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indispensable apparatus for the critical study of anaerobes. His report to the Medical Research Council on anaerobic infections is a classic used by all workers in the most exacting discipline in all bacteriology. His services in this field were again called upon in the 1939–45 war, when he was appointed a member of the War Wounds Committee of the Medical Research Council, who profited not only from his wide experience but also from the investigations he conducted on many urgent problems. Indeed one would not hesitate to say that the high standard of the work done on anaerobic infections during the last war was largely due to his lifelong interest in the anaerobic bacteria and to the inspiration he gave to many other workers.

Another sphere in which McIntosh gained distinction was the experimental study of virus diseases. He was first actively involved in this field at the London Hospital where, with H. M. Turnbull, he commenced a study of encephalomyelitis following vaccination, which he continued at the Bland-Sutton Institute. In the report on this subject to the Ministry of Health in 1925 McIntosh found himself so much at variance with his colleagues that he submitted a minority report expressing his conviction that vaccinia virus could not be excluded as a cause of post-vaccinial encephalomyelitis. It was not until many years later that his views on the generalization of vaccinia virus and the causation of post-vaccinial encephalitis became widely accepted. In later years he applied his experience in handling viruses to the experimental study of cancer. He made the important observation that tumours induced by tar in fowls could be transmitted by cell-free filtrates. Although other workers have brought forward indirect evidence in support of his findings, none has succeeded in repeating his demonstration of a virus agent in these induced tumours. He was firmly of the opinion that viruses played the dominant part in the aetiology of tumours, and, with the further inroads that are being made by virologists into the tumour problem, his work is now gaining increasing respect. In his handling of viruses his mechanical genius came to the fore—as it had done before in the design of the anaerobic jar—as exemplified by his adaptation of the spinning-top ultracentrifuge for the sedimentation of viruses and his modification of the Sharples centrifuge for the continuous centrifugalization of large quantities of virus suspensions.

McIntosh will also be remembered for the smooth-running organization he built in the Bland-Sutton Institute, which he administered from 1920. Here, besides carrying on his many scientific investigations, he was responsible for undergraduate teaching in pathology and also for the pathological services to the Middlesex Hospital. His outside activities in the service of pathology were many. He was a member of the Pathological Society of Great Britain and Ireland, for which he acted as treasurer for many years, a senior member of the Medical Research Club, a past-president and representative to the Library Committee of the Pathological Section of the Royal Society of Medicine, and an honorary member of the Association of Clinical Pathologists. He also took a deep interest in the welfare of his laboratory technicians and did great service for many years in the Pathological and Bacteriological Laboratory Assistants Association, now the Institute of Medical Laboratory Technology. He was also an examiner to the Universities of London, Cambridge, and Manchester, and for the Conjoint Board.

In the 1939–45 war he was pathologist to Sector V of the Emergency Medical Service and directed two laboratories in the Aylesbury district in addition to the Bland-Sutton Institute. As Chairman of the London Sector Pathologists Committee he also played his part in co-ordinating the pathological services of the London area. In addition to his work in the Sector and for the Medical Research Council, he also conducted an investigation of cases of encephalomyelitis on behalf of the Ministry of Health.

McIntosh was a bachelor of a rather retiring disposition, and to strangers and even to many acquaintances he was sometimes difficult to understand. His shyness and habit of self-effacement frequently gave the impression that he was somewhat brusque and disinterested. Those who knew him well, however, were aware that it cost him a great effort to show his displeasure and that when he did so some fundamental principle was involved. Misunderstanding also sometimes arose from his way of expressing himself, which led to apparent contradictions, largely because of his habit of letting his thought outstrip his speech. Even so, one was frequently startled by the rapidity with which he got to the core of a complicated subject and summed it up in a few words by a process which defied analysis.

He had many interests outside his profession, such as his series of high-powered cars, his golf, and his garden. He was a genial host and helped many in their private worries. There are many who will miss McIntosh, not only as an inspiring chief but also as a loyal friend.

F. R. SELBIE.

We regret to record the death of Dr. Gordon Wilkinson Goodhart; an obituary notice will appear in the next issue.

J. clin. Path. (1948), **1**, 253.

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. In this* JOURNAL *some of the more important articles on subjects of interest to clinical pathologists are selected for abstract, and these are classified into four sections: bacteriology; biochemistry; haematology; and morbid anatomy and histology.*

BACTERIOLOGY

Improvement of the Diagnosis of Tuberculosis by Guinea-pig Inoculation. (Amélioration du bactério-diagnostic de la TBC par l'inoculation au cobaye.) BADOUX, V. (1947). *Schweiz. Z. Path. Bakt.*, **10**, 470.

A review is made of technical details of guinea-pig inoculation in the diagnosis of tuberculosis, and a plea is entered for always basing a report on results in 2 guinea-pigs. The material should be kept, and used to inoculate additional guinea-pigs should the originally inoculated animals die prematurely. The author claims an increase of 4.76% positive results since he has used 2 animals for every test. *R. Salm.*

Detection of Mycobacterium tuberculosis by Means of Fluorescence Microscopy. BRIGGS, G. O. A., and JENNISON, M. H. (1947). *Tubercle, Lond.*, **28**, 189.

The authors tested the value of the fluorescence method as used in a sanatorium of 210 beds admitting all types of pulmonary tuberculosis. A series of sputum smears was stained by the auramine-phenol technique (*Brit. J. Tuberc.*, 1946, **111**, 98). After examination these films were then re-stained by a Ziehl-Neelsen technique described by Jennison (*Bull. Inst. Med. Lab. Techn.*, 1946, **6**, 87). Of 500 smears thus examined 44.4% were positive with the fluorescence technique and 45.8% by the modified Ziehl-Neelsen method. Thus the modified Ziehl-Neelsen method yielded 1.4% more positive results with an expenditure of 6 seconds less time per smear, or an overall saving of 50 minutes.

Detection of Latent Genital Tuberculosis by Culture of Menstrual Discharge. HALBRECHT, I. (1947). *Lancet*, **2**, 947.

Endometrial biopsies have shown that latent genital tuberculosis is commoner than hitherto suspected, occurring in at least 5% of cases of primary sterility. Endometrial biopsy, however, can give a positive result only when tuberculosis has reached that particular portion of the endometrium removed for scrutiny. The author undertook culture of menstrual blood obtained with a vaginal speculum from the fornix and the os on the first or second day of the menses, and repeated his examination at least thrice in each patient. Of 140 tests in 80 women with primary sterility, including 10 with proved endometrial tuberculosis and 2 others clinically suspected of genital tuberculosis, culture was positive nine times in 6 women. The author suggests that this is the only safe method of establishing the diagnosis where genital tuberculosis is clinically suspected.

Culture of menstrual blood was positive in only 2 of the 10 proved cases of endometrial tuberculosis.

J. A. Chalmers.

Alcohol as a Disinfectant Against the Tubercle Bacillus. SMITH, C. R. (1947). *Publ. Hlth Rep., Wash.*, **62**, 1285.

The author reviews previous work on the efficiency of alcohol as a disinfectant, particularly against the tubercle bacillus. Water is essential to the disinfectant action of ethyl alcohol; the optimum strength appears to be 50 to 70%. The germicidal effectiveness of aliphatic alcohols increases with molecular weight as far as the amyl derivatives, and then decreases through octyl to undecyl alcohol. Normal propyl alcohol is the most effective.

Experimental data are given, and it is concluded that both ethyl and *iso*propyl alcohols are useful and practicable disinfectants against the tubercle bacillus and that they are specially suitable for skin disinfection. They are also suitable for thermometers and for surfaces, dishes, and handicraft articles which might be damaged by other methods of disinfection. Some plastics, painted and varnished surfaces, and some fabrics and dyes, may be damaged by alcohol, and in thoracoscopes and cystoscopes the lens systems may be held in position by alcohol-soluble cements and so may be liable to harm.

R. J. Lumsden.

Relative Numbers of Resistant Tubercle Bacilli in Sputa of Patients before and during Treatment with Streptomycin. PYLE, M. M. (1947). *Proc. Mayo Clin.*, **22**, 465.

In 7 out of 8 cases of pulmonary tuberculosis a few moderately resistant organisms were present in cultures from sputum before the start of chemotherapy. During treatment with streptomycin the proportion of resistant bacilli in cultures recovered from sputa at weekly intervals increased, the degree of their resistance increased, and the predominantly sensitive reactions of the isolated strains, as judged by the ordinary methods of testing sensitivity, were replaced by predominantly resistant reactions. *P. D'Arcy Hart.*

Estimation of Streptomycin in the Blood and Cerebrospinal Fluid. (Titrage de la streptomycine dans le sang et le liquide céphalo-rachidien.) CHABBERT, Y., and SUREAU, B. (1947). *Ann. Inst. Pasteur*, **73**, 1142.

The test organism used is the Oxford strain of *Staphylococcus aureus* grown in glucose broth with phenolsulphonphthalein at *p*H 8.4 as indicator. The organism

is inhibited in this medium by 0.44 unit of streptomycin per ml. A series of control tubes containing various dilutions of streptomycin is read against dilutions of the fluid, serum, plasma, or cerebrospinal fluid in the medium, the presence of growth being shown by change in the indicator. The tubes showing complete inhibition and just failing to show inhibition are noted. The method is sensitive to 0.44 unit per ml., and can be applied to urine provided the urine is sterilized by passage through a Seitz filter. *G. M. Findlay.*

Further Observations on the Occurrence of Streptococci of Groups other than A in Human Infection. FOLEY, G. E. (1947). *New Engl. J. Med.*, **237**, 809.

The grouping of strains of streptococci isolated from sources other than the upper respiratory tract was studied. Out of 118 cases investigated, 95 showed organisms of strains other than group A: 77 belonged to groups B, C and G, D, E, F, and K. The streptococci most frequently encountered in the study were those of group D, and these were usually associated with endocarditis, urinary tract infections, and intra-abdominal abscesses. Streptococci belonging to groups B, C and G, E, F, and K were met with in adult and childhood infections. The author believes that the incidence of streptococci of groups other than A cannot be properly ascertained if only colonies giving a beta reaction on blood agar are studied. *J. Smith.*

Staphylococcal Infection Due to Penicillin-resistant Strains. BARBER, M. (1947). *Brit. med. J.*, **2**, 863.

In a series of examinations undertaken during April–November, 1946, 99 patients yielded 14 strains of *Staph. pyogenes* from infected lesions resistant to penicillin; during February-June, 1947, 38 out of 100 patients yielded resistant strains. It would appear that 10 from the last group also harboured sensitive strains at the beginning of treatment. The sensitive strains were found to belong to serological and bacteriophage types different from those of the resistant strains.

The author brings forward evidence to show that the penicillin-insensitivity is not due to resistance built up in the tissues after administration of penicillin, but that the strains are originally resistant to the action of penicillin. They are penicillinase producers and flourish in a lesion only after the sensitive strain has been overcome by penicillin.

In determining the penicillin-sensitivity of these penicillinase-producing organisms the size of the inoculum was found to be important. The ditch-plate method was particularly valuable, for unless the size of the inoculum was carefully controlled some of the other methods for the determination of sensitivity might yield misleading results with penicillinase-producing bacteria. *H. J. Bensted.*

Treatment of Diphtheria Carriers with Penicillin. (La profilassi penicillinica nei portatori di bacilli difterici.) TORRICELLI, C., and MONTAGNA, A. (1947). *Lattante*, **18**, 474.

A series of 414 children, mostly infants, was examined for diphtheria organisms. Of the 22 strains recovered, 1 was a toxic *Corynebacterium diphtheriae*, 12 were non-toxic *C. diphtheriae*, and 9 were "pseudo-diphtheria" bacilli. The gravis organism was isolated from a child who had a sero-sanguineous nasal discharge and was probably suffering from diphtheritic rhinitis. The other organisms came from the nasopharynx of healthy carriers and from pus in 3 cases of chronic purulent otitis media. All 22 children were treated by the nasal or aural instillation of penicillin solution, 1,000 units per ml., 4 to 6 times a day for about 10 days, and the organisms disappeared. *E. G. Sita-Lumsden.*

The Suppressive and Schizonticidal Value of Paludrine (100 mg.) in Vivax Malaria. WOODRUFF, A. W. (1947). *Trans. R. Soc. trop. Med. Hyg.*, **41**, 263.

Fifteen patients suffering from benign tertian malaria were treated with a single 100-mg. tablet of "paludrine." The results compared unfavourably with those obtained in a similar series treated by quinine for 3 days followed by mepacrine. It is suggested that this dose of paludrine is sub-optimal in an acute attack. Twenty patients, after an acute attack of benign tertian malaria treated by paludrine, were given 100 mg. paludrine weekly for 6 months. No toxic manifestations were noted. During the period of paludrine administration one short-term relapse and three possible clinical attacks occurred. During the 6 months following the period of paludrine administration there was 1 proved long-term and 1 possible clinical relapse. Thus, in the dosage used, it seems that paludrine does not invariably prevent long-term relapses. *J. L. Markson.*

Contribution to the Serological Diagnosis of Amoebiasis. (Contributo allo studio della sierodiagnosi nell' amebiasi.) RITA, G. (1947). *Riv. Parassit.*, **8**, 113.

The author carried out complement-fixation tests with an antigen made by Craig and Scott's technique on 63 patients with amoebic infection and on numerous controls: 14 had acute dysentery, 2 amoebic hepatitis, and 47 intestinal amoebiasis. In 1 patient with hepatitis the entamoebae were not found, but they were seen in all the others. Fifty-eight gave a positive result. Of the 5 negative cases, 2 had acute dysentery and 3 had mild intestinal forms. Persistence of the complement-fixation reaction indicates that the patient is not free from his amoebae and relapse is likely.

Meningitis Leptospirosa. BUZZARD, E. M., and WYLIE, J. A. H. (1947). *Lancet*, **2**, 417.

This paper records 5 cases aged 9 to 23 years in which Weil's disease was characterized solely by mild benign meningitis with certain particular features, especially suffusion of conjunctivae. Three had recently been river bathing and the other two had occupational risks. The cerebrospinal fluid had a slightly raised pressure and a cell count of 50 to 300 per c.mm. with varying proportions of granulocytes and lymphocytes. There was slight proteinuria, but no cells or casts in the urine. No patient was jaundiced. In all cases the agglutination titre rose to 1 in 1,000 or higher at the end of the second week. All recovered completely without specific treatment of any kind.

Meningitis due to Candida (Monilia) Albicans with Recovery. ZIMMERMAN, S. L., FRUTCHEY, L., and GIBBS, J. H. (1947). *J. Amer. med. Ass.*, **135**, 145.

This is believed to be the first recorded case of recovery from meningitis proved to be due to *Candida albicans*, the 3 previously recorded cases having all ended fatally. A man aged 28 had a week's history of increasing malaise, headache, fever, vomiting, and drowsiness alternating with delirium. White patches were present on the palate, posterior pharynx, and back of the tongue. He had neck rigidity, a positive Kernig sign, absent deep reflexes, and retention of urine. His cerebrospinal fluid contained 37 lymphocytes per c.mm. and 186 mg.

protein and 585 mg. chlorides per 100 ml. A direct smear of the fluid stained with methylene blue showed large, oval, budding yeast-like fungi, which could be cultured and subcultured with production of mycelia. Serum agglutination against *C. albicans* was positive at a 1 in 40 dilution.

The condition responded to an 8-day course of streptomycin, and he eventually made a complete recovery. *A. H. Stewart-Wallace.*

Observations on the Epidemiology of Poliomyelitis in Glasgow. ANDERSON, T. (1947). *Glasg. med. J.*, **28**, 328.

The epidemiology of poliomyelitis is discussed in the light of recent experience of the disease in Glasgow. It seems probable that the final number of cases in Glasgow in 1947 will not be far short of three-quarters of the total number of cases notified in the past 27 years. This high prevalence justifies a discussion of the possibilities: (*a*) that a new virus may have appeared; (*b*) that the virus normally present endemically may have acquired an increased power of attack; or (*c*) that the human herd may have become more susceptible because of some unknown environmental change. The author inclines to the view that person-to-person infection, chiefly from healthy carriers and abortive cases, is the most important means of spread. *W. H. Bradley.*

The Isolation of a Filterable Agent Pathogenic for Mice from a Case of Reiter's Disease. DUNHAM, J., ROCK, J., and BELT, E. (1947). *J. Urol.*, 58, 212.

Conjunctivitis was produced in mice by intraperitoneal injections of filtered allantoic fluid previously infected with material from the urethra and conjunctiva of a 23-year-old white man suffering from Reiter's disease with conjunctivitis, urethritis, and arthritis uninfluenced by sulphathiazole, penicillin, or neoarsphenamine.

The Harris Slide Test. A Microflocculation Test for Syphilis with Cardiolipin Antigen. VOGELSANG, T. M. (1947). *Brit. J. vener. Dis.*, **23**, 109.

Cardiolipin was used for the Venereal Disease Research Laboratory slide test by Harris *et al.*, who reported highly satisfactory results with a low incidence of false positive reactions (*J. vener. Dis. Inform.*, **27**, 169), as did Kline (*Arch. Derm. Syph., Chicago*, 1947, **55**, 514) when contrasting this test with the other flocculation procedures.

The present author employed what he christens the "Harris test" on 5,556 sera, and compared the results with the standard Kahn and Meinicke and with Bordet-Wassermann tests. Of 777 known syphilitic sera there was agreement between results of the Harris and Bordet-Wassermann in 81.85%. Of the remaining 141 sera 100 gave a positive Harris reaction and 99 a positive Wassermann, while negative results were obtained in 41 and 42 respectively. Of 4,779 non-syphilitic sera there was agreement in 98.72%, although, of the 61 remaining, 43 gave a negative Harris reaction and only 10 a negative Bordet-Wassermann. Thus the two tests were about equally sensitive, the Harris being the more specific. The Harris test showed similar sensitivity and somewhat greater specificity than the standard Kahn; even if less sensitive than the Meinicke, it was considerably more specific. *R. R. Willcox.*

BIOCHEMISTRY

A Survey of the Accuracy of Chemical Analyses in Clinical Laboratories. BELK, W. P., and SUNDERMAN, F. W. (1947). *Amer. J. clin. Path.*, **17**, 853.

In 1946 the Committee on Laboratories of the Medical Society of Pennsylvania carried out a survey to check the accuracy of findings in clinical laboratories. Some 59 pathologists in hospitals of all types expressed their willingness to analyse standard samples sent to them. Each received 12 samples, previously analysed, of aqueous solutions of glucose, chloride, urea, and calcium in concentrations commonly found in the blood, together with a sample of serum for protein estimation, and samples of whole blood for haemoglobin determination. Their findings were entered on plain printed cards, which were returned unsigned. The data were arranged in frequency distributions, and histograms are reproduced. The referee selected reasonable limits of error permissible for each analysis, and grouped results as "satisfactory" and "unsatisfactory" according as they fell within or outside these limits. The authors found a surprising degree of unreliability; measurements were below any reasonable standard of accuracy. Unsatisfactory results outnumbered the satisfactory ones, and gross errors were not uncommon. Of 51 haemoglobin determinations, only 17 were satisfactory (limits 9.8 ± 0.3 g. per 100 ml.); of 52 glucose determinations (limits 60 ± 10 mg. per 100 ml.) 19 were unsatisfactory; and of 44 serum albumin determinations only 9 were satisfactory. Roughly one-third of the calcium estimations were satisfactory, and two-thirds of the sodium chloride estimations.

A questionary on these unsatisfactory results brought replies from 106 pathologists. The majority attributed the inaccuracy to poor training and shortage of technicians, while 64 thought that there was lack of understanding between pathologist and staff. *S. S. B. Gilder.*

(This very important survey should be read and the figures and tables studied in the original. A similar survey carried out in this country would certainly reveal the poor correlation existing among laboratories, even when they are using similar methods.—Ed.)

Methionine Excretion. Effect of Diet and Methionine Ingestion in Normal Subjects. TIDWELL, H. C., SLESINSKI, F. A., and TREADWELL, C. R. (1947). *Proc. Soc. exp. Biol., N.Y.*, **66**, 482.

The daily urinary excretion of methionine in 80 male medical students on a normal control diet containing approximately 2 g. methionine per day, as determined by the method of Albanese (*Bull. Johns Hopk. Hosp.*, 1944, **75**, 175), averaged 318 ± 9 mg. (range 199 to 518 mg.) or about 4.5 mg. per kilo body weight. The methionine excretion during 6-hour and 24-hour periods after the ingestion of 1 or 1.5 g. methionine was determined in 26 subjects given food and 11 subjects given none. The increase in methionine excretion was approximately 9 and 15% of the amino-acid supplement.

Three groups of 12 subjects were then placed on a diet with a low and a higher protein content and a high fat content respectively. The calculated daily methionine content of the diets was 1.34, 3.33, and 2.23 g. After 4 days no change in the methionine excretion was observed in the subjects on the diets with low or higher protein content, but there was a decrease in the methionine excretion in the subjects on a high fat diet, and a similar decreased excretion was observed when the latter

subjects were given a 1.5 g. supplement of methionine. Nine subjects who fasted for 3 days showed a diminished urinary excretion of methionine. It is suggested that an increased lipotropic requirement might account for diminished excretion of methionine in subjects on a high fat diet or after a 3-day fast. *C. C. N. Vass.*

Plasma *dl*-Methionine Levels Following Intravenous Administration in Humans. HARPER, H. A., KINSELL, L. W., and BARTON, H. C. (1947). *Science*, **106**, 319.

After a 12-hour fast a blood sample was withdrawn for determination of plasma methionine, and 50 ml. of 3% solution of *dl*-methionine was then given intravenously to 11 subjects. Methionine determinations were then carried out on the plasma and urine at intervals during 3 hours. Following a sharp rise in plasma methionine 15 minutes after injection the concentration slowly fell, but in no case did it reach the pre-injection level within the 3 hours of observation. There were considerable individual variations in rate of disappearance and in urinary excretion. The excretion was most rapid during the first 15 to 30 minutes when the blood levels were highest, but the amount excreted at any time was quite low when compared with the quantity injected.

D. T. Barry.

Use of Methionine and Vitamin Supplements in Treatment of Hepatic Disease. Clinical and Laboratory Observations. CAYER, D. (1947). *Arch. intern. Med.*, **80**, 644.

The author divides 18 cases into three groups: (1) 4 of acute infective hepatitis (2) 6 of chronic hepatitis without ascites, and (3) 8 of chronic hepatitis with ascites and signs of collateral venous circulation. The patients were given a daily oral dose of 3 to 6 g. of methionine and therapeutic doses of the vitamin-B complex, in addition to a diet of 3,500 calories made up of 120 to 140 g. of protein, 130 to 150 g. of fat, and 350 to 400 g. of carbohydrate given in multiple small feeds. Those in hospital were given 500 to 1,000 ml. of 10% dextrose solution intravenously daily. In group 1 the course of the disease was not appreciably altered. In group 2 considerable improvement, as judged by clinical observation and by liver-function tests, was noted in all cases within 7 days. In group 3, 7 out of 8 patients showed some clinical improvement, and 3 were well and carrying on full-time work on an average 13 months after treatment. The author comments on the well-known poor prognosis in this disease and quotes for comparison larger series reported by others and treated on different lines.

J. B. Mitchell.

The Thymol Turbidity Test as a Measure of Liver Disease. With Special Reference to Comparison of the Turbidity at 18 Hours with that at 30 Minutes ("18 Hour Turbidity Ratio"). SHAY, H., BERK, J. E., and SIPLET, H. (1947). *Gastroenterology*, **9**, 641.

The Thymol Turbidity Test and Impaired Liver Function. MANN, F. D., SNELL, A. M., and BUTT, H. R. (1947). *Gastroenterology*, **9**, 651.

Studies of Responses of Certain Hepatic Tests in Diseases of the Liver and Biliary Tract. I. Serum Cephalin Cholesterol Flocculation, Thymol Turbidity, Thymol Flocculation and Colloidal Gold Responses. NEEFE, J. R., BAHNSON, E. R., and REINHOLD, J. G. (1947). *Gastroenterology*, **9**, 656.

These three interesting papers deal with the now much-used turbidity or flocculation tests of hepatic function.

Shay and others consider particularly the thymol-turbidity test, but contrast it clinically with the cephalin-cholesterol and colloidal gold tests. They suggest a new modification of the thymol reaction—namely, a reading at 18 hours as well as at 30 minutes—and find that the "18-hour turbidity ratio" remains abnormal in infective hepatitis longer than do the other flocculation tests.

Mann and others have also used the thymol-turbidity test, and agree with previous workers that it is usually positive in infective hepatitis and negative in biliary obstruction. In other forms of hepatic disease the results are very variable. The authors' comment on the possible explanation of the flocculation is worth reading. They emphasize that the bromsulphthalein retention test is still the best indicator of injury to the liver when jaundice is absent.

Neefe and others found that the cephalin-cholesterol test provided evidence of hepatic disorder more often than did the other tests, but was for this reason of less value in distinguishing between intrahepatic forms of jaundice and extrahepatic biliary obstruction. They suggest that the thymol and gold tests are likely to have a similar mechanism, since their results run parallel and may differ considerably from those with cephalin-cholesterol. They conclude that a combination of all three tests is often useful in diagnosis, but if two only are chosen they should be the cephalin-cholesterol and thymol reactions.

(These papers support other workers' opinions of the value of these three tests of disturbed hepatic function, and will encourage research into their mechanism.)

J. W. McNee.

The Colloidal Scarlet Red Test Applied to Cerebro-spinal Fluid. (La reacción del rojo escarlata coloidal aplicada al liquido cefalorraquídeo.) TRIGUEROS, E. A., and REINLEIN, J. M. A. (1947). *Rev. clín. esp.*, **27**, 182.

Gray (*Arch. intern. Med.*, 1940, **65**, 523) suggested the use of the colloidal gold curve for testing hepatic function. Maizels proposed the substitution of the scarlet-red test instead of the colloidal gold test; this in turn led the authors of this paper to think that the scarlet-red test might be useful for replacing Lange's colloidal curve in examinations of the cerebrospinal fluids. They have examined 96 cases, and find that Lange curves and the curves obtained with scarlet red are for practical purposes identical. As the scarlet-red test is simpler and cheaper to carry out, the authors recommend it instead of Lange's gold test. *F. K. Kessell.*

Studies on the Mechanism of the Fanconi Syndrome. STOWERS, J. M., and DENT, C. E. (1947). *Quart. J. Med.*, **16**, 275.

The authors record a case in a man of 35 who had severe osteomalacia in the absence of any dietary deficiency of vitamin D, mild diabetes with renal glycosuria, amino-aciduria (without excessive cystine or methionine excretion), hypophosphataemia, and moderately impaired renal function; the liver showed focal centrilobular necrosis with nodular hyperplasia and a carcinomatous change (malignant hepatoma). Details of the investigations, including special metabolic studies of the amino-acid and sulphur metabolism and the ionic equilibrium of the serum and urine, are recorded. No significant change in the metabolism of sulphur-containing amino-acids was found. It is suggested that the excessive excretion of glucose and amino-acids is

dependent on the lack of adequate phosphate for their effective phosphorylation; thus their tubular reabsorption is impaired; besides a low renal threshold for phosphates, hyperphosphaturia may result from a chronic mild acidosis. *Henry Cohen.*

The Influence of Stilbamidine upon Kidney Function, Liver Function, and Peripheral Blood in Multiple Myeloma. ARAI, H., and SNAPPER, I. (1947). *N.Y. St. J. Med.*, **47**, 1867.

The authors discuss the toxic effects of stilbamidine, and report their findings in the treatment of 26 patients suffering from multiple myeloma. The kidney and liver functions were studied during and after stilbamidine therapy. In 24 patients there were no significant changes suggestive of impairment of kidney or liver function during or after stilbamidine therapy. Two patients who showed evidence of renal impairment during treatment were proved to have serious involvement of the kidney with myeloma. The authors conclude that although there is no conclusive evidence of renal or hepatic damage due to treatment with stilbamidine the influence on the kidney function of patients with myeloma must be carefully watched, especially in those with Bence-Jones proteinuria. *G. E. Hesketh.*

Diagnosis of Adrenal Tumours. A New Chemical Test. PATTERSON, J. (1947). *Lancet*, **2**, 580.

The differential diagnosis of adrenal tumour from adrenal hyperplasia is not aided by the estimation of the total urinary 17-ketosteroids, since they are increased in both conditions. One member of the group, however, dehydro*iso*androsterone, is increased in adrenocortical tumours in females. A new colour reaction is described for this substance. The reaction was positive in 3 cases of adrenal tumour with a very high daily ketosteroid output (215,335, and 1,980 mg.), negative in 6 cases of prepuberal virilism (output 24 to 81 mg.), and negative in 8 cases of secondary virilism (output 21 to 30 mg.). *H. Herxheimer.*

The Renal Regulation of Acid-base Balance in Man. I. The Nature of the Mechanism for Acidifying the Urine. PITTS, R. F., LOTSPEICH, W. D., SCHIESS, W. A., and AYER, J. L. (1948). *J. clin. Invest.*, **27**, 48.

The rate of excretion of titratable acid in the presence of acidosis with a concomitant infusion of large quantities of neutral sodium phosphate (*p*H 7.4) or creatinine was investigated. Eight experiments were performed on 4 healthy adult males. Acidosis was induced by the ingestion of 20 g. of ammonium chloride on the day preceding the observations. "Arterialized" venous blood was obtained from an arm vein for determinations of *p*H and CO_2 content. Glomerular filtration rate was determined by thiosulphate clearance; the plasma thiosulphate concentrations were maintained between 30 and 40 mg. per 100 ml. Simultaneous measurements of the rates of filtration, reabsorption, and excretion of monobasic and dibasic phosphate and carbonic acid showed that the quantity of