ABSTRACTS

This section of the JOURNAL is published in collaboration with the two abstracting Journals, ABSTRACTS OF WORLD MEDICINE and OPHTHALMIC LITERATURE, published by the British Medical Association. The abstracts are divided into the following sections:

- Syphilis (Clinical, Therapy, Serology, Pathology, Experimental).
- Gonorrhea.
- Non-Gonococcal Urethritis and Allied Conditions.
- Antibiotics and Chemotherapy.
- Public Health and Social Aspects.
- Miscellaneous.

After each subsection of abstracts follows a list of articles that have been noted but not abstracted.

SYPHILIS (Clinical)

Acquired Syphilis in a Patient with Congenital Syphilis.  


The patient was recognized as a congenital syphilitic at the age of 5 years when she was treated with forty arsenical and sixty bismuth injections; she became sero-negative 13 months later and was proved to have remained so for nearly 25 years. At the age of 32 she presented with hoarseness and intermittent sore throats of 4 months' duration; there was redness with swelling of the vocal cords and discrete painless cervical and inguinal lymphadenopathy, but findings at repeated genital and general physical examinations were otherwise negative. Serological tests for syphilis were strongly positive, and following treatment with penicillin the reaction later became sero-negative; there was no Herxheimer reaction. Her husband was found to have had primary syphilis one year before the patient presented. The mildness of the patient's early acquired infection was attributed to partial immunity remaining from her congenital lues.

J. A. H. Hancock

Dissecting Aneurysms of the Aorta: Roentgen Manifestations Including a Comparison with Other Types of Aneurysms.  


Now that dissecting aneurysm of the aorta can be treated successfully by surgery it is particularly important for an accurate diagnosis to be made at an early stage. This paper describes the radiographic appearances observed in a series of 46 cases of dissecting aneurysm at the Henry Ford Hospital, Detroit, and includes a description of some of the differentiating features in another series of 34 cases of aneurysm caused by arteriosclerosis, syphilis, or trauma.

In seven patients the dissecting aneurysms presented as sudden emergencies so that only a single bedside radiograph could be made; in other cases serial radiographs were available and some of these showed changes in the aortic outline which occurred more rapidly than would be expected in non-dissecting aortic disease. Other evidence of dissecting aneurysm was observed both on plain films and tomograms, and in eight patients the dissection produced a sufficient degree of inward displacement of the calcified intima to allow a presumptive diagnosis to be made. The apparent absence of calcium salts in the wall of a supposed dissecting aneurysm is an important radiological finding; some degree of calcification was demonstrable in the walls of all 34 non-dissecting aneurysms examined. A localized bulge on the distal part of the aortic arch was seen in the lateral radiographs of 22 patients with dissecting aneurysm, and another common radiological sign, seen in forty cases was disparity in the calibres of the ascending and descending portions of the thoracic aorta. Aortograms were performed on 27 of the patients with dissecting aneurysm. An appearance sufficiently characteristic to be diagnostic was separation of the contrast medium into two streams by part of the aortic wall. Marked and sudden changes in calibre were seen in some cases, while stasis of the contrast medium, reversal of flow, and non-filling of major aortic branches occurred in others.  

Michael C. Winter

Thrombocytopenia and Congenital Syphilis in South African Bantu Infants.  


Syphilis as a cause of thrombocytopenia has received little attention in the literature and the association is regarded as rare. The finding of two cases of congenital syphilis associated with bleeding, thrombocytopenia, and anaemia at the Baragwanath Hospital, Johannesburg, led the authors to investigate a series of Bantu infants with congenital syphilis in order to assess the frequency of thrombocytopenia and to study the importance of syphilis as a cause of bleeding in newborn and young infants. In a period of 18 months congenital syphilis was diagnosed in 46 infants. Of these, thirteen infants under three months of age were found to have thrombocytopenia and these infants, together with the two first seen, form the basis of the present study. During the same period nine other infants of similar age but without syphilis were found to have thrombocytopenia.

