ABSTRACTS

(This section of the journal is published in collaboration with the two abstracting journals, Abstracts of World Medicine, and Abstracts of World Surgery, Obstetrics, and Gynaecology, published by the British Medical Association. The abstracts are divided into the following sections: syphilis (general, therapeutic, pathology); gonorrhoea (general, therapeutic, pathology); other venereal disease conditions; public health. After each subsection of abstracts follows a list of articles that have been noted but not abstracted. All subsections will not necessarily be represented in each issue.)

SYphilis (General)


The authors studied the records of 219 patients with extragenital chancres treated between 1914 and 1947. Patients between 21 and 40 years of age made up 61% of the series. There was a significant preponderance of extragenital chancres in females and in white persons. The information available concerning the source or mode of infection was seldom complete or reliable, but in most cases immediate sexual contact with patients with infectious lesions of syphilis seemed the most likely explanation. The lip was the commonest site even in negroes. The extragenital chancre was single in 91.6% of patients, and satellite buboes were noted in 73.1%. Manifestations of secondary syphilis were present at the time of diagnosis in 48%, illustrating once again the delay in diagnosis that commonly occurs when primary syphilis presents in an extragenital site. The authors emphasize the need for suspecting syphilis more often when there is an indolent, indurated lesion anywhere on the body, especially if it is accompanied by unilateral adenopathy.

This study of extragenital chancres is informative and valuable. It should be read in full by all those concerned in the diagnosis of early syphilis. S. M. Laird


The findings in the cerebrospinal fluid of 1,028 patients (848 negro) whose blood gave repeated positive serological reactions for syphilis during a mass survey in Trinidad are reviewed: 823 fluids (80%) were normal, in 52 (5.1%) the cell count was increased to 6 to 150 cells per c.mm. without other abnormality, and in 153 there was a positive reaction, with minimal changes in 126 and marked changes in 27.

The clinical records of 52% of these patients were studied and 110 were believed to have suffered from yaws. This belief was based on the finding of active lesions in 3 and scars of old yaws or a history of the disease in the presence of a low serological titre and a negative spinal fluid in the others. Thus 417 patients were considered to be syphilitic. Of these 82 (19.7%) were found to be suffering from neurosyphilis; 48 had asymptomatic neurosyphilis, 13 tabes dorsalis, 1 taboparesis, 5 paraparesis, 5 meningo-vascular syphilis, 2 vascular syphilis, and 8 optic atrophy without other clinical evidence of syphilis. Nine other patients with clinical neurosyphilis also had optic atrophy. It is thus concluded that neurosyphilis is no great rarity amongst negroes in the tropics. R. R. Wilcox


This article deals with acquired syphilis only. Whereas during the years 1937–9 only 3 children suffering from venereal infections had come under the care of the venereological department of the St. Stephen Hospital, Budapest, the number of infections amongst children observed there in the years 1945–7 was 65. Of these, 35 had been infected with syphilis and 30 with gonorrhoea. Of the syphilitic manifestations 3 were primary and 23 secondary, while 4 were cases of latent syphilis. The primary chancres were in the genital region in 2 cases and in the sacral region in the third. The secondary manifestations were mainly moist hypertrophic papules. Most of the children had not been treated previously, enquires revealed that they lived under very bad and unhygienic circumstances, and the infections were usually traced back to members of their families; a mother is mentioned who infected 3 of her children. The infections were transmitted by direct contact (kissing, sleeping together) or by using the same tables or washing utensils.

It is suggested that the use of arsenical and bismuth should be reduced because of the harmful effects on growing children, and that more use should be made of the combination of these drugs with penicillin.

Vilna Samet


The records of 712 patients admitted to Kalamazoo State Hospital during a 14-year period were analysed. The peak year was 1928 with 72 admissions; the admission rate fell to a low level of 33 in 1935 but afterwards rose slightly; 87.5% had general paraparesis and 12.5% cerebrospinal syphilis. There were 345 males to one female, the average age of all patients being 44.3 and that of the females 41.1 years. Negroes formed only 5% of the total, and 80.8% came from urban areas.
Three types of treatment were given: (a) malaria inoculation; (b) chemotherapy with 40 injections of arsenic and 60 to 80 of bismuth; (c) combined malaria inoculation and chemotherapy. Of all patients 11% had no treatment, 32% complete and 45% incomplete malaria therapy, 20% complete and 14% incomplete chemotherapy, and 29% complete and 17% incomplete combined treatment; 43-4% died, 21-6% remained in hospital, and 35% were discharged on parole.

The death rate was twice as high in those of 40 years and over than in those below this age, and only 29% of those over 40 were discharged on parole compared with 49% of those under 40. Of those under forty 70% and of those over forty 61-6%, receiving malaria treatment were discharged on parole, while for chemotherapy the figures were 46-4% and 22-4% respectively. Seventy (12-8%) of those over 40 given no treatment were also discharged on parole as were 2 out of 8 under this age. In 33.3% of those of both groups treated with malaria, in 21.0% of those receiving chemotherapy, and in 40% of those given combined treatment the previous level of mental health was recovered. R. R. Wilcox


In Brussels under German occupation there was official control of prostitution with regular compulsory examination. Within a few months 1,200 girls were registered and were examined twice weekly, serological tests being performed once every 2 months. In 6 years, 1940 to 1946, 565 patients with syphilis were observed at the principal venereal diseases centre, 62 had primary and 84 had secondary syphilis whilst 419 were free from all physical signs and the condition was recognized only by routine serum testing. Of the latter, 249 had latent syphilis discovered at previous examination or inferred from the history, but the remaining 170 cases were apparently of recent origin. The blood tests consisted of simultaneous Wassermann, Kahn, and Meinicke tests, which were repeated several times when necessary.

"Syphilis d'embrée" or "syphilis découpée" is discussed and it is computed from this series that in syphilis the primary stage is apparently missing in over 50% of female cases. It cannot be said in how many the secondary stage would also have been absent. R. R. Wilcox


The method of statistical analysis adopted by the Venereal Diseases Division of the United States Public Health Service is designed to make adjustments for the progressive loss of patients and the addition of new patients to the series. [This paper deserves the careful study of all venereologists called upon to handle large groups of figures.] R. R. Wilcox


A preliminary report is given of the testing of vibratory appreciation by means of the Roth neurometer on 200 unselected patients. A significant depression was found in lymphogranuloma venereum, and all stages of syphilis, even when the primary lesion was less than one week old. A sudden rise in the level of pallaesthesia occurred in three cases of primary syphilis within the period in which the Herxheimer reaction could normally be expected to occur.

As a progress test in syphilis determination of appreciation of vibration may prove to have great value in deciding whether treatment has been adequate.

W. H. McMenemy

SYPHILIS (Pathology)


The problem of culture of Treponema pallidum has long defied solution, but the organism may be maintained by passage through rabbits by means of intratesticular inoculation; it appeared therefore that testicular tissue might maintain the organism in vitro. Accordingly, the author adopted the following technique; four glass coverslips were fixed to the base of a Carrel flask with clots of chick plasma and then explants of mixed testicular tissue were embedded on their upper surface; fluid medium, consisting of Tyrode's solution 70 parts, chick embryo extract 5 parts, rabbit serum 25 parts, and a trace of benzyl penicillin added; the pH had been adjusted to 7-4 by bubbling through it a mixture of oxygen and 5% carbon dioxide; the fluid was renewed on the fifth and tenth days. Explants from newly born rabbits showed growth on the second day and by the fifth day fibroblasts had formed a complete ring; epithelial cells grew within this and macrophages were numerous; when testicular tissue from young adult rabbits was employed, growth was less frequent and less vigorous. When testicular tissue from rabbits inoculated with T. pallidum 6 weeks previously was employed in a few cases, growth similar to that already described took place, and in addition there were numerous multinucleated giant cells with spongy vacuolated cytoplasm which may have indicated a response to invasion by T. pallidum. Examination of fresh wet specimens with the phase-contrast microscope revealed living organisms in 2 cases, on the fifth and seventh days respectively, and fluid taken on the tenth days when injected into a fresh rabbit proved infective; on the other hand fluid taken from flasks in which tissue culture had failed proved non-infective. Staining cultures by Levaditi's method did not show the organisms.

