearts were examined macroscopically and microscopically for rheumatic changes, and the results are presented. The first problem was whether the vascularization of the fibro-elastic layer of the valvular cusps found in apparently non-rheumatic hearts represented a result of a pathological process or was a normal occurrence. This is a 100-year-old controversy. Wearn and Moritz (Amer. Heart J., 1937, 13, 7) found endocardial valvular vessels in 84% of cases, and concluded that their occurrence was normal, but this figure included also fibro-elastic layers proximal to the myocardium, where the fact of vascularization is not contested. Gross (Amer. Heart J., 1937, 13, 275) found valvular vessels in 18% of 700 non-rheumatic hearts. Recently, Cauwe-laert (Rev. sud.-amer. Morf., 1945, 3, 173) found—with an imperfect technique—vascularization in 12% of cases and maintains, as does Koletsky (Amer. J. Path., 1946, 129, 351), that it is a pathological phenomenon. This is confirmed by the authors, who injected the coronary arteries with a 10% solution of coloured gelatin at 36°C and found vessels in the fibro-elastic layer of one or more valvular cusps in all the rheumatic hearts and in 43 (21.5%) of the non-rheumatic hearts. A microscopic study of the affected cusps showed in all of them evident signs of an active or cicatrizated inflammatory process, such as interstitial and perivascular exudative and productive phenomena, affecting both the fibro-elastic layer and the subjacent myocardium. The Aschoff-Geipel granuloma was found in 30% of rheumatic hearts and in 7% of non-rheumatic ones. Of the 157 cases not presenting valvular vascularization, rheumatic stigmata were found in the myocardium in 37 (24%). Thus the apparently non-rheumatic hearts of 80 (43+37) individuals out of 200, or 40%, show signs of active or healed rheumatic myocarditis, and 21-5% also present signs of endocarditis. The obvious conclusion is that the rheumatic affection is much more common than would appear from the clinical manifestations. A. Lilke.

The authors think that first attacks of rheumatic carditis may occur late in life and are often not diagnosed although the lesion may progress insidiously to cardiac failure and death. Since in many cases this disease is completely asymptomatic, no diagnosis is possible save by anatomical investigation of the heart.

Active rheumatic myocarditis was proved in 41 cases by study of microscopical sections together with the necropsy protocols. The cases fell into four groups: (I) 20 cases in which clinical and pathological diagnosis of acute rheumatic fever were in agreement; (II) 10 cases diagnosed as inactive rheumatic heart disease which were found at necropsy to have, in addition to the characteristic rheumatic valvular deformity, Aschoff bodies in the myocardium; (III) 7 cases in which no diagnosis of rheumatic heart disease, active or inactive, had been made clinically, but in which valve deformities and Aschoff bodies were found at necropsy; (IV) 4 cases not diagnosed during life or by microscopical examination at necropsy; in 4 cases showed that acute rheumatic myocarditis was present. The average age in the 41 cases was 33 years, and the striking feature was that the average age in Group I was 18 years, in Group II 41 years, in Group III 55 years, and in Group IV 56 years. In Groups III and IV, in which no clinical diagnosis of acute rheumatic carditis had been made, the congestive failure was on more than one occasion attributed to hypertension, and, even in the rare cases in which symptoms suggestive of active rheumatic fever had been present, the advanced age of the patient had apparently misled the clinician.

S. Oram.


Large doses of salicylates were given to 2 girls suffering from pancarditis, following in one case an attack of pericarditis and in the other a septicaemia. In the former a dose of 370 gr., in the latter 185 gr., a day was given, with no effect on the high fever or on the cardiac condition but with relief of the joint pains. In both there were pleural effusion, dilated heart, cyanosis, and dyspnoea, and in one there was pericardial friction. Blood culture proved negative in both, but there was some degree of anaemia with a neutrophil leucocytosis. The electrocardiogram showed a flattening of the T-wave in both.

In the first case, 300,000 units of penicillin daily was given for 15 days with no effect except a slight fall in temperature. The dose was then raised to 800,000 units a day for 12 days, as the possibility of bacterial endocarditis was envisaged. Within 5 days the temperature had fallen to normal, the cyanosis and dyspnoea had gone, the heart was slower with no pericardial friction, and the patient recovered. In the second case, after a course of salicylates, sulphanilamide (5 g.) and penicillin (400,000 units) were given daily for 4 days with no benefit, but with a recurrence of the joint pains. Salicylates were then restarted and the dosage of penicillin was raised to 1,000,000 units a day. The joint pains disappeared and the temperature fell almost to normal in a few days. The whole condition rapidly cleared up and in less than 3 weeks cure had been attained.

The authors claim that these were cases of rheumatic pancarditis, in which condition penicillin is often of little value. They exclude subacute bacterial endocarditis because of negative cultures and the absence of purpura, splenic enlargement, and urinary changes. They think that penicillin is of value in certain of the more malignant manifestations of rheumatic disease of the heart.

Reginald S. A. Heathcote.


This paper is mainly a critical review of aetiological hypotheses in acute rheumatism: (1) that of Aschoff and Graeff, that rheumatism is a specific infective disease, the infective agent being a filterable virus; (2) that of Kline and Rössele, that rheumatism is an allergic tissue reaction in a sensitized organism; (3) that of Albertini and Grumbach, that rheumatism is caused by focal infection, with no specific infective agent.