Bleeding and gross anaemia were present in ten of the fifteen syphilitic infants and purpura was present in four
of these. The infants who did not show overt haemorrhage had petechiae, except for one in whom thrombocytopenia was discovered on routine blood examination for anaemia. There was enlargement of the liver or spleen, or both, in all cases. Jaundice occurred in six cases and typical syphilitic skin rashes in eleven. The VDRL test for syphilis was positive in all the mothers tested (13) and in all the infants tested (9). Radiographs showed periostitis and metaphyseal lesions in the long bones in five of the seven children examined. In all fifteen patients the haemoglobin level was below the average normal level for the appropriate age group, ranging from 3·4 to 10·3 g. per 100 ml. in those over the age of 1 week and from 12·1 to 16·5 g. per 100 ml. in those investigated on the first day of life. Three children died, and two of these showed visceral bleeding at necropsy. One infant developed hydrocephalus secondary to intracraniial bleeding, but the remaining eleven infants recovered completely, with full haematological remission.

The authors point out that although they are working in an area where florid syphilis in infants is not uncommon, before the present investigation congenital syphilis was not regarded as a common cause of thrombocytopenic bleeding and anaemia in African infants. Increased awareness of the condition has led them to revise their estimate of its frequency and importance. The mechanism by which syphilis causes thrombocytopenia is obscure, but the authors postulate that the infection may either prevent the formation of megakaryocytes or may interfere with marrow metabolism and thus prevent the normal development of the platelet precursors. The consequences may be severe, but the response to treatment is excellent if diagnosis is early. 

Robert Lees

Macular Choroiditis in a Syphilitic Patient presenting Recurrent Malignant and Cutaneous Melanoma.


The problem of a metastatic melanoma of the macula is discussed.

J. Rougier


Report on an ulcerated lid syphiloma in a 78-year-old man.

R. Vozza


SYPHILIS (Therapy)


The authors have reviewed the search for adequate penicillin treatment in patients with active neurosyphilis. Only studies giving data obtained by spinal fluid examination are discussed. Most studies in which patients have been observed for an adequate length of time following treatment report a failure rate of approximately 10 per cent. within 2 years, regardless of the form or amount of penicillin given.

A study using benzathine penicillin G 4,800,000 units in patients with active neurosyphilis is reported; 26 patients were treated, of whom 23 were followed one year or more and seventeen of these for 2 years or longer. Two patients failed to respond to this dosage. The results are comparable to those obtained with other schedules and forms of penicillin. Authors' summary.


Because of its good effect against the pains of trigeminal neuralgia, "Tegretol" (carbamazepine) was tried in the management of two cases of tabetic lightning pains. In both cases pains had occurred consistently several times a day for 20 to 30 years. "Tegretol" 200 mg. given two to four times daily produced rapid and complete cessation of pain. In both cases pains swiftly recurred on withdrawal of the drug and again ceased on its reintroduction. J. A. H. Hancock


In testing the antisyphilitic activity of cephaloridine at the University of Padua Dermatological Clinic, Italy, the authors have found by tube-dilution experiments with the Reiter strain of Treponema pallidum that the minimum inhibitory concentration (MIC) of cephaloridine ranged from 0·5 to 1·0 μg. per ml., whereas with benzylpenicillin, which showed a stronger degree of activity, the MIC ranged from 0·003 to 0·006 μg. per ml. The immobilization test with T. pallidum (Nichols strain) confirmed that cephaloridine showed some antibacterial action, though much less than that of benzylpenicillin. The ED₅₀ of
ABSTRACTS

Treatment of 42 Fluorescent Treponemal Antibody Tests


SYPHILIS (Serology)


The results from the comparative study were carried out on 447 "problem" sera sent to the institute for performance of the treponemal immobilization (TPI) test. The sera were screened with a battery of tests comprising the FTA-50 and VDRL tests and complement-fixation (CF) reactions with cardiacin antigen and protein antigens obtained from Treponema pallidum and the Reiter treponeme. The results showed that the TPI test was positive but the FTA-50 negative; twelve of these patients had clinical evidence or a history of syphilis and information was lacking about the remaining fifteen. A further 29 sera gave positive results with the FTA-50 test but the TPI test was negative. Evidence suggesting syphilis was present in nineteen of these cases; in the remaining ten the positive FTA-50 reaction was thought to be non-specific. The reproducibility of the test was assessed as "fair" on the results of second tests on 134 sera; identical readings were obtained in 67 per cent. and agreement within one degree on the reading scale in 83 per cent. Reproducibility was worst with sera which gave positive results in all except the FTA test.


From the Central Skin and Venereal Disease Research Institute, Moscow, the author describes a modified procedure for the Treponema pallidum immobilization (TPI) test employing readily available materials and apparatus, thus enabling it to be carried out in any serological laboratory.