T. E. Osmond


Having studied the white cell counts of 405 adult male cases of early syphilis and shown that there are no marked distinctions between the blood pictures of patients with serum-negative primary (166 cases), serum-positive primary (164), and secondary syphilis (75), the author has now examined the response as regards white cell count of these patients to 10 daily intravenous injections of 0-06 g of "mapharside" (oxophenarsine, U.S.P.) combined concurrently with 3-hourly intramuscular doses of 40,000 units of commercial penicillin to a total of 2,400,000 units. The counts were taken on the first day before any arsenical had been given, and on the fourth and eighth days afterwards.

The white cell count decreased generally by about 15%; the fall affected the neutrophil polymorphonuclear cells mostly, then the lymphocytes and the large
mononuclears. The basophils increased slightly in number, and owing to the larger fall in the neutrophil polymorphonuclears a relative increase occurred in all the other elements. The patients with leucopenia, because of which treatment had to be modified (30 cases), had lower initial counts; those with Herxheimer reactions (30) had average counts; and those with secondary pyrexia (44) had higher initial counts than the average.

T. Anwyl-Davies


Active testicular syphilomata containing Nichols's strain of Treponema pallidum were excised from rabbits, minced, and diluted and injected intraperitoneally or subcutaneously into white Swiss mice. After a varying period the mice were killed and blood or material from brain, skin, spleen, and lymph nodes was inoculated into further rabbits. After subcutaneous inoculation the duration of the mouse infection varied from 27 to 100 days. Transplantation of lymph nodes gave positive results in all of 18 animals, of brain in 7 out of 34, of skin in 16 out of 20, and of spleen in 12 out of 21; inoculation of blood gave a positive result in 3 out of 11. Where intraperitoneal inoculation had been carried out, tests 10 to 169 days after injection revealed positive results with blood in 27 out of 35, with skin in 30 out of 62, with spleen in 39 out of 55, with brain in 27, lesions in 88, and with lymph nodes in 91 out of 93 animals. The duration of the infection, within the limits stated, did not alter the proportion of successful transfers in the case of any tissue except the brain, in which the incidence of positive results increased with the length of infection. The only difference noted in results from inoculation by the two routes was that the skin was more commonly affected when the subcutaneous method was employed. Controls, in which lymph-node transfers were used, were employed to ensure that rabbits were not being subclinically affected.

It is concluded that mice of all ages may receive a subclinical infection with T. pallidum, and though no clinical signs may be found and T. pallidum may be absent from dark-field specimens of the tissues, lesions are produced in rabbits 34 to 45 days after intratesticular transfer.

R. R. Wilcox


The Shirvindt reaction is a suitable orientation test in the sero-diagnosis of syphilis; it can be used readily in military units on the march, during mass medical examinations, by rural medical practitioners, and also in special venereal diseases hospitals. The technique of the flocculation micro-reaction is as follows: Two drops of active (unheated) suspected serum are placed on a slide and mixed with 1 drop of diluted (in 2% NaCl) citochol antigen; the slide is then gently shaken and left on the table for 15 to 30 minutes; the reaction is read, against a black background, with the aid of a pocket magnifying glass. The author checked the accuracy of the reaction in 1,017 tests with sera from 500 cases of syphilis in a hospital. A positive diagnosis, as indicated by the Shirvindt reaction, was confirmed by subsequent Wassermann test in 99% of cases, and by the citochol test in 96.5% of cases. To distinguish true from pseudo-

precipitation, suspected mixed with the antigen one drop of normal saline should be added before the final reading of the test.

H. P. Fox


The authors studied the changes in the electrocardiogram before, during, and after penicillin therapy in patients with dark-field positive early syphilis. They previously reported T-wave abnormalities and in some cases also RS-T segment changes in the limb and or chest leads in 50% of a series of 30 patients. There was no evidence of interference in conduction. The present report gives the results of a similar investigation of a further 40 cases of early syphilis treated with penicillin alone. Similar electrocardiographic changes were noted in 42.5% of this second group, giving an aggregate of 45.7% for the whole series of 70 patients. Investigation of 8 non-syphilitic controls who received similar penicillin therapy, revealed no electrocardiographic abnormality, and it is concluded that such abnormalities were not caused by penicillin but are related to syphilitic infection. The authors have excluded so far as possible, such causes as diabetes, hypertension, heart disease, change in position, hyperventilation, drugs, anemia, and tachycardia. The changes in the electrocardiogram could not be correlated with the occurrence of Herxheimer reactions, weight, or racial type, and were transient in some cases but in others persisted for some months.

S. M. Laird

SYPHILIS (Therapeutic)


From experiments in rabbits it was found that the amount of beeswax in penicillin-oil-beeswax preparations was the determining factor in causing a delay in the absorption of penicillin: amounts below 4% significantly reduced the retarding action. Because of difficulties with the original Romansky formula, the author tried preparations in which the suspension of penicillin in oil and beeswax was obtained by passing the mixture through a colloid mill. These preparations, containing 4.5% of beeswax, were semi-solid at room temperature but on being heated to body temperature could easily be drawn into a syringe and injected. Although the initial levels in the blood were higher with milled preparations than with unmilled, the blood levels were maintained for shorter periods, 12 hours instead of 18.

R. Wien


Following the preparation of crystalline proacine penicillins (Salivar et al., J. Amer. chem. Soc., 1948, 70, 1287) and the report of the in vitro and in vivo biological activity (Hobby et al., Proc. Soc. exp. Biol., N.Y., 1948, 67, 6) the authors, working in the Massachusetts Memorial Hospitals and the Boston University School of Medicine, present information on the pharmacology in man of crystalline proacine penicillin G suspended in oil.

The penicillin preparation was suspended in sesame oil, although cottonseed oil may be used, at a concentration of 300,000 units per ml. The mixture was fluid at
room temperature and was administered intramuscularly in 1 or 2 ml. quantities. The serum concentrations of penicillin from 37 patients who received 1 ml. (300,000 units), were studied over a period of 48 hours and demonstrable serum penicillin levels were found in all cases at 12 hours, and at 24 hours in 92% of the cases. All of 48 patients who received 2 ml. (600,000 units) had demonstrable serum penicillin levels 24 hours after injection and 84% had such levels 48 hours after injection. The maximum serum level was lower, however, than with similar doses of sodium penicillin G in peanut oil and beeswax, although the dose of 600,000 units of crystalline procaine penicillin G in oil gave more uniform serum levels during the 24 hours following injection and with this dose the presence of an effective concentration in the serum is prolonged, although the concentration is not higher than after 300,000 units.

Crystalline procaine penicillin G in oil was easily administered if the suspension was thoroughly shaken before withdrawal and was injected with little delay. There was an almost complete absence of pain at the site of injection.

Malcolm Woodbine


The "microjet" or "hypospray" is an instrument by which injections can be given without the use of a needle by means of a high-pressure jet obtained through a previously wound-calibrated high-tension spring which can be released by a button. The material to be injected is placed in a bullet-shaped metal ampoule with a capacity of 0.25 ml. and an orifice on the rounded tip of 0.003 inch in diameter. The butt end has a rubber stopper against which the plunger strikes, forcing the contents to a depth of 0.2 to 2.0 cm., depending on the tension of the spring.