The conflicting views of Graeff, that the Aschoff nodes afford evidence of specificity, and of Kline, that they represent only a non-specific tissue reaction, are given. The author relates how Kline had showed that by intravenous injection of colloidal acid dyes anaphylactic shock could, in a certain proportion of cases, be stopped or weakened. While rabbits sensitized to horse serum responded to an injection of horse serum into the knee-joint with an acute diffuse inflammation of the synovial villi, this reaction might not occur in animals previously treated with the dye. If the response was only weakened a monocytic infiltration of the joint tissues was observed, similar to that in human chronic joint rheumatism. By further experiments histological changes were reproduced in joints, arteries, veins, striate muscle, heart valves, and heart muscle; these changes were similar to those of acute rheumatism. Kline claimed that the earliest reaction was not the formation of an Aschoff node, but that this is preceded by an acute degenerative and exudative reaction in the connective tissues. Cells of the Aschoff node appear later, as a proliferation of connective-tissue cells secondary to the first stage.

All the authorities whose views are discussed believe that there must be a primary focus of infection. Graeff has succeeded in demonstrating changes in the tonsillar region in a few early cases of acute rheumatism, and believes that these changes represent the primary rheumatic lesion. The microscopical appearances were similar to those of the somewhat atypical Aschoff nodes found in tendons. Dissemination, possibly in part by lymphatics, must be mainly by the blood stream. Albertini and Grumbach succeeded in producing endocarditis in rabbits by a single massive intravenous injection of streptococi isolated from human infective foci. This experimental endocarditis was similar to the infective endocarditis of human beings and was produced by a single dissemination of the infective agent, in contrast to the oft-repeated transitory bacteremia of the human disease. As would be expected, in the experimental infection all inflammatory foci are at the same stage of development, whereas in the human disease these foci are at different stages.

Thus there are, the author suggests, two criteria for the recognition of a generalized disease arising from focal infection: (1) evidence of a primary focus of dissemination, and (2) the finding in the tissues of inflammatory foci at various stages of development. For to state this, the post-mortem findings in 2 cases of acute rheumatism are described. In both there was evidence of streptococcal infection of the tonsils; in one the same type of
streptococcus was found in the tonsil and in the cardiac muscle.

Kenneth Stone.


Working in a hospital where hundreds of cases of rheumatism are treated annually with salicylates, the author has been struck with the rarity of the haemorrhage which would be expected to occur if salicylates antagonize the action of vitamin K. He has investigated the action of salicylates in relation to vitamin K in cases of rheumatism in man. Blood prothrombin levels, determined by the method of Meunier and checked where possible by that of Quick, have been taken as the criterion of avitaminosis K. Salicylate levels in serum were determined by the author’s own method. As a test of liver function, urinary excretion of galactose was used, and in many cases the erythrocyte sedimentation rate was examined.

Since prothrombin is considered to be an enzyme, in vitro tests were made to determine whether its action is inhibited by salicylates, for should this be so, hypoprothrombinaemia would be simulated. No action was found in vitro on either the coagulability of the blood or the prothrombin level. In cases treated with salicylates the results fall into three classes, those showing: (a) a rise, (b) no change, and (c) the largest a fall. Two cases in group a are described. In 1 of them, which was treated with 1 g. of salicylate daily intravenously, there was a considerable epistaxis with low blood levels of prothrombin and of salicylate. Doubling the dose, however, was followed by arrest of haemorrhage and a rise in both blood levels. In the other case avitaminosis K had been caused by the use of amidopyrine and phenazone, but after 5 days’ treatment with 4 g. of salicylate daily the blood prothrombin level returned towards the normal. Two cases in group b are also described, in both of which 9 g. of salicylate a day produced no change in prothrombin levels. Four cases from the third group, with a fall in prothrombin, are described.

The author maintains that the claim that salicylates lower the blood prothrombin is not valid, and that acute rheumatism itself has this effect; if salicylates do lower this level, it is only indirectly by depressing liver function and not by antagonizing vitamin K. In 2 of these cases large variations in the salicylate content of the blood were not associated with similar changes in that of prothrombin. Animal experiments showed that young rabbits given 100 to 150 mg. per kilo daily by vein had only minor changes in blood prothrombin levels, while full-grown animals required no intravenous dose of 300 mg. per kilo to produce even a small decrease in that level. The author concludes that such action as salicylates may have on prothrombin is due to a transitory effect on liver function, and not to a direct antagonism of vitamin K.

Reginald St. A. Heathcote.


The authors recall the reports on the development of resistance to sulphonamides by certain strains of haemolytic streptococci when these drugs were used prophylactically against upper respiratory-tract infection. They describe their work on the response of haemolytic streptococci to oral penicillin given to prevent recurrences of rheumatic fever in children.

They studied 114 children attending a school for sufferers from rheumatic fever. Sixty-four of the children received 50,000 units of penicillin orally twice a day for 6 months; the remaining 50 were observed as controls; all the children were in contact with each other throughout the study. β-haemolytic streptococci were found in the throat swabs in proportions approximating to the carrier rate among normal healthy children. Analysis of results made in the last 2 months of the study showed that in the treated group 17 cultures were positive for β-haemolytic streptococci, and of these 14 (82%) were resistant to penicillin in concentrations of 10 units per ml. of the culture medium. In the untreated group 10 positive cultures were obtained of which 4 (40%) were resistant. The authors consider that the figure for the untreated group was as high as this because of cross-infection by the two groups. On the whole β-haemolytic streptococci did not develop resistance, and any strains that did so developed it slowly. They suggest that much bigger initial prophylactic doses of penicillin should be given.

[One cannot be altogether satisfied with the conclusions reached in this paper. The two groups were not segregated, and in England doubt remains about the value of oral penicillin. Furthermore, the numbers in the various culture groups were small for statistical purposes.]