The simplified survival medium is made from a mixture of 0.2 per cent. gelatin in 0.83 per cent. saline (to which 0.01 per cent. streptomycin is added after sterilization by autoclaving) and a 5 per cent. solution of human albumin in distilled water which is sterilized by filtration. These reagents are stored in the refrigerator; should they become acid, the pH is restored to 7.2 by the addition of sterile 1 per cent. sodium bicarbonate solution. Treponemes are extracted from infected rabbit testes in a 1:2 dilution of sterile rabbit serum (presumably inactivated) in 0.83 per cent. saline. After centrifugation the supernatant, which should be diluted to contain ten to fifteen treponemes per microscope field, is added to the other reagents in the proportions 1:6 parts treponeme suspension, 1:2 parts gelatin, and 2:8 parts albumin. To one portion of this mixture 30 per cent. fresh guinea-pig serum is added and to another, for the control tests, 30 per cent. guinea-pig serum which has been inactivated.

The tests are set up in leucocyte-counting pipettes. The serum to be tested is drawn up to the "11" mark, followed by the complement-treponeme-suspension mixture to the "11" mark. Each serum is tested with both active and inactivated complement. The pipettes are sealed with rubber bands and the motility of the treponemes determined after incubation for 18 to 20 hours at 35°C. Tests on 159 sera by this simplified method in parallel with the standard TPI technique gave comparable results; replicate tests on fourteen sera, using five pipettes for each serum, showed fair reproducibility. The advantages claimed through this technique are that the method can be carried out more easily and quickly and that the results are more reproducible.
for the method are that a simple medium is used and complicated apparatus for the maintenance of anaerobiosis is not needed.

(No details are given about the survival of treponemes under these conditions compared with those of the standard TPI test. The Nichols treponeme is virulent for man, and although the wearing of gloves is recommended the method seems a rather risky one to carry out.)

A. E. Wilkinson


**SYPHILIS (Pathology)**


**SYPHILIS (Experimental)**


Experimental inoculation of owl monkeys with *Treponema pallidum* gave ocular or neurological lesions in some cases while the serological tests (VDRL reagin, T.P.I., FTA—ABS) were negative. J. H. Kelsey

**GONORRHOEA**

Gonococcal Arthritis with Pericarditis. VIEZTE, W. M. (1966). Arch. intern. Med., 117, 270. During the past year, five cases of gonococcal arthritis were seen at the Yale-New Haven Hospital; two are reported because they demonstrated electrocardiographic changes consistent with pericarditis.

(1) A 22-year-old Negro woman developed suppurative arthritis of the left knee 3½ weeks after exposure to gonorrhoea; no other joints were affected, there were no lesions of the eyes, oral mucosa or skin, and there were no urogenital symptoms though the cervix was tender. The temperature was 101·6°F., the white cell count in the blood was 14,200 per c.mm. with 73 per cent. neutrophils, and blood cultures were negative, but gonococci were grown from the endocervix and from the purulent aspirate from the left knee. On the eighth day of the arthritis an electrocardiogram showed inverted T-waves and coved ST segments in leads II, III, AVF and V₄₋₅; subsequent tracings showed reversal to normal by 11 days later. During this period there were no cardiovascular symptoms or abnormal signs in the heart. There was complete recovery from the arthritis after treatment with parenteral and intra-articular penicillin, immobilization and later physiotherapy.

(2) A 28-year-old Negro male presented with pain and swelling of the right wrist. His temperature was 100°F.; there was suppurative arthritis, gonococci being grown from the joint fluid, and there was a soft apical systolic murmur, but in all other systems clinical findings were within normal limits. The white cell count in the blood was 24,900 per c.mm. An electrocardiogram showed ST-T segment elevation in leads I, II AVF and V₄₋₅, but there was no clinical evidence of cardiac or pericardial disease. The arthritis recovered fully after 10 days' treatment with penicillin.

[Unusual features in each case were the comparatively slight signs of systemic illness and the absence of transient polyarticular arthritis preceding suppuration in the solitary affected joint. In case 2 there was denial of sexual exposure and signs of urethritis were absent; unfortunately there is no record of findings at proctoscopy.]