Blood levels resulting from hypospray injections of 50,000, 100,000 and 200,000 units of penicillin and 0.05 and 0.1 g. of streptomycin in buffered aqueous solutions were assessed. The larger quantities of the two drugs were given in large amounts, which might be dissolved per ampoule in this particular apparatus. With only 50,000 units of penicillin detectable levels were present in blood of all patients 1 hour, of 94% 2 hours, of 63%, 3 hours, and in 31%, 4 hours after injection. When 100,000 units were injected assayable quantities of penicillin were found in the blood of all patients 4 hours, in 50%, 6 hours, but in none 8 hours after administration. After injection of 200,000 units all had detectable concentrations 4 hours, 86%, 6 hours, and only 14%, 8 hours after injection. In comparison with injections by ordinary syringe the concentrations were somewhat higher and more prolonged with the hypospray technique.

With 0.05 g. of streptomycin the concentrations at 4, 8, and 12 hours were 1:25, 0:62, and 0:31 µg. per ml. respectively and with 0.1 g. of streptomycin 2:5, 1:25, and 0:625 µg. per ml. at the same times. Twelve-hourly injections of streptomycin were given by needle and by hypospray methods, serum estimations being performed immediately before each injection. No added effect from repeated injections was found, for the concentrations by the twelfth hour were at a plateau, and no essential differences were noted in the results by the two methods. No increment of the streptomycin in the blood was obtained after 4-hourly injections.

The instrument produced a stable pressure on the skin of 2,500 lb. per sq. inch. The depth of penetration varies with the site of injection and the race of the patient though, in this group, these variations did not affect the blood levels. Most of the 60 patients treated complained of a momentary stinging sensation at the injection site, particularly with the larger doses. Two developed small hematomata, one a small area of induration, and another a subcutaneous nodule. Aqueous solutions of penicillin stored in the metal containers were, as always, unstable.

[The instrument has been improved so as to discharge 0.5 and 1 ml. When certain difficulties have been overcome it may prove useful in clinic practice especially for children and those with a fear of the needle.]

R. R. Willcox


Male rabbits were given intratesticular inoculations of Nichols’s strain of Treponeema pallidum, and were observed until a dark-field positive orchitis was found. They were then given penicillin in twenty-four 4-hourly equal doses and observed for 4 months. If no dark-field positive syphiloma had developed the animals were killed and material from popliteal lymph nodes was transferred into other rabbits. Three penicillins were tested. One was a commercial penicillin containing 30% of F, 35% of G, and 35% of K. The others contained 90% or more of crystalline penicillin F and X.

Up to seven dosage schedules were employed in some 29 experiments involving 4 to 12 rabbits each. The CD 50 of crude penicillin was 2,375 units per kilo, body weight that of crystalline F was 8,000 units per kilo, and that of X was 4,400 units per kilo. Assuming penicillin G to be 100, the comparative potency of the other fractions are assessed as X = 34, F = 19, and K > 9. This is in accord with the findings of other workers.

R. R. Willcox


The authors investigated the passage of penicillin through the placenta into rabbit and guinea-pig fetuses to determine in particular whether a presumably syphilic fetus can be treated with penicillin in utero.

They administered 10,000 or 20,000 Oxford units to 10 female rabbits and 26 female guinea pigs during the second half of the gestation period. Blood samples were collected from the mother animal and the fetus—from the latter after a Cesarea section. The intervals between injection and taking of blood samples varied from 20 minutes to 4 hours. Blood levels of penicillin in the mother rise more rapidly, reach a higher level, and fall off much more rapidly than in the fetus. After 4 hours the levels in both mother and fetus fall below the minimum required for a satisfactory titration. The ratio of the serum levels of penicillin in mother and fetus was 20 : 1 (5 : 0.1 units) when 10,000 units were administered and 30 : 1 (7.5 : 0.2 units) after 20,000 units. The authors also found that towards the end of the gestation period penicillin levels in the amniotic fluid were lower than during the earlier stages of pregnancy.

K. S. Zimmernann

The authors state that two types of reactions may be elicited in intradermal skin-tests for hypersensitivity to penicillin. (1) The tuberculin type of reaction appears in 24 to 48 hours after the test injection. The test may therefore be of no use in an emergency. (2) An immediate reaction appears in some cases (24 out of 94 hypersensitive cases). This appears in 2 to 5 minutes and consists of an exacerbation of the original injection wheal and spread of surrounding erythema of varying intensity with pseudopodia; the tuberculin-type reaction usually follows 24 to 48 hours later but not always. Patients with this immediate reaction have almost invariably developed one of the general hypersensitivity reactions if penicillin has afterwards been given in therapeutic dosage.

G. B. Dowling


Penicillin was given (300,000 units per kilo body weight) to 26 children with congenital syphilis. In 17 no abnormal reactions were seen, while in the other 9 only a rise in temperature lasting for 1 day, and anorexia lasting for a few days, were observed at the beginning of treatment. Fourteen were cured after 3 months' treatment. In 9 cases treatment for a further 3 months with a total of 500,000 units per kilo body weight failed. Complete recovery was obtained in these cases after administration of neoarsphenamine. There were 3 deaths, 1 being from bronchopneumonia and 2 from severe digestive disturbances.

N. M. Drijber-Buys


A comparison made between results of two intensive methods of treatment, one in which "biochinol" was combined with 5-55 g. neoarsphenamine and 555 mg. "mapharsen" (oxophenarsine) in 33 days, and the other in which it was combined with 615 mg. mapharsen only, tried with success on 87 in patients in a military hospital. Complications and secondary reactions did not materially differ from those seen in patients treated by a prolonged method. Frequent and thorough examination of the blood and urine should be made during the intensive treatment.

H. P. Fox


A modified Eagle schedule for intensive arsenotherapy was used successfully at Kuibishev in 286 cases of primary and early secondary syphilis. Only 200 patients completed the course, and 86 of these were followed up 4 to 13 months later. All were symptom-free, but there were 2 cases of serological relapse. The authors are satisfied that their schedule is as safe as older, more prolonged, courses. They use "mapharsen" or "sovarsen" (a Soviet arsenoxide preparation) in doses of 60 and 70 mg., respectively, daily for 15 days, then every other day to a total of 20 mg. mapharsen (23 mg. sovarsen) per kilo body weight in serum-negative primary syphilis, or 25 mg. (29 mg. sovarsen) in serum-positive primary or secondary syphilis. "Biochinol" (bismuth compound) is given daily as an adjuvant. There was no difference between effects of mapharsen and sovarsen, save that reactions with the latter were milder. Treatment had to be interrupted in 9 cases (in 4 for intercurrent illness, in 3 for fever, in 2 because of drug reactions). Minor side-effects (7-6% of injections) tended to occur in secondary syphilis, in women, and in the first half of the course. No jaundice was observed.

S. S. B. Gilder


A statistical comparison is made between the results of the Venereal Disease Research Laboratory, United States Marine Hospital, New York, and those previously reported by the Central Statistical Unit for the clinics co-operating in the nation-wide penicillin study. Various factors which help to explain the discrepancies between the results of the two series include differences in definition of terms and in serological techniques, differences in distribution as regards sex, race, and stage of disease, and differences in the success and frequency of follow-up.

S. M. Laird


An intensive method of treatment of syphilis gave good results when tried on more than 700 in patients, mostly in the early stage of the disease; tabulated data are presented for 572 men and women. The total course was completed in 27 to 28 days. "Mapharsen" (oxophenarsine) was given to a total of 615 mg. for men and 515 mg. for women, in injections on alternate days up to the nineteenth and twenty-third days respectively. "Biochinol" [possibly a bismuth compound] was injected on the other days, together with 2% mercury cyanide, 1 to 2.5 ml. Disappearance of the roseole and resorption of sclerotic foci and of papules occurred just as quickly as during a 42-day course of treatment, nor was the incidence and severity of secondary reactions different from that observed in patients treated by routine methods. Only 6% of patients treated intensively were serum-negative at the end of the first course, but during the 4 weeks after termination of the intensive course most patients (particularly those with primary syphilis or early secondary syphilis) became Wassermann-negative.

H. P. Fox


The intensive ("mapharsen" plus "biochinol") method of treatment was used with satisfactory results on 258 men and women in patients with syphilis. The course lasted 28 to 30 days. During treatment the general condition of patients improved; they gained weight, their blood pictures tended to return to normal, and the erythrocyte sedimentation rate decreased. Among the patients with primary serum-positive disease 65-3% became Wassermann-negative towards the beginning of the second course; the corresponding figures for those with early secondary and relapsing secondary syphilis were 60-9 and 40-2% respectively. Mild secondary reactions, which did not interfere with the continuation of the treatment, were seen in 20-5% of cases.

H. P. Fox

This report concerns 376 cases of previously untreated neurosyphilis in which active spinal-fluid changes were present before penicillin was given. In this series the total dosage varied from 2 to 9 mega units and the number of injections ranged from 75 to 200. Some 67 patients were lost from observation and 8 died within 6 months of treatment. The remaining 301 patients were followed up for more than 6 months; 10% were observed for more than 3 years, 35% for more than 2 years, and 70% for more than one year. Treatment was evaluated on the results of repeated spinal-fluid examinations, success being reflected by a return towards normal in the findings. Such improvement was usually observed in the cell count, protein values, colloidal gold changes, and quantitative complement-fixation tests in that order. Thirty-four patients (11%) required further treatment, and of these half responded well to a second course with larger total doses of penicillin alone. The results in the remainder are still undetermined. The diagnoses in this series and the number of failures after the first course of penicillin were as follows:

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Number of Patients</th>
<th>Failures</th>
<th>Successfully Re-treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymptomatic</td>
<td>61</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Meningovascular</td>
<td>75</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>Tabes dorsalis</td>
<td>83</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Dementia paralytica</td>
<td>53</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Taboparesis</td>
<td>29</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>301</td>
<td>34</td>
<td>19</td>
</tr>
</tbody>
</table>

S. M. Laird


The author treated 100 patients suffering from general paresis as follows. Sixty received 6,000,000 units of penicillin (25,000 units every 3 hours for 30 days) and 40 received the same amount of penicillin and underwent 7 to 18 rigors from quartan malaria. The two groups were similar as regards age, type of psychosis, duration of symptoms, and previous chemotherapy; all were followed up for 6 months but many more of the “penicillin only” series were observed for 18 to 24 months. On the cerebrospinal fluid the effects of the two forms of treatment were much the same as regards cell count, protein content, and colloidal gold reaction, but the Wasser mann reaction in the “penicillin and fever” group tended to weaken more quickly than in the “penicillin only” group. From the clinical point of view results were more difficult to assess; maximum gain in weight was observed after 18 months in those given penicillin only and after 24 months in those given penicillin and fever therapy. [According to Table 2 only two patients in this group were followed for 24 months.] Of those given penicillin only 4 died (7%), 28 (47%) showed slight improvement, 11 (18%) showed moderate improvement, and 17 (28%) marked improvement; the corresponding figures for those given penicillin and fever therapy were 2 (5%), 17 (43%), 11 (27%), and 10 (25%). Six patients received a second course of penicillin because protein content and cell count of the cerebrospinal fluid had not been reduced to normal. Of the 6 deaths, 1 was due to pyelonephritis, 1 to pneumonia, and 1 to coronary thrombosis, while 2 were due to pulmonary tuberculosis and 1 patient committed suicide. No correlation between clinical and serological response to treatment was noted. It is concluded that penicillin is of value in the treatment of general paresis but that until further experience is gained its use should be combined with malarial therapy. In the discussion which followed it was pointed out that penicillin was likely to affect mesodermal changes and malaria parenchymatous ones.

T. E. Osmond


A Soviet government commission has laid down the following scheme for treatment of syphilis with oxophenarsine. The initial dose is 40 mg., with subsequent doses of 60 mg. twice a week to a total of 700 mg. for a course. The interval between courses (the total number is not stated) should be 3 weeks. The author discusses tolerance to oxophenarsine in the light of his experience in 107 cases of syphilis treated twice weekly to a total of 580 mg. for men and 430 mg. for women. In 6 cases treatment had to be interrupted; in 88 cases there were no reactions. Of the remaining patients (31%), 24 had general malaise, 10 fever, 26 headaches, 30 gastro-intestinal disorders, 3 jaundice, 18 toothache and gum pain, 7 rashes, 2 angioneurotic symptoms, and 11 pain along the veins. It is considered that while such a course is safe for in patients general use in ambulatory cases may not be justified.

S. S. B. Gilder

GONORRHŒA (Pathology)


A new transport medium has been investigated at the Glasgow Public Health Laboratory for the despatch of viable specimens to the central laboratory from the dispersed clinics within a “time distance” of 24 hours. They proved that oxidation, not temperature or drying, was the basic factor responsible for the rapid death of gonococci, and that overcrowding with other bacteria was a major disadvantage of most transport media.

Of the medium 200 ml. is a convenient quantity to prepare at one time; 190 ml. of previously autoclaved 0-3% fibre agar in distilled water is melted and 0-2 ml. of thioiglycollic acid added. Sufficient N. NaOH is incorporated to bring the mixture to approximately pH 7-2, and then 10 ml. of 20% sodium glycophosphate in distilled water is added, together with 2 ml. of a similar 1% solution of calcium chloride. The medium is mixed thoroughly, and while still hot titrated to pH 7-4 with N. NaOH. Then 0-4 ml. of methylene blue (0-1% in water) is added to give a final concentration of 1 in 500,000, and the medium replaced in the steamer for a few minutes before distribution in ¾-oz. (7 ml.) screwcap bottles.

The clinical outfit consists of one of the above bottles and a sterile wooden applicator tipped with an absorbent cotton wool swab in a plugged tube. The swab and stick required special preparation, since both tend to be acid before treatment. For this reason sticks and cotton wool are first boiled in Sorensen’s phosphate buffer solution at pH 7-4, then dried in the oven before being...
prepared for use. Lately, owing to the bactericidal action of some recent batches of agar, the swabs have been dipped in a 1% water suspension of ground charcoal before being dried and sterilized.

In a series of 844 specimens from both sexes, cultural examination added over 32% more of positive results to the number obtained by smear examination alone; by culture, 86% of the total number of positive results were found, compared with 76% by smear examination. The method is also applicable to the detection of *Trichomonas vaginalis*, which was found in about 50% of women with vaginal discharges and in 40% with no evidence of inflammation. This supports the view that its presence in inflammatory exudates is coincidental rather than causative.

**T. Annyl-Davies**

**Reliability of 24-hour Incubation for Gonococcus Cultures in Ascitic Fluid-Tyrothricin-Difco Chocolate Agar.**


"Of 200 positive gonococcus cultures plated in duplicate 197 (98.5%) were positive after 24-hour incubation on ascitic fluid-tyrothricin-"difco"chocolateagar; and 189 (94.5%) were positive after 4-hour incubation on "difco"chocolate agar with the addition of supplement A."

Material for culture was obtained on hard dry sterile swabs and placed in 0-5 ml. of a holding solution consisting of equal parts of sterile ascitic fluid and proteose peptone No. 3 broth. In females the urethral and cervical culture swabs were kept in the same holding tube for a period not exceeding 3 hours in the ice box, before being planted on the medium. In comparing the results both numbers and sizes of the gonococcus colonies were noted, as were those of the contaminants. Of 68 positive gonococcus cultures plated in duplicate on difco-chocolate agar with supplement A, 54 were positive after incubation for 24 hours, and 68 were positive after 48 hours. A 24-hour incubation period on ascitic fluid-tyrothricin-difco chocolate agar is thus recommended as a reliable procedure for gonococcus culture; this finding confirms the previously reported experience of the author.

**R. R. Willcox**

**GONORRHEA (Therapeutic)**

**Combined Penicillin-sulphonamide Therapy of Gonorrhoea in Girls.** (In Russian.) **Turano, E. N. (1948).** *Vestn. vener. Derm., No. 1, 36.*

A total of 111 female children were treated for gonorrhoea, 80 with penicillin and sulphathiazole, 20 with sulphathiazole alone, and 11 with penicillin alone. It is considered that the best results were obtained with the combined treatment, which was carried out in two ways. Group 1 received a total of 50,000 units of aqueous penicillin intramuscularly in 3 doses of 3-hour intervals, the first injection being given 1 hour after the first dose of sulphathiazole. These patients also received a total of 10 g. sulphathiazole in 3 days. Patients in Group 2 were given 75,000 units of penicillin instead of 50,000 units, the rest of the schedule being unchanged. Control groups received 10 g. sulphathiazole alone (10 failures out of 20) or 50,000 to 80,000 units penicillin alone (all failures).

Of the 40 in Group 1, 35 were cured (6-month follow-up). Two of the failures are ascribed to the presence of rectal lesions, penicillin being destroyed in the gut by the penicilase produced by the intestinal flora. Of the 40 in Group 2, 37 were cured. Resistance to sulphonamides and resistance to penicillin are apparently unrelated. A second course with a different brand of penicillin cured 1 case previously unsuccessfully treated; the father of this child also had gonorrhoea, which responded to American penicillin but not to Canadian or Soviet penicillin.

**S. S. B. Gilder**


The Municipal Social Hygiene Clinic in Chicago treated 33,738 cases of acute gonorrhoea (23,386 males and 10,352 females) between July, 1945, and December, 1946, inclusive. Each patient was given a single intramuscular injection of 200,000 units of penicillin in oil and beeswax. This report describes a sampling method from which it is concluded that the failure rate would be less than 2.8%.

The records of two groups, each of 500 cases, were selected at random from the records of the whole series. Sample 1 comprised 500 patients from the inactive file who had not attended within the 6 months before the sample was taken, while Sample 2 comprised 500 cases drawn partly from the current file of patients in active attendance and partly from the inactive file. Analysis of these records showed that 79-6% of Sample 1 patients and 82% of Sample 2 patients had reported for smear or culture examination 48 hours after penicillin treatment. At this examination, positive results were found in 0.75% of Sample 1 and 1.45% of Sample 2. From the higher failure rate of Sample 2, a standard deviation of 0.59% was obtained, based on the 410 patients reporting back for examination. Assuming a 5% error due to chance, it was found that the failure rate would range between 0.16 and 2.76%. [While the statistical method of this analysis may be beyond reproach, at least one venereologist in Britain is unprepared to assess cure, in either sex, on the result of one test taken as early as 48 hours after an injection of penicillin in oil and beeswax.]

**S. M. Laird**


The authors describe 9 cases of Reiter's syndrome (arthritis, conjunctivitis, and urethritis). Although this condition has recently been encountered mainly as a complication of bacillary dysentery, in some cases no connexion with dysentery was apparent. In 4 of the patients no question of gonorrhoea arose, but in the other 5 gonorrhoea preceded the condition—spear was positive in 2, there was exposure to venereal infection in 2, and 1 had gonorrhoea a year before. The knee-joint was affected in all cases, the interphalangeal or metacarpo-phalangeal being the next most commonly affected joints. A rash was noted in 2 patients and hyperkeratosis of the feet in 3. Two patients (both had had gonorrhoea) developed balanitis with ulceration of the glans. It was thought that intravenous T.A.B. vaccine was of benefit in some patients.

[The authors make no attempt to define the aetiology of the disease, but agree that there is some general similarity to sensitization.]

**T. Anderson**


This report describes 4 cases of well-developed Reiter's disease in males aged 21 to 23 treated with streptomycin. As the disease is one in which regression may occur at...
any time, and as some of the cases treated were already of long duration, even although the results are distinctly encouraging the possibility of coincidence is not overlooked and the conclusions are cautious.

The first patient had the usual triad of symptoms in 1945 when he spent 8 months in hospital. As a result of relapse or re-infection the triad recurred 1 year later with pyuria, a dry balanitis, high fever, and tachycardia in addition. Pleuropneumonia-like organisms were cultured from the urine and joint fluid and the electrocardiogram (which is reproduced) showed second-degree heart block. Two million units of penicillin over 5 days failed to improve the arthritis, urethritis, conjunctivitis, or fever so 0·5 g. of streptomycin was given intramuscularly every 3 hours for 6 days. During this time the temperature and pulse rate fell somewhat and the joints, eyes, and urine returned to normal though most striking improvement occurred during the week following conclusion of therapy. Subsequent urine cultures for pleuropneumonia-like organisms were also negative. Physiotherapy was then given and the patient was discharged well 2½ months after treatment. Eight months later, after severe diarrhoea, he developed a further mild polyarthritis with low-grade fever, which was successfully re-treated with a total of 40 g. of streptomycin over 10 days.

The second case was also severe, with fever, the complete triad, and phimotic balanitis which later required dorsal slitting of the prepuce. The eye condition cleared with a course of penicillin, but the other symptoms persisted and he was given 28 g. of streptomycin in divided doses 3-hourly over 7 days. Improvement was then immediate; he was still well 11 months later.

The third case was a milder one with only slight fever, urethritis, and arthritis, the conjunctivitis having cleared up during the previous 2½ months when the patient had been unsuccessfully treated with penicillin, sulphonamides, urethral irrigations, and neosalvarsanamine. After a week on salicylates without improvement, he was given 28 g. of streptomycin over 7 days with entirely satisfactory results. He was well 8½ months later.

The fourth patient had non-specific urethritis in 1943 and in 1946 developed a recurrent haematuria with a urethral discharge which required treatment. In 1947 he again had urethritis with arthritis, conjunctivitis, and fever, but these were not influenced by a course of penicillin. Repeated electrocardiograms showed variations in the T waves consistent with a diagnosis of active myocarditis. Streptomycin, 24 g., was given in divided doses over 10 days with dramatic improvement towards the end of the course; he is known to have remained well 8 months after therapy.


Five cases of Reiter's disease, all in white males 22 to 26 years old, are described in detail. The urethral discharge was the first symptom in all but one, in which the urethritis was preceded by arthritis and diarrhoea. Of the remainder the conjunctivitis preceded the arthritis, in 3 and succeeded it in 1, though in all but one case in which ocular symptoms were absent, the entire triad was apparent within 3 weeks of the onset. Lesions resembling balanitis circinata sicca are reported in 1 case only and keratosis blennorrhagica not at all. In 3 cases the condition was regarded as improving satisfactorily with time or after other measures, though 2 patients who had been ill for 6 and 8 months respectively had not responded to treatment, which included administration of both sulphonamides and penicillin. These patients received 5 five-hour sessions of fever at 105°F C. by hyperthermy, combined with injection of penicillin in 2-hourly divided doses 24 hours before and after the fever to a total of 480,000 units on each occasion. Improvement was dramatic, though one patient had a mild relapse which cleared without treatment or further rest in bed.

[Hyperthermy has been acknowledged in Britain for some years to be the best treatment for Reiter's disease. It is interesting to observe that of the 2 acute cases the one in which the erythrocyte sedimentation rate was raised showed a reduction of the latter to normal with treatment, as noted by Willcox, Findlay, and Henderson-Begg (Brit. med. J. 1947, 1, 483).]

OTHER VENERAL DISEASE CONDITIONS


Over the ten-year period 1936-45, 388 patients with lymphogranuloma venereum were admitted to Bellevue Hospital, New York: 71-7% were men and 73% were negroes. The average age was 30-4 years, and 38-4 years for those with rectal stricture. The genitalia and inguinal lymph nodes were involved in 88-3%, and the ano-rectal region in 10-3%. Of the latter group 65% were women. Rectal strictures, which make lymphogranuloma venereum such a formidable disease, occurred in 7-9% of the total number of patients, and 85% of these were women, in whom the disease is more chronic and protracted than in men. This complication has such disabling consequences that periodical proctoscopic examinations are recommended to ascertain the existence of proctitis or other rectal involvement. Co-existent syphilis was found in 25-5%, chancroid in 5-2%, and gonorrhoea in 6-9%. Twelve patients (3%) had lymphogranuloma venereum, syphilis, and gonorrhoea simultaneously, and 2 had four venereal diseases concurrently—lymphogranuloma venereum, syphilis, chancroid, and gonorrhoea. Frei's skin test was positive in 95-5% of the patients tested, but the intravenous test with Frei antigen was less reliable, being positive in only 86%. The authors observe that the Frei skin test should be repeated several times in suspected cases of inguinal adenopathy if the reaction is negative at first.

The sulphonamides and rest in bed constitute the best treatment for acute cases; even in patients with proctitis the sulphonamides are of definite value and shorten the period of stay in hospital. The authors found sulphadiazine to be slightly superior to sulphathiazole in routine treatment, or at least less toxic. T. Anwyll-Davies


Thirty-three sera from 27 patients with Hodgkin's disease, were examined after dialysis against sodium barbitone-barbituric acid buffer solution. No characterisation of the diagram was obtained, but in 11 sera from advanced cases there was a significant increase in a-globulin and an albumin-globulin ratio below unit γ. All these
patients were bedridden and febrile and died within 3 months. In 10 sera there was an increase of γ-globulin, but in all the others the pattern was normal.

E. T. Ruston


During the years 1943-47, at the Chicago Intensive Treatment Centre, 122 patients with granuloma inguinale were treated. Of 64 adequately treated with antimonials lesions healed completely in 57, while 7 failed to respond to repeated courses. The toxic effects of antimony were, however, noted in many cases. Local treatment with 25% podophyllin suspension was tried in 7 cases. In 3 it was discontinued on account of soreness, but in 4 patients healing was apparently accelerated. Twelve received, in addition, up to 4,800,000 units of penicillin for co-existent syphilis but without apparent improvement of the granulomatous lesions, and two recurrences were observed after vulvectomy had been performed.

In 11 cases of granuloma inguinale streptomycin was given. Three of these cases have already been recorded by other Chicago workers. Treatment was successful in 8; these patients received a total of 3-4 to 12-6 g. of streptomycin, given in 3-hourly injections for 15 to 30 days; cases have so far been followed up for 11, 2, 5, 8, 10, 10, 12, and 15 months respectively after the completion of treatment. Four of these cases were of very long standing, there being one of 2½ years, one of 2 years, one of 10 years, and one of no less than 28 years' duration; all had proved resistant to prolonged treatment with antimonials. Donovan bodies were found in smears and scrapings from all before treatment, and negative smears were subsequently obtained. The actual lesions healed rapidly in all cases. In the 3 cases of failure 4 to 6 g. of streptomycin was given 3-hourly over 18 to 41 days. The first relapse, in a female patient, occurred after 7 months and was successfully re-treated with streptomycin; in the second, in a male, there was a recurrence after 3 weeks which was re-treated with antimony as was the third, also in a male, in which relapse took place after 9 months.

R. R. Wilcox


In South Carolina 85 cases of granuloma inguinale were treated with streptomycin; 49 were female and 35 male negroes and there was one white female aged 23. Syphilis was also present in 34, and 19 others had positive skin reactions for chancroid or lymphogranuloma venereum. Only 32 had un complicated granuloma inguinale; 37 had ulcerative and 34 exuberant lesions, while in 14 lesions were of the cicatrical type. Fifty-two had already received antimonials. Diagnosis was confirmed by the finding of Donovan bodies in smears or biopsy specimens and two cases of genital carcinoma were discovered during the investigation. Patients received 0-66 g. of streptomycin 4-hourly to a total of 20 g. Those with secondary infection were also given 3 daily injections of 400,000 units of penicillin in oil-beeswax in addition to sitz baths of potassium permanganate. Eighth-nerve involvement, as shown by dizziness or tinnitus, was noted in 12 and was sufficiently severe to warrant the discontinuation of treatment in 2 cases. No dermatological complications were observed. Of the above, 45 have so far been observed for 1 or 2 months; lesions were healed in 40, and in 3 others almost so, with repeatedly negative smears. One patient, a coloured female, has had three courses of streptomycin without effect, and one man had a course without cure.

R. R. Wilcox


Five cases of granuloma inguinale are described in which healing followed treatment with streptomycin. The dosage was 4 g. a day, in six doses at intervals of 4 hours, for 5 days. One case has been followed up for 10 months, the others for 6 months or less. As yet no relapse has been observed.

Arthur Willcox


From October, 1943, up to November, 1946, ninety-seven patients with granuloma inguinale were treated at the Chicago Intensive Treatment Centre. Fifty of these were men and all but one were of negro stock. Many of the patients defaulted before a significant amount of treatment could be given, but 25 were treated on traditional lines with 20 daily intravenous injections of a 1% solution of antimony potassium tartrate (daily dosage being 1 to 10 ml. in ascending doses of 1 ml. per day, after the maximum dose was reached, the dose decreased by 1 ml. per day for the next 10 days). The total dose amounted to 100 ml. of the drug. In 21 patients complete healing of lesions had taken place by the end of the course; 2 patients needed a second course and a further 2 did not respond to treatment. In the authors' experience freshly prepared solutions of antimony potassium tartrate gave better results than either "foadin" (stibophen) or "anthamalone." Six patients were treated with podophyllin resin (25% suspension in mineral oil) applied to the lesions. Though in four of these a favourable response was noted, in the other 2 patients treatment had to be stopped on account of severe local reactions. A further 2 patients were treated with streptomycin (total doses 10,250,000 and 6,175,000 units) by which, as anticipated, was not significant in healing the lesions. The authors claim that, when patients are admitted to hospital and systematically treated, freshly prepared 1% solution of antimony potassium tartrate is an effective agent in the cure of this disease.

G. L. M. McLelligott


In 100 cases of granuloma inguinale treated with streptomycin the ages of patients ranged from 18 to 70; 65 were men and 35 women and all were coloured. Thirty-three had received no previous treatment but 67 had had antimonials at intervals over periods up to 10 years; 32 (group 1) were given from 0-3 to 2 g. of streptomycin daily in divided doses for 6 to 62 days (average 22); but 61 (group 2) had a uniform dose of 4 g. daily for 5 days while 7 patients (group 3) with extensive lesions had 4 g. daily for 6 to 10 days.

In the first group 1 case failed to respond to 1 g. daily for 28 days and another to 2 g. daily for 30 days, both becoming streptomycin-resistant. When 4 g. was given daily there were no failures, the Donovan bodies usually disappearing from the smears at least by the fifth day.
with complete healing within 1 or 2 weeks. No serious toxic reactions were met. A third of the patients had been followed up for more than a year, and 80% for from 2 to 18 months. So far there have been 6 relapses in the first group, 4 in the second, and none in the third. One patient died at home. In 7 relapses re-treatment with streptomycin gave satisfactory results.

For cases of average severity it is considered that the optimum dose of streptomycin is 4 g. daily in divided doses for 5 days. When extensive lesions exist, or a slow response is noted, it is thought that a 10-day course is probably to be preferred.

R. R. Willecox


Sera from 3 cases of pinta and 3 of yaws were prepared for electrophoresis by dilution with barbital buffer of pH 8·6 and 0·1 M ionic strength to approximately 2% protein content; this was followed by dialysis against frequently changed buffer at 2° to 8°C. The boundaries were allowed to migrate from 3 to 1½ hours in an electrical field of approximately 6 volts per cm. Component analyses were made from measurements in photographic enlargements of the electrophoretic diagrams, and showed a slight increase of the γ globulin in the pinta sera and a larger increase in the γ globulin of the yaws sera. The albumin content was low in comparison with that of the γ globulin, but no specific changes indicative of the presence of unique proteins were noted in the sera of sufferers from these two diseases.

R. R. Willecox


This paper deals with clinical and serological examinations of 274 persons who had been treated for yaws in Sierra Leone at periods up to 2½ years previously. Three schedules were employed, the first consisting of 6 weekly injections of 4 ml. of acetylsalicyl alone, the second of 6 weekly injections of 4 ml. of acetylsalicyl plus 4 injections of 3 g. (0·2 g.) of bismuth sodium and potassium tartrate (B.S.P.T.), and the third of 6 weekly injections of 4 g. (0·26 g.) B.S.P.T. alone.

The results were assessed by clinical examination and simultaneous Kahn and Ide tests on the blood. It was found essential to inactivate the serum before carrying out the Ide test and desirable to add a drop of 3·5% saline to the slide but, even so, the Kahn and Ide reactions did not entirely correspond, for of 41 Kahn-positive sera only 31 gave positive Ide reactions.

Of 98 patients treated with the first schedule and observed for 6 to 7 months, 61% had no lesions and 39% had inactive plantar yaws; of 120 treated by the second schedule 33% had active yaws, 48% inactive plantar yaws, and 49% no lesions, while of 56 treated by the third schedule, 38% had active lesions, 32% no lesions, and 30% inactive plantar yaws 6 months after treatment. At the same period after treatment in 21% of 87 cases treated by the first schedule serum reactions were negative and in 30% merely weak or doubtful; in 7% of 28 cases treated with the second schedule serum reactions were negative and in 37% merely weak or doubtful; and of 45 cases treated by the third schedule serum reactions were negative in 7% at 6 to 7 months and weak or doubtful in 6%. Both as regards clinical appearances and serology, however, no significant differences were apparent in these results if the investigations were made at periods varying from 1 year to 2½ years after treatment.

It is estimated that acetylsalicyl, in the doses given, probably cured one-third of the patients and rendered the condition in the remainder quiescent with at the most inactive plantar lesions. It is considered that this drug is inferior to neoarsphenamine, B.S.P.T. is regarded as relatively ineffective and as inferior to bismuth salicylate. Of the 274 patients included in this study, 235 had non-infectious plantar yaws at the time of treatment and only 22 had frambesiomata while the remaining 17 had infectious plantar yaws of the pseudo-granulomatous type (crab yaws). The inclusion of so many comparatively late cases makes exact comparison difficult for, in such cases, serological reversal is not to be expected.

R. R. Willecox


In spite of the fact that human volunteers have been successfully inoculated with Haemophilus ducreyi while under treatment for syphilis with large doses of penicillin, and though other workers have observed no improvement in chancroidal ulcers treated with penicillin, the author is a strong advocate of treatment of chancroidal bubes with 3-hourly intramuscular injections of penicillin up to a total of 500,000 units, as well as 3-hourly injections of 20,000 units into the bubo. He has observed 22 patients all of whom were said to be cured within 90 hours. A further 16 patients were given 6 to 12 g. of sulphadiazine in addition to the penicillin, and all were cured in from 24 to 50 hours. Diagnosis was based on a positive reaction in Ito-Riensteirn skin tests and negative serological and dark-field findings. The author concludes that penicillin and sulphadiazine therapy should be given in every case of bubo, but he admits that there should be serological examinations for a period of 2 years to rule out a masked concurrent syphilitic infection.

[It would seem not unlikely that many of the bubes were, in fact, caused by penicillin-sensitive pyogenic organisms. In view of the excellent results which follow sulphonamide therapy with repeated aspiration, the practice of treating chancroidal bubes with penicillin would seem to be inexcusable.]

G. L. M. McElligott


The importance of culturing all vaginal discharges is emphasized. Hemolytic streptococcal vaginitis has been misdiagnosed as gonococcal vaginitis when only a direct smear has been examined. The present study is based on cultures taken from 286 patients, 524 vaginal cultures being examined. Hemolytic streptococci were found in 37 patients (12·9%), gonococci in 33, and pneumococci in 11. Nasopharyngeal cultures were obtained from 30 of the 37 patients with hemolytic streptococcal vaginitis. The streptococci were usually recovered from the vagina in pure culture; in 21 cases the streptococci belonged to group A, in 4 to group B, and in 5 to group G. Hemolytic streptococci were present in 17 of the 30 patients from whom nasopharyngeal cultures were prepared. In 13 instances these organisms were grouped, and in every case they were found to be of the same group as those found in the vagina.

Vaginitis was the presenting complaint in 16 of the 37 patients. In addition, streptococcal vaginitis was as-
ABSTRACTS

PUBLIC HEALTH


New cases of syphilis seen at the Venereal Diseases Department of the Newcastle General Hospital totalled 798 in 1927, 350 in 1932, 390 in 1937, 720 in 1942, and 583 in 1947. The number of patients suffering from gonorrhoea who attended in the same years was 1,070, 859, 937, 874, and 1,033. The author describes what he calls the "medico-social unit," which, in addition to the clinic and ward staff, has an amount of clerical staff working in the clinic, has 3 full-time and 3 part-time health visitors to undertake domiciliary visits.

Of 2,855 patients interrogated by the unit only 58% gave reliable information concerning the contact, but 1,560 contacts were examined and 70% were found to have venereal disease. The meeting places in the case of 1,000 contacts interviewed about the source of casual infection were public houses (652), the streets (177), railway stations (95), dance halls (67), private houses, cinemas, cafes, coffee stalls, ships and docks, brothels, theatres, hostel, and public parks. In 32% of cases intercourse took place in the house of one or other partner and in 16% in brothels.

The rate of 43 per momentous women showed that 52% had been previously convicted in the courts and that 73% had intelligent quotients below normal. At the time of examination 16 were working in factories, 8 were in domestic service, 5 were waitresses, 4 were barmaids, 2 were shop assistants, and 8 did not work at all.

"Case-holding" is achieved by a combination of personal letter and home visit; the latter has been found to be very successful, the ratio between successful and unsuccessful visits being 1:1. It is, however, considered that if there is no response after two visits and two letters further can generally be achieved. The corrected default rates for male and female patients with syphilis and gonorrhoea vary from 6 to 13%. Of 3,478 women who had defaulted for more than 2 years, 2,032 were brought back to the clinic as a result of these measures; 70% of male defaulters returned to the clinic after one or two letters only, but 36% were regarded as completely irresponsible. The introduction of penicillin, with its more rapid apparent cure, has led to a marked increase in default; 54% of patients default in the month immediately after treatment.

This clinic is one of the few in Britain which publishes its statistics (see also Brit. J. Ven. Dis., 1947, 23, 171), and these are therefore read with interest. It is idle to suggest that the continued high rate of new cases is no advertisement for the preventive measures of the area, because it can always be claimed that this is the result of better case-finding. However, more attention might be paid to case-finding than to case-holding, which, in these days of penicillin therapy, can no longer be said to be a problem of public health proportions even if it is a pressing one for a few unfortunate individuals.

R. R. Willcox

GENERAL ARTICLES


Thymol turbidity tests were carried out one or more times on 567 persons, the modified technique of Shank and Hongland (J. biol. Chem., 1946, 162, 133) being used, and those sera showing 5 or more units being classified as abnormal. Turbidity indicates an abnormality in the globulin fraction of the serum protein which may be present apart from liver dysfunction. The test is more sensitive than the cephalin flocculation test in cases of infective hepatitis, cirrhosis of the liver, and syphilitic peritonitis. It is of value in recording the progress of infective hepatitis, and supplies suggestive evidence of liver damage in rheumatoid arthritis (14 out of 17 sera gave a positive result).

E. T. Ruston

Intradermal Treatment of Venereal Diseases. (Aquisi-


The authors advocate a new method of penicillin therapy in gonorrhoea and syphilis. They claim to have observed good results by giving daily not more than 20,000 units of penicillin in an oil-wax mixture by the intradermal route. They explain their observations on the theory that the defence mechanism is stimulated at a higher degree by intradermal injections than by intramuscular administration of penicillin. (The paper does not give figures, tables, or case records of treated patients.)

K. Maunsell


The effect of exposing bacterial populations to penicillin was studied in detail, 5 strains of Group A, 4 strains of Group B, and 5 strains of Group C hemolytic streptococci being used, together with 11 strains of 2-hemolytic streptococci (7 of Streptococcus faecalis), 7 strains of Staphylococcus aureus and two of Staph. albus, strains of pneumococci of types I, III, VIII, XI, XII, XIV and XXIV, and the so-called Reiter strain of cultured Treponema pallidum. Cultures grown for 15 hours at 30° C. were used, except for T. pallidum which was grown on Brewer's thioglycollate medium for 48 hours at 37° C. Penicillin G was added in concentrations varying from 0-004 to 2,048 µg per ml. to the diluted culture and allowed to act at 37° C. Aliquot portions were withdrawn after 1, 3, 6, 12, and 24 hours and, with 40-fold dilutions, plate counts were made in agar containing "clarase" or penicillinase. With the treponemal cultures, counts were made on Brewer's medium enriched with 10% rabbit serum and with 0-2% aggar added, enabling the organisms to grow as separate colonies.

The concentrations of penicillin G which (a) reduced the net rate of multiplication, (b) exerted a net bacteri-
cidal effect, and (e) killed the organisms at a maximal rate was determined in each case. The concentration (c) was found to be from 2 to 20 times the minimal effective level. A 50,000-fold increase beyond (c) did not further increase the rate of killing in many cases. Such an increase produced a paradoxical decrease in the rate of killing with all 4 strains of Group B, 4 of 5 strains of Group C õ-haemolytic streptococci, 5 of 7 strains of \textit{Strep. faecalis}, 2 of 4 strains of \textit{z}-haemolytic streptococci, and 4 of 9 strains of staphylococci. Only one of the strains (a staphylococcus) showing this paradoxical effect was found to produce penicillin, and the effect was also observed with penicillin X and K.

The effective concentrations of the antibiotic, and the maximal rate of killing at any one concentration, were found to vary widely between species and often within the species. It appeared that there was only a minor degree of variation amongst the cells of a given strain as regards the effective concentrations of penicillin, whereas there was a greater degree of variation in the time required to kill varying proportions of the cells.

\textit{J. E. M. Whitehead}


The authors carried out tests on 11 human sera for penicillins G and K, and on 4 others and a pooled serum for penicillin X. Total volumes of penicillin dilutions in 96, 48, 24, and 6\% serum, and of a control series without serum, were adjusted to 0-8 ml. A broth suspension of human group O cells inoculated with a \textit{haemolytic streptococcus} was used as an indicator. Correction factors were calculated from the relative activity of the penicillin in the various serum concentrations compared with the controls, and these (and others interpolated) are given in the table.

<table>
<thead>
<tr>
<th>Amount of Serum in Indicator Tube, ml</th>
<th>Percentage of Serum in Indicator Tube</th>
<th>Corrective Factors (means)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Addition of Red Blood Cells</td>
<td>After Addition of Red Blood Cells</td>
<td>G</td>
</tr>
<tr>
<td>Whole serum = 100</td>
<td></td>
<td>61-5</td>
</tr>
<tr>
<td>0-8</td>
<td></td>
<td>54</td>
</tr>
<tr>
<td>0-7</td>
<td></td>
<td>46</td>
</tr>
<tr>
<td>0-6</td>
<td></td>
<td>46</td>
</tr>
<tr>
<td>0-5</td>
<td></td>
<td>2-2</td>
</tr>
<tr>
<td>0-4</td>
<td></td>
<td>31</td>
</tr>
<tr>
<td>0-3</td>
<td></td>
<td>23</td>
</tr>
<tr>
<td>0-2</td>
<td></td>
<td>15-5</td>
</tr>
<tr>
<td>0-1</td>
<td></td>
<td>11-5</td>
</tr>
<tr>
<td>0-125</td>
<td></td>
<td>9-5</td>
</tr>
<tr>
<td>0-05</td>
<td></td>
<td>8-0</td>
</tr>
<tr>
<td>&gt;0-05</td>
<td></td>
<td>6-3</td>
</tr>
</tbody>
</table>

1 Smallest amount of serum which, brought up to a total volume of 0-8 ml. and incubated with 0-5 ml. of a human red blood cell suspension, completely inhibited haemolysis by the C-203 strain of \textit{Strep. faecalis} grown on 0-005 mg. penicillin per ml.  

2 For example, 0-1 ml of serum in total of 0-8 ml. = 12-5\% ; after the addition of 0-5 ml. of red blood cell suspension used as the \textit{haemolytic indicator}, serum concentration becomes 8-3\%.

3 Factors by which the apparent penicillin concentration in the serum must be multiplied to compensate for the inhibitory effect of serum in the assay.

"These findings are of primary interest to the investigator concerned with the pharmacology and mode of action of penicillin. For the physician the uncorrected concentrations may be more useful since such values more nearly represent the concentrations available for distribution to the tissues \textit{in vivo}. These corrective factors can be applied retrospectively to previous studies."  

\textit{G. T. L. Archer}


An investigation was made on the action of penicillin at high concentrations on whole blood \textit{in vitro}. Two mother-solutions of crystalline penicillin were prepared and various dilutions made in 0-65\% saline. Blood to be tested was taken from the veins of fasting healthy subjects. The coagulation time was determined by the method of Lee and White at 20° C. Retardation of coagulation began at a concentration of 15,000 units per ml., and complete inhibition occurred at 40,000 units per ml.

The results differ from those of Fleming and Fisher, who report inhibitory action at a concentration of about 700 units per ml. and complete inhibition at 25,000 units per ml. The author ascribes this discrepancy to differences in the purity of the penicillin. Fleming and Fisher also report an inhibitory effect on the retraction of clot at low concentrations (340 units per ml. in the case of pure penicillin), and the author's findings confirm this.

\textit{G. Lorriman}


Penicillin is rapidly excreted (up to 70\% unchanged) in the urine when given parenterally. It has now been shown by urinary excretion studies in cats, in which penicillin labelled with \textit{S\textsuperscript{35}} was used, that the remainder can be accounted for as penicillin breakdown products. Thus, in 4 cats given labelled and ordinary penicillin intramuscularly, 72, 101, 100, and 98\% of the radioactive sulphur isotope was recovered, but only 47, 60, 66, and 36\% of ordinary penicillin. The radioactive penicillin was excreted over the same time interval (up to 8 hours, with maximum excretion within 2 hours) as ordinary penicillin, indicating that penicillin was not retained in the body. When labelled penicillin was given by mouth much smaller amounts were excreted in the urine; in 4 cats the percentages were 54, 24, 37, and 24. In one cat in which 24\% was excreted in the urine after 6 hours, 59\% of the original radioactivity was still present in the gut, suggesting that non-absorption after oral administration accounted for the low urinary excretion.

\textit{R. Wien}


This paper records 62 tubal insufflations of penicillin and streptomycin aerosols in a vehicle of the usual carbon dioxide gas. The rationale of the procedure is based on the use of these aerosols in lung infections, and the method is suggested both as a diagnostic and as a therapeutic technique.

\textit{Hugh R. Arthur}