W. Tegner.


Forty-four children were observed for 2 years to determine the value of oral penicillin in the prophylaxis of rheumatic fever: 22 acted as controls, and 22 were given lozenges containing 1,000 and later 5,000 Oxford units and were told to suck one slowly an hour after each meal. A month’s treatment was given in autumn, winter, and spring. Both groups were composed of patients described as suffering from possible heart disease, potential heart disease with a history of rheumatism, rheumatic mitral valvulitis, and congenital heart disease. The latter were included to ascertain the value of penicillin in the prevention of subacute bacterial endocarditis. None of the penicillin-protected patients developed rheumatic fever, but 4 of the controls had attacks. The children having penicillin were said to have improved in health and to have had fewer upper respiratory infections.

H. Herlinger.


Chronic Articular Rheumatism
(Rheumatoid Arthritis)


No method so far employed for the treatment of rheumatoid arthritis can justly be considered "specific". Pending the discovery of such a remedy the authors have attempted to assess the long-term course of rheumatoid arthritis when it is treated only by simple conservative means. They consider that a true control series of entirely untreated patients will never be assembled, but that the present series will in due course serve as a basis for comparison with other forms of therapy. A series of 250 unselected patients has been under observation for about 10 years. Of these, 50% had definitely improved when last seen and 15% were considered to be in remission. It was found that certain factors of prognostic value, such as the presence or absence of prodromal symptoms, nature of onset, and the family history of similar disease, should be considered.

The results in the present series indicate that about 50% of comparable patients will ultimately improve [this is below what some authors have referred to as "the inevitable 75% improvement" as the result of most forms of treatment]. Since, however, it is planned to keep these patients under observation for the rest of their lives, further interesting information should ultimately be forthcoming. With the present evidence the authors state that a "composite patient" who would be likely to respond to treatment would be a man under 40, with disease of less than a year's duration, of normal or nearly normal weight, with mild joint involvement, preferably asymmetrical, and mild, slightly active disease. [This is an important and critical paper and the original should be consulted.

W. S. C. Copeman.


Speransky believed that many acute and chronic diseases, including rheumatic conditions, are closely related to a neurology, and reported on treatment by "spinal pumping". He treated 100 cases of polyarthralgia in this manner, with intensive salicylate therapy before and after. Good results were reported, especially in rheumatic fever. The Gilmer brothers in America also reported satisfactory results from the method.

The present author reports the results in 4 patients with "rheumatoid arthritis", 3 were women aged 54, 54, and 48, and one was a man aged 40. The operation consists in withdrawing and replacing 20 ml. of spinal fluid slowly 20 times in the space of about 1 hour. Patients were given 10 g. of salicylate each during the 24-hour period before and after pumping. After the operation there was a feeling of heat, mainly at the periphery, lasting for about 48 hours. The author could not confirm any objective signs of dilatation of capillaries, rise in skin temperature, or sweating as noted by the Gillmans. In one case, in which the pumping was stopped when the cerebrospinal fluid pressure dropped to 35 mm., some fever resulted. No dramatic improvements were observed either objectively or subjectively. Three cases were given diathermy after the pumping. Improvement in the erythrocyte sedimentation rate and in clinical signs is reported and thought possibly to be due more to the gold and the natural remissions which occur in this disease than to the pumping operation. A [wise] report is included of the patients' own opinions; in 3 there was no significant change. An interesting feature is that one patient claims that the operation performed "at her own request" effected a "cure". In 3 cases the cerebrospinal fluid pressure was lowered during the process. 180 to 70; 180 to 35; 180 to 160 mm.; in 1 it rose from 140 to 210 mm. All fluids were found to be sterile, and biochemical tests revealed no abnormality. The author states that no conclusions regarding the value of this treatment could be drawn from only 4 cases.

Harry Cose.


The authors treated 8 women suffering from rheumatoid arthritis with one to three sessions of "C.S.F. pumping" (Speransky's method). In 1 case recovery was complete, in 1 the treatment failed, and in 6 there was improvement, mostly of pain, congestion, and mobility of the affected joints. In all cases the usual therapeutic methods, such as proteinotherapy, auto-haemotherapy, administration of salicylates and sulphur, massage, and diathermy had previously been used without success. The authors think that "C.S.F. pumping is innocuous. Its immediate results are: tachycardia, peripheral vasodilatation, sweating, and increase of arterial oscillations. It is well tolerated, though a few patients complained of some headache, slight nausea, and slight pain in the back in the first 24 hours. It is concluded that Speransky's method is valuable as symptomatic treatment.


Seventeen adult patients with arthritis (10 rheumatoid, 5 rheumatic, 1 gonococcal, 1 prolapsed intervertebral disk) were treated by spinal pumping as advocated by Speransky. Tests for cerebrospinal fluid were negative. Seven patients were practically bed-ridden before treatment: Most had had other forms of therapy and some were given salicylates beforehand. Apart from the patient with a possible disk lesion the results were completely successful. Pain and swelling disappeared and function improved. Of the 7 bed-ridden patients were discharged walking. The maximal improvement occurred in the first 24 to 48 hours. Striking improvement is less likely to take place in patients with bony ankylosis.

D. P. Nicholson.


Twenty-four patients suffering from chronic ankylosing polyarthritis were operated upon between November, 1940, and October, 1945. Other methods of treatment had been tried and had failed. Most of the cases were of many years' duration, and of the 24 patients only 6 gave an antecedent history of infection. In only 1 of the latter was a good result obtained. In 3 patients a persistent
thymus was removed. An excellent result was obtained in 1 case observed for 5 years, in the second case the result is unknown, and in the third the operation was a failure. From 5 patients a persistent thymus and one or more parathyroids were removed; 2 excellent results were obtained, 1 patient had great relief, and in 2 the operations were failures. In 16 patients, in whom a persistent thymus was not found, the 2 inferior parathyroids were removed and the inferior thyroid arteries divided, but in 3 of these patients histological examination showed no evidence that they had been removed, and these operations are termed "physiological parathyroidectomy." One parathyroidectomy gave an excellent result; 4 patients had great relief, 1 improved slowly, and 1 slightly. There was 1 failure and 5 results were unknown. The patients with excellent results were observed for from 1½ to 5 years, those obtaining great relief for from 15 months to 3 years. After "physiological parathyroidectomy," 1 patient had great relief and there were 2 failures.

Nine patients had peripheral joint involvement alone; excellent results were obtained in 2, great relief was experienced by 1, there was 1 failure, and in 5 the results are unknown. In 4 patients the spine alone, and in 4 the spine and one or more large peripheral joints were affected. Three results were excellent, and in 2 cases great relief was obtained; 2 results are unknown. Some patients suffered from spondylitis associated with multiple peripheral joint lesions, and of these 1 was greatly relieved, 1 slowly relieved, and 1 slightly relieved; there were 3 failures and 1 result is unknown.

The blood calcium was estimated in 14 patients. In 6 it was normal (90 to 110 mg.)—2 obtained great relief, 1 slowly improved, 1 was a failure, and 2 results are unknown. In 6 patients the blood calcium was raised (114 to 130 mg.)—1 had an excellent result, 1 great relief, 1 slow improvement, 1 was a failure, and 2 results are unknown. Operation gave an excellent result in 1 patient with low blood calcium (88 mg.) but in another it was a failure. Histological examination of the parathyroids removed showed lesions in only 3 glands, in 1 of which, from a patient whose blood calcium was 122 mg., a small adenoma was found.

The authors conclude that although the operation is based on an insecure physiological and clinical basis it is worth trial. They advise removal of the thymus, if persistent, and of the inferior parathyroids, particularly if the blood calcium is raised, together with division of the inferior thyroid arteries. The best results are obtained in spondylitis with or without involvement of the larger peripheral joints. Other methods of treatment must not be neglected.

T. G. Reah.


A woman aged 23 years was first seen in 1925 when she had acute fever with involvement of the larger joints; the condition was rapidly cured without sequelae by salicylates. In 1930 a second attack occurred in which both hands were affected; after treatment with iodides and gold salts the condition subsided, except that the right second and fourth fingers and the left second finger continued to be affected. Treatment continued and the patient remained well. In 1935 an arthroplasty of the right knee was performed, and in 1938 she had x-ray therapy. In 1940 she became much worse and almost helpless, but later benefited by a course of gold, only to relapse again. In 1947 she presented the classical picture of severe extensive chronic deforming polyarthritis. The hands showed the changes of arthritis mutilans, main en lorgnette; the wrists were bulky and the hands small with telescoped fingers and deep transverse cutaneous folds; voluntary movement was much diminished and the interphalangeal joints were dislocated.

Radiographs at first showed slight decalcification of the bones with a small area of bone destruction in the head of the third right metacarpal. The decalcification became more pronounced with destruction of the heads of the metacarpals and bases of the corresponding phalanges, while the heads of the proximal phalanges and some of the middle phalanges showed bone destruction. The metatarsals were less affected. The carpal and tarsal bones also showed decalcification with loss of bony outline and apparent fusion. In 1947 there was subluxation of many joints with almost complete disappearance of the proximal phalanges of the right thumb and third finger.

The authors consider the condition to be a trophic nature and due to a sympathetic disorder. T. G. Reah.


While confined to bed with menopausal menorrhagia a woman aged 49 suddenly developed severe, febrile, painful arthritis of the large joints. There were periodic exacerbations of the condition and progressive deformity with ankylosis of the affected joints. There was no response to treatment with salicylates, gold, or sulphur. A year previously she had had a breast abscess, and 6 months previously an infection of the left hand, followed by persistent tarsalgia which had disappeared before the rheumatism came on.

When first seen 2 years after the onset of the illness, the patient was wasted, bed-ridden, and unable to move the upper limbs. There were trophic changes of the skin; the affected joints were deformed and swollen, and attempts at moving them caused severe pain. The spine and temporo-mandibular joints were not affected. There was enlargement of the lymph nodes and spleen. Pyr-rhoea was present and there was a white uterine discharge but no evidence of gonorrhoea. The patient was febrile. A blood count showed 80% haemoglobin, 4,500,000 red cells per c.mm., and 7,500 white cells per c.mm., of which 80% were polymorphonuclear neutrophils. Further blood examinations were impossible owing to the condition of the veins. The tuberculin test was weakly positive. A radiological examination showed arthritic changes of rheumatoid type in the wrist-joints and small joints of the hands. The joint spaces of the knees were obliterated, with osteoporosis of the bones. A biopsy was performed on a lymph node and histological examination showed that the normal architecture was preserved, with an increase in the number and size of the follicles, which were of two types: (1) those having a homogeneous appearance but an ill-defined outline with prolongations into the neighbouring pulp; (2) more numerous follicles with a clear centre occupied by the greater part of joints were surrounded by a thin layer of lymphocytes. There was cellular hyperplasia of reticular pattern with numerous mitoses. In the pulp were numerous histiocytes and some small multinuclear plasmocytes. The endothelial lining of the small vessels was swollen, diminishing the lumen, with a collagen layer...
encephalitis. The capsule showed a little thickened collagen. Scattered areas of sclerosis were seen in the parenchyma.

Penicillin was given intramuscularly, 200,000 units in 24 hours, and in 5 days the temperature became normal. When this was discontinued the temperature rose again and a further course was given until a total of 4 mega units had been administered. The painful joints improved considerably, with a return of some movement, but the erythrocyte sedimentation rate remained raised. Four months later the patient was still afebrile and the improvement was maintained, but the spleen and lymph nodes were still enlarged and the blood count was unchanged. The sedimentation rate had fallen.

The authors review 18 reported cases of chronic deforming rheumatism in adults, with enlargement of spleen and lymph nodes. The condition is more common in women under 40 and the onset is usually acute. The affected joints are painful and flexed with limited movement, but are not usually symmetrically affected or greatly deformed; ankylosis is exceptional. General wasting and trophic changes are constant but heart lesions are rare. Moderate anaemia is usual, with slight leucocytosis; the erythrocyte sedimentation rate is invariably raised. Radiological studies show no gross bony deformations, but moderate cartilage changes are present, with slight bony decalcification. Relapses are common. Lymph-node biopsies have not been performed often and are characterized by a considerable reticulo-endotheliosis with collagen hyperplasia, while granulomatous zones with polymorphonuclear infiltration have been described. In 3 cases examination of the spleen showed considerable hyperplasia of the reticulum and endothelial cells with some collagen reaction. Tubercle bacilli have been sought but rarely found. The various forms of treatment tried have given inconstant results, and of 3 patients on whom splenectomy was performed 2 died shortly after operation and the third was not improved. Sulphonamides have not been used on the cases reported and the authors have no record of a case treated with penicillin.

They conclude that a syndrome may occur in adults identical with that described by Still, but they do not think the clinical and pathological evidence justified its being considered a primary reticulosis. T. G. Reah.


The author describes the anatomy of the nerve supply of the hip joint and an operation for evulsing the obturator nerve through a vertical incision over the femoral triangle as originally described by Tavernier. In his opinion the operation is justified by the favourable reports from France, the experience at the New York Hospital for Joint Diseases, the technical simplicity, and the fact that it eliminates the need for more extensive operations.

[In the opinion of the abstractor the results of this operation are of doubtful value.]

Leon Gillis.


The author describes the evolution of his operation of cup arthroplasty of the hip-joint. His original approach, a report of which was first published in 1917, gave good exposure of the antero-lateral aspect of the joint but not of the acetabulum. By a process of modification the exposure he now uses was gradually developed. This consists essentially of the subperiosteal reflection of two muscle flaps from the wing of the ilium, a medial flap containing iliacus and sartorius, and a lateral flap containing gluteus medius and minimus, and the rectus femoris. The development of his special gouges and retractors and the variety of moulds with which he experimented before the modern vitallium cup was perfected are described.

Since 1938 over 500 vitallium-mould arthroplasties have been performed at the Massachusetts General Hospital. The conditions in which the procedure has been employed include senile osteo-arthritis, rheumatoid arthritis, complications of fractured femur, sequelae of septic arthritis, and congenital dislocation. The results as a whole are extremely satisfactory, though the range of movement obtained in rheumatoid arthritis and old septic arthritis is less than in the other conditions. Thirty-three patients were subjected to revision of the first arthroplasty. There were no operative deaths.

J. S. Batchelor.


In 1946 the author, while working with Smith-Petersen, reviewed 150 unselected cases of vitallium mould arthroplasty of the hip-joint. The results were satisfactory in 80% of cases. Pain was minimal or absent in uncomplicated cases throughout all stages of the procedure. The majority of patients used a walking-stick. The range of movement at the hip increases with time and use. During the first 2 years after operation the average range of flexion in the whole series was 68°; in the next 2-year period it was 75°, and in cases in which operation had been performed over 4 to 6 years previously it had increased to 80°. The main complications were post-operative sepsis, subluxation of the vitallium mould, and bone proliferation leading to impairment of the range of movement.

The results achieved in patients with traumatic and degenerative arthritis, complications of femoral neck fractures, and congenital dislocation of the hip, were superior to those in patients with rheumatoid arthritis, ankylosing spondylitis, and septic arthritis. In the latter
group the range of movement is less satisfactory and surgical revision is more frequently necessary. The need for careful and prolonged after-treatment is stressed.

J. S. Batchelor.


The 61 cases reported are divided into two classes: (1) Forty-four simple pseudoarthroses (28 in the tibia and 16 in the femur) in which there was either no loss of bone substance or one small enough to permit apposition of the fracture ends at operation. (2) Seventeen cases of non-union with gap (4 in the femur and 13 in the tibia) in which grafts had to be employed to bridge the space between the ends of the bone and thus to form part of the length of the reconstituted bone. It is noted that of the 61 fractures 22 (10 originally compound and 12 originally simple) had been treated by primary open operation and internal fixation.

Various methods of treatment were employed. In femoral pseudoarthrosis without a gap, insertion of a Kuntscher nail is favoured and was associated with successful consolidation in 12 cases out of 13, though in 3 of these a tibial graft was used as well as the nail. In the tibia an accurate inlay graft of bone from the intact tibia was considered superior to anything else, including sliding grafts. Non-union with loss of substance was usually treated either by insertion of a Kuntscher nail combined with cancellous grafting of the gap, or by tibial cortical grafting similarly combined with grafting of iliac spongiosa. Unfortunately the use of the nail was associated with a considerable incidence of sepsis, and the best results were obtained from grafting of the tibial cortex plus iliac cancellous bone.

D. Ll. Griffiths.


The authors describe the management of a clinic where intra-articular injections are given to osteo-arthritis patients. Among 52 patients treated, 16 have greatly improved and only 13 have shown no subjective or objective improvement. The authors attempt to compare the effects of solutions of lactic acid and procaine with those of an isotonic solution of procaine and normal saline. They found no striking difference in the results from these two solutions, and therefore suggest that the benefit received is largely due to the lubricating action of the fluid injected, in conjunction with the optimistic spirit prevailing in their clinic. In most cases they noticed a tendency to recurrence of symptoms a fortnight after the injection. They suggest—as have others—that the analgesic effect of the procaine is useful in allowing active exercises to be begun without much pain.

W. S. C. Copeman.


This treatment is based on previous work by Robert on the beneficial effect of large doses of intravenous sodium glycerophosphate on certain chronic joint diseases by virtue of its alkalinity. Isotonic sodium bicarbonate, 1-29%, is injected intra-articularly in increasing doses, from 0.5 to 2 ml. at 2-day intervals. The necessary number of injections and duration of treatment are judged by the symptoms; usually two to four injections are enough, a second course being sometimes given 5 or 10 months later. Accidental periarticular or intravenous administration is harmless. The technique of subpatellar injection into the knee-joint is described; local analgesia was never employed because the accidental introduction of a local analgesic into the joint cavity might falsify the interpretation of results. Fifteen cases of arthritis and arthrosis, in some of which there was a causal infective focus, are described, the knee-joint being most often and most successfully treated.

Harold Jarvis.


Some Cases of Vertebral Osteo-arthritis Treated by Physiotherapy. (Quelques cas d'ostéo-arthrite de la colonne traités par la physiothérapie.) Delage, M. (1948). Laval med., 13, 597.

(Spondylitis)


Ninety-five cases of ankylosing spondylitis were seen by the author between 1940 and 1946—88 were in men and 7 in women; 72 patients were between 20 and 30 years old. In 1943–4 most of the patients were given 1,200 r as surface doses in 1 month to the whole spine; in 1944 this dose was changed to 2,000 r in 9 weeks, given at weekly intervals. In 1945,2,000 r were given in 2 weeks at daily treatments, but in the second half of 1946, 2,400 r were given in 6 weeks at twice-weekly treatments. Certain patients received several courses of treatment by one or more methods either to the whole spine or only to areas related to symptoms. The sacro-iliac joints and whole spine are irradiated at 200 kV, by four central posterior fields of 10 by 15 cm.; if the spine is straight, two fields may be replaced by one 10×28 cm.; in tall patients an additional field of 8×10 cm. may be necessary. With this high volume, dosage reactions are frequent.

Of 83 patients treated, 74 were relieved of symptoms at some time, usually about 3 months after starting treatment. Beneficial results followed all the doses used, but it is probable that the optimum dose had yet to be found. In a few cases symptoms recurred. Peripheral joints were also treated. Usually 3 to 6 months is a reasonable period between treatments, but if the general condition deteriorates the interval should be prolonged. Not enough data have been accumulated to assess the results and very few cases have been followed for more than 2 years, but already out of 60 patients who showed improvement 14 have subsequently relapsed.

The usual ancillary methods of treatment were also used.

T. G. Reah.


It is suggested that in 2 patients, both agricultural workers, spondylitis was the only manifestation of brucellosis. The first, a man aged 44, had lumbar pain for 6 months accompanied at first by fever. He was found to have a rigid lumbar spine, with tenderness over D 12
ABSTRACTS

and L 1. Radiological examination revealed changes in the intervertebral disk, partial collapse and slight decalcification of the body of the twelfth dorsal vertebra, and osteophytes localized to the 2 affected vertebrae. The brucellosis-agglutination reaction was positive (1 in 1,000). After treatment by x-ray therapy and paravertebral injections the patient was discharged much improved, with the agglutination reaction still positive (1 in 800). The second patient, a woman aged 50, had suffered a year previously from left sciatica for a month, followed a month later by right sciatica lasting for 3 weeks and then by severe lumbar pain. The lumbar spine was stiff, with tenderness especially over L 4. The brucellosis-agglutination reaction was positive (1 in 800). Radiological examination showed constriction of the disks between L 2 and L 3, and L 4 and L 5, with bony reaction and localized osteophyte formation. Vaccine therapy, x-ray therapy, and local infiltration produced much relief. It is suggested that the great osteophytic reaction distinguishes the condition from tuberculosis. The diagnosis is confirmed by the agglutination reaction. The prognosis is usually good. T. G. Reah.


A case of spondylitis and sacro-iliac arthritis due to brucellosis is reported in a man of 72 years; it shows that the prognosis is not always favourable. The patient had suffered 4 years previously from sacro-iliac pain and abscesses in both groins. The left was aspirated several times but the right resolved without aspiration. He then developed stiffness of the back, and the sacro-iliac pain persisted. A radiological examination revealed deformities of L1, L2, and L3, with osteophyte formation involving all the lumbar vertebrae, while the bodies of L3 and L4 had fused, with disappearance of the intervertebral disk. The lumbo-sacral disk was preserved but was calcified posteriorly. The left sacro-iliac joint was obliterated and the right almost completely so. The sequelae in this patient tend to prove that restoration to normal is possible only when the lesions are not too severe. [No mention is made of laboratory investigations of blood or pus.] T. G. Reah.

(Miscellaneous)


The incidence of bone and joint lesions in undulant fever were noted in 200 cases. Fleeting joint pains were recorded in about 80%, but persistent localized lesions were present in 25% and radiological changes in about 15%. The joints affected were: sacro-iliac 12, lumbar spine 10, cervical spine 2, hip 3, wrist 1. These lesions may occur at any stage of the disease but usually appear some months after onset. Rarely, undulant fever may manifest solely as arthritis. Clinically the bone and joint lesions closely resemble those of tuberculosis but they develop and resolve with much greater rapidity. In the spine, osteophytes may form rapidly after an attack, even within a period of weeks, and may be associated with rapid decalcification of the vertebral bodies while the process of calcification may extend to the ligaments. The lesions in 2 of the 3 patients whose hip-joints were affected, closely resembled tuberculosis but both patients rapidly recovered, while in the third joint capsule and ligaments became calcified with resulting complete ankylosis of the joint, although the articular space remained relatively well preserved. This condition may have been due partly to trophic changes, as the patient also had paraplegia attributed to brucellosis myelitis. T. G. Reah.


Sciatica


The authors confirm Dandy's belief that lumbar intervertebral disk lesions as well as being the only common cause of severe and intractable sciatica, are also a common cause of severe and intractable pain in the back. In explorations for disk lesions a "concealed" disk, which the authors prefer to call the "intermittent disk", may be overlooked.

Results of surgery in disk protrusion are compared with results of surgery in internal derangement of the knee-joint, as follows:

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage Results</th>
<th>Number of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Good</td>
<td>Fair</td>
</tr>
<tr>
<td>Intervertebral disk protrusion: Sciatica (authors' series)</td>
<td>72</td>
<td>23</td>
</tr>
<tr>
<td>Low-back pain (authors' series)</td>
<td>65</td>
<td>26</td>
</tr>
<tr>
<td>Internal derangement of knee: Cantlie (R.A.M.C.)</td>
<td>63</td>
<td>25</td>
</tr>
<tr>
<td>Henderson (civilian)</td>
<td>77</td>
<td>14</td>
</tr>
<tr>
<td>Malkin (Service)</td>
<td>64</td>
<td>26</td>
</tr>
<tr>
<td>Steindler (civilian)</td>
<td>77</td>
<td>15</td>
</tr>
<tr>
<td>Mackenzie and MacFarlane (R.C.A.M.C.)</td>
<td>71</td>
<td>22</td>
</tr>
</tbody>
</table>

Attention is drawn to the view that prolapse may only occur in those disks which are already degenerate; it is suggested that the persistence of symptoms after operation is probably largely accounted for by degenerative changes in intervertebral disk elsewhere in the spine, and that for this reason complete cure cannot always be
obtained by surgery. The need for careful selection of patients and for trial of conservative measures, such as rest in bed and immobilization, before resorting to operation is emphasized. Disk prolapses may be divided into four groups: "projections", "extensions", "intermittent prolapses", and "corrected disk". The authors advocate adequate exposure, followed by thorough curettage of the disk space. Laminectomy correctly performed does not weaken the spine, and curettage can be complete only if performed from both sides of the theca. Spinal fusion is seldom warranted.

Lambert Rogers.


Of 100 cases of sciatica which came to operation 48 were proved to be due to a herniated disk. The best results were obtained from an extradural approach through the smallest possible exposure. Exact preoperative location is desirable, but follow-up figures showed that the use of "lipiodol" leads to a disturbingly high percentage of failures. A cause for the sciatica was found in 5 of the cases without disk herniation, but in the others it was not established. These cases were treated by root section (50% success), by laminectomy, and a few by division of the insertion of the lumbar sacral muscle group. In the discussion that follows this paper a plea is made for the abandonment of myelography, and much lower mortality figures are quoted than the 4% in this series.

M. R. Ewing.

Non-Articular Rheumatism


The aetiology, pathogenesis, and treatment of this condition is described. Although Painter, who in 1905 first recognized calcified deposits in the shoulder region, thought that they occurred in the sub-deltoid bursa, it is now known that deposits actually occur in one of the three tendons forming the musculo-tendinous mass of the joint—most commonly in the supraspinatus tendon. The actual cause of the deposit is not yet understood, but it is most likely an ischaemic degeneration, the calcium being deposited in the form of a phosphate, carbonate, or oxalate as the result of the local alkalinity consequent on the depleted blood supply. Occupation seems to play a part in the production of the ischaemia, for lesions occur more commonly in those whose occupation involves continued use of the arm in abduction—typists, hairdressers, and machinists.

Clinical Features.—It is probable that gradual deposit,—may without symptoms—precedes by a long interval the onset of acute symptoms and that these may never occur. Symptoms bear no relation to the size or duration of a deposit. Two phases are described. (1) The acute phase: Acute pain may occur in an otherwise normal shoulder. When there is a history of trauma the latter is always mild. The pain is sudden and often exacerbating, with restriction of all shoulder movements. It may extend from the shoulder to the fingers and is often diagnosed as acute bicipital neuritis. This acute phase may precede by a period of the deposit cultures into the sub-deltoid bursa. (2) The chronic phase: This may be accompanied by an uncomfortable feeling around the shoulder, with pain at the site of insertion of the deltoid muscle and tenderness over the insertion of the supraspinatus tendon. This local discomfort may be associated with pain shooting into the neck and down into the hand, and cases have been reported of swelling of the hand with atrophic changes. Painful "hitches" in the movements of the shoulder usually occur, especially in the 70 to 100° range. At any stage the acute phase may be superimposed on the chronic.

Treatment.—Deposits may disappear without any treatment. Many methods have been described, ranging from excision or aspiration of a deposit to heat therapy. The author describes a technique which he has found rapidly successful in 15 cases. It consists in the local infiltration of the deposit with 10 to 15 ml. of 1% procaine solution with subsequent puncture of the deposits in numerous places in order to disperse them. Immediate full active movements are encouraged. Pain may develop in a few hours but this can be relieved by heat. The deposits may disappear in from 3 to 21 days. The rationale of this method of treatment is to produce hyperaemia by active movements. The calcium is absorbed by the resulting acidification. G. E. Thomas.


General Articles


A useful summary is given of the investigations leading up to the introduction of BAL, with a record of 5 cases of acute poisoning due to gold and 1 of acute poisoning due to arsenic which were treated successfully by intramuscular injections of BAL. The authors emphasize the value of BAL in controlling the chrysotherapy of rheumatoid arthritis. Transient symptoms of BAL toxicity are described. They included a sense of warmth in the mouth, salivation, flushing of the face, conjunctival injection, lacrimation, and pains in the arms and legs.

G. R. Cameron.


In rats intramuscular injection of BAL (1 to 3 injections of 12-5 mg.) is effective in reducing the toxicity (measured by survival time) of single intramuscular injections of gold (75 to 100 mg. per kilo) as gold sodium thiosulphate, gold thioglucose, or sodium succimidoaurate. Some

As amidopyrine is often used in rheumatism, the author investigated its action on blood prothrombin levels. No direct antagonism of vitamin K by amidopyrine was observed in vitro. Experiments on rabbits showed that amidopyrine, in doses of 0.03 g. per kilo in 5% solution, causes only a slight fall in prothrombin levels. Four cases of rheumatism treated with amidopyrine are described. In the first, prothrombin levels fell to 94% of normal within 24 hours after injection of 1 mg. per kilo intravenously, but recovered considerably 2 days after treatment ceased. The treatment was started again with addition of a synthetic naphthoquinone derivative, and the prothrombin level increased sharply. A second patient came into hospital with a low prothrombin level, which increased almost to normal after 11 days' treatment with salicylates and amidopyrine. Later, the salicylates were omitted and the amidopyrine was increased and the prothrombin level fell. In a third case, also with an originally low prothrombin level, treatment with amidopyrine, by improving the rheumatism, raised that level; continuation of treatment affected the liver and the level fell again, but rose to normal 2 days after stopping the drug. In the fourth case, little effect on prothrombin levels was produced by full doses of amidopyrine. The author concludes that amidopyrine affects the prothrombin level only by acting on the liver, and that this action passes off quickly on stopping the drug, or it may be readily prevented by small amounts of vitamin K.

Reginald St. A. Heathcote.


This article deals with the determination of the antistreptolysin titre in acute iritis. The principle of the titration is to determine to what degree the serum containing antistreptolysin is able to check haemolysis. By comparative testing with a standard serum it is possible to determine the amount of antistreptolysin units in 1 ml. Antistreptolysin titres of up to 200 may be considered normal. The results in a series of 52 cases of acute iritis are tabulated, and it is concluded: (1) that low titres exclude an infection with haemolytic streptococci; (2) that infection with streptococci plays a minor part in acute iritis. This result was unexpected in view of the position which iriditis is considered to occupy in rheumatic diseases.

L. Boxer.

BOOK REVIEWS


The definition of the word "textbook" (if one excludes "a reference book of scriptural texts" and "an opera or other libretto" as inappropriate to this particular occasion) is "a book used as a standard work in any branch or course of study". The assurance in the preface of presenting a new book under the title of "Textbook of the Rheumatic Diseases" is, no doubt, justified by the galaxy of talent which Dr. W. S. C. Copeman has brought together under his editorship. The standard of the individual contributions is high, and skilful editing has reduced constant repetition (a most irritating feature of many "edited" productions) to a minimum. When so many "authorities" combine to write on a subject about which comparatively little is known, the end result might be expected to include many brilliant but conflicting theories. This has been avoided for the most part and a genuine attempt has been made to present the known facts which form a most impressive collection when arranged and presented as they are in these pages. Nevertheless, the gaps in our knowledge are so great that theorizing cannot be excluded entirely and, indeed, a certain amount is both stimulating and necessary. It is particularly rife, however, in relation to treatment, and the attempts to justify any line of therapy by theoretical argument tends, on occasion, to cloud rather than clarify the subject.

A valuable orthopaedic contribution serves to emphasize the difference between the theories of much of our conservative therapy and the reasoned practical application of surgical measures of treatment.

The factual presentation of the subject in a book of this standard would be strengthened by the inclusion of a special section dealing with the "rheumatic anatomy" of joints and the anatomy of movement, for a knowledge of local anatomy is essential to an understanding of deformity and its prevention.

The book deals adequately with the psychological factors which present themselves from time to time. Most of the emphasis is placed on the psychology of the patient and very little on that of the doctor. The handling of the chronic sick demands a special approach and a special understanding. It requires not only a scientific appreciation of all the varying aspects of the malady but a personal and sympathetic interest in the individual afflicted with the disease. Possibly a list of "Do's" and "Don'ts" for medical men dealing with the problems of this disease group would have been a valuable addition to the book.

It is impossible to do full justice to an important book of this type within the space allotted for this review. There is no doubt that it is a valuable contribution to the literature of the rheumatic diseases and will prove itself essential to all who are concerned in the teaching and management of this increasingly important branch of medicine.

The production, printing, and general presentation lend a feeling to be desired. The illustrations, whether of radiographs, coloured slides, or clinical material, are first class and a great credit to all concerned—not least to the famous Edinburgh Publishing House of E. and S. Livingstone.

J. W. T. Patterson.