J. A. H. Hancock

Detection of Gonococcal Antibody. REISING, G., and KELLOGG, D. S. (1965). Proc. Soc. exp. Biol. (N.Y.), 120, 660. A phenol extract antigen was obtained from *N. gonorrhoea* type I cells and used to detect antibodies by a micro-precipitin technique (full details of methods are given). Negative results were obtained with all control sera taken from 22 laboratory workers, forty teenage boys, and eleven meningococcal carriers. The results were positive in fifteen but negative in five of twenty cases of gonococcal urethritis in men; in a group of ten men who, in addition to having active gonorrhoea, gave histories of repeated previous infections, the test gave negative results in three. 197 female contacts of males with gonorrhoea
were tested, and 136 were shown to have gonorrhoea by culture or fluorescent antibody procedures; the results of the subject test were positive in 81 (60 per cent.) and negative in 55 (40 per cent.); 61 women had negative culture and fluorescent antibody findings, but sera from seventeen of them gave positive results to the test.

The authors conclude that their test, while providing a relatively specific but rather insensitive system for detecting the gonococcal antibody, does not provide information concerning the presence or absence of an infection in the human.

J. A. H. Hancock


A medium based on Peizer’s gonococcus medium with added Polymyxin B and rifistocetin was compared with ordinary Peizer’s medium in the cultivation of 500 specimens of cervical exudate submitted by a gynaecological-VD clinic; 85 specimens gave a growth of N. gonorrhoeae on Peizer medium compared with 79 using the new medium. This difference was not considered significant. Detail of the method of preparation of the new medium is to be described in a later publication.

J. A. H. Hancock


Eighty-four male patients with culturally proved gonococcal infection of the anterior part of the urethra were treated with a single intramuscular injection of 2g. cephaloridine. Follow-up studies of a total of 43 patients were completed, and five of these had positive cultures. On epidemiological and laboratory evidence, three patients were considered to have re-infections and not to be therapy failures.

Data are presented comparing the in vitro sensitivities of 67 strains of Neisseria gonorrhoeae isolated in the study to penicillin G, cephalothin, and cephaloridine. Despite the micro-organism’s greater in vitro sensitivity to cephalothin, cephaloridine was found to be significantly superior clinically in males with gonorrhoea.

The drug was well tolerated by all patients, and no toxic or allergic manifestations of any kind were noted.

Author’s summary


The increasing frequency of recurrence of gonorrhoea after treatment, often ascribed to reduced sensitivity of the gonococcus to penicillin, led the author to analyse a series of cases seen at Sahlgrenska Sjukhuset, Göteborg, Sweden, during the 2 years 1960–61, in which gonococci were found at routine investigation following treatment with penicillin. Although in all these cases infection is presumed to have recurred, it is admitted that in some of them there may have been reinfection.

The diagnostic procedures and the weekly follow-up tests after treatment of both males and females are outlined. The series of 132 patients (60 males and 72 females) with “recurrent” gonorrhoea is compared with the 897 patients treated during the same period who gave negative tests for gonococci after treatment and also with 132 patients selected from the 897 and matched with the patients with “recurrence” in respect of sex, age, marital status, and time of treatment.

No estimate of the incidence of “recurrence” could be made from the present series as many of the men had been treated elsewhere while others, particularly seamen, were followed up elsewhere after treatment. “Recurrence” was, however, more common in women than in men, the difference being significant at the 5 per cent. level. In male patients the age distribution and marital status were the same for those with and those without “recurrence”, but the women with “recurrence” were predominantly unmarried and in the age group 16 to 25 years; none was over 30. The men with “recurrence” had more frequently been infected abroad, sometimes on two or more occasions, than the matched controls. In the men with “recurrence” gonococci were usually demonstrated at the first post-treatment visit, but in nearly half the women they were not demonstrated until later. In the women gonorrhoeal proctitis was a more common finding in the “recurrence” group (20 out of 72) than in the controls (10 out of 72). The dosage of penicillin (procaine penicillin—minimum 600,000 units in men and 1·2 million units in women) given in the initial treatment was comparable in the two matched groups.

Reduced sensitivity to penicillin was found in the gonococci from 10 of 46 men and 9 of 52 women with “recurrence”. Resistance to streptomycin was common, but in all cases the gonococci were sensitive to tetracycline. In 69 recurrent cases tests for gonococci became negative after further treatment on one or several occasions with penicillin, the dosage of which in nine cases was less than that originally given. However, many patients showed further “recurrence” after treatment with both penicillin and other antimicrobial drugs.

[The original paper should be consulted for the detailed findings and the many statistical tables.] R. S. Morton


The author, writing from St. Mary’s Hospital, London, reviews the results of re-treatment of 130 male patients with uncomplicated gonorrhoea who had failed to respond to aqueous procaine penicillin or to ampicillin.

A first group of 47 men were originally treated with aqueous procaine penicillin. The usual dose was 1·2 mega units, but a few patients had received more than one injection and one had received only 0·9 mega unit. In four cases another antibiotic had also been prescribed. The interval between original treatment and re-treatment with ampicillin varied from 1 to more than 28 days. The dosage of ampicillin was 1 g. orally, with a further 1 g. 5 or 6 hours later. Of the 34 men followed up after this
regimen four (11.8 per cent.) were considered failures, three of them within 2 weeks.

In a second group of fifty patients, failure had followed oral or parenteral ampicillin in doses varying from 0.25 to 4 g.

The interval between this original treatment and re-treatment varied from 1 to 28 days as in the first group. Re-treatment consisted in a single injection of 1:2 mega units of aqueous procaine penicillin in 47 cases, two such injections in one, and a single injection of 0.9 mega unit in two. Of the 43 patients followed up, nine (20.3 per cent.) were classed as failures within 2 weeks.

A third group of 33 patients, who had apparently failed to respond to 1.2 mega units of aqueous procaine penicillin, were re-treated with the same dose of the same preparation. In this group the interval between treatment and re-treatment also varied from 1 to 28 days. Of 27 followed up, eight (29.6 per cent.) were classed as failures within 2 weeks.

Six methods of assessment were applied, and the difficulties experienced in comparing the results are discussed. The author points out, however, that the outcome of re-treatment with aqueous procaine penicillin was much the same whether it or ampicillin had been used originally.

Significantly better results were obtained when ampicillin was used for re-treatment.  R. S. Morton


NON-GONOCOCCAL URETHRITIS AND ALLIED CONDITIONS


A group of 545 men, including 313 patients with non-gonococcal urethritis (NGU), and also 304 women, were investigated for the presence of Mycoplasma hominis and the T-strain mycoplasma of Shepard in urethral or cervical specimens and urine. At first a standard mycoplasma medium was used on which only M. hominis could be isolated; later, tetracycline-agar was introduced, and both types of organism were grown. With the help of growth-inhibition tests with antisera the M. hominis isolated were found to belong to type 1. Specimens could be kept in Stuart's transport medium at room temperature up to three days before being subcultured without significantly reducing the chances of isolating genital mycoplasma.

Urine proved a suitable source for the isolation of M. hominis and T-strains; this made it feasible to extend the range of controls and to include children and young girls in the study.

In men, M. hominis was isolated in 9 to 17 per cent. and there was no pronounced difference in its frequency in patients with non-gonococcal urethritis and in healthy controls. These results do not suggest that M. hominis is aetiologically important in NGU.

T-strains were found in 70.2 per cent. of patients with NGU and in 12.6 per cent. of healthy adults. Clinically, NGU appeared to be similar, whether associated with T-strains or not, except that its therapeutic response to tetracycline was significantly better when T-strains were initially present. The organisms disappeared after satisfactory response to treatment except in one patient; they reappeared in most instances with clinical recurrence. Cyclicsine, like penicillin, had no significant effect on NGU or on the T-strains tested.

In gonorrhea without additional NGU, the incidence of T-strains was somewhat higher than in healthy men; in gonorrhea followed by NGU the incidence of T-strains was as high as in NGU alone, suggesting that these organisms are more closely associated with NGU than with urethral inflammation as such.

In women, sexual contacts of patients with NGU, who themselves had definite signs and symptoms of cervicitis or vaginitis, were found to give the highest incidence of T-strains of all categories examined. Young girls between the ages of 13 and 18 years and presumed to be virgins, yielded no T-strains in the urine.

The common presence of T-strains in NGU and their close association with clinical events suggest that these organisms play an important part in its aetiology.

Authors' summary


The recent recognition that M. arthritidis is serologically identical to M. hominis type 2 has cast doubt both on the nature of the latter strain and on the frequency of its occurrence in the human genital tract; additionally are lacking on the frequency of occurrence of M. fermentans. The authors report an investigation into these two matters which they carried out on men and women from Vancouver.

Vaginal swabs were taken from women inmates of the city jail (no clinical details given) and urethral swabs and scrapings were obtained from males; an unstated proportion of whom were suffering from NGU. These genital secretions were plated on to PPLO Agar supplemented with 10 per cent. horse serum, 1 per cent. Oxoid yeast extract, and 1,000 units of penicillin per ml.; colonies were then subcultured in a similar broth. The broth cultures were then spread on to Agar plates and the isolates were typed by observing inhibition of growth around disks impregnated with strain-specific rabbit antisera. Of the 100 strains isolated from women, 94 were inhibited by M. hominis type 1 antisera; the remaining six were inhibited by none of the antisera and since all fermented glucose with the production of acid they were considered to be M. fermentans-like strains. All seventeen strains isolated from men were inhibited by M. hominis type 1 antisera. There was no evidence of the presence of M. hominis type 2 in the genital secretions from patients of either sex.  J. A. H. Hancock

Detailed descriptions are given of two cases in males of the full syndrome of Reiter's disease accompanied by psoriasis. There is a brief review of the pertinent literature of both conditions and of some other cases of the two conditions occurring in conjunction. The subject is also discussed in an editorial on page 26 of the same issue.

J. A. H. Hancock


A trial of one of the newer tetracyclines, lymecycline (“tetralysal”), in the treatment of 102 cases of uncomplicated non-gonococcal urethritis is reported from St. Mary's Hospital, London. The dosage used was one 204-mg capsule (containing the equivalent of 150 mg. tetracycline base) four times a day for 6 days. Trichomonads were found in one case in which treatment failed. Of the remaining 101 patients, only 65 could be followed up adequately, and eleven of these were re-treated for non-gonococcal urethritis (relapse or reinfection) during the 3 months following treatment. The results of treatment are compared with those obtained by the author with other antibiotics and chemotherapeutic substances and he concludes that lymecycline appears to be among the more effective preparations. He comments that if the information concerning response to various remedies were to be studied with the aid of a computer many of the properties of the responsible organism might be determined.

It is useful to have a table comparing the results of different remedies in non-gonococcal urethritis. Nevertheless, the numbers followed up in most of the author’s groups are such that results can be taken as a guide only within fairly broad limits. This point must be taken into account, and also the fact that there may be multiple agents concerned in the pathogenesis of “non-specific” urethritis and that different strains of the same agent may have different sensitivities. When the results of treatment in a large number of cases of non-gonococcal urethritis of known cause can be studied the response to therapy in this and in other groups may well prove revealing.

Eric Dunlop


The most important causes of uveitis are spondylitis, Reiter’s syndrome, sarcoidosis, Behçet’s syndrome, tuberculosis, toxoplasmosis, and syphilis.


**ABSTRACTS**

**ANTIBIOTICS AND CHEMOTHERAPY**


**PUBLIC HEALTH AND SOCIAL ASPECTS**


MISCELLANEOUS


Granuloma inguinale is a rare disease in Canada. In the case presented, a white male school teacher aged 26 contracted the disease without sexual contact while on a visit to British Columbia in 1957. During the next 5 years he consulted eight different doctors and had nine incisions and drainages, with a continuous recurrence of the disease.

When first seen by the authors he had keloid-like scars about 2 in. long and ½ in. wide in both inguinal and upper scrotal areas. There was a discharging sinus in one of the scars and later an abscess. The condition did not respond to local treatment and the administration of penicillin.

Because of the chronicity of the process and the local condition in the groins and scrotum, a wide excision was carried out on both sides. On pathological examination, Donovan bodies were found and the diagnosis of granuloma inguinale was confirmed.

With the addition of tetracycline, 2 g. daily, to the patient’s therapy, rapid healing resulted. When he was last seen some 2 years after treatment, there had been no recurrence. The case is presented as another instance of how diseases formerly considered foreign to Canada may be introduced in this era of extensive and rapid travel.

Authors’ summary


Behçet’s syndrome is a virus disease and its clinical manifestations are allergic lesions just like the serum-sickness type of reaction. The virus may be found in the patient’s blood circulation for only a short period during acute attacks. It cannot be easily isolated without repeated investigations.

C. Örge


Syphilis: was it Endemic in pre-Columbian America or was it brought here from Europe? Weisman, E. I. (1966). Bull. N. Y. Acad. Med., 42, 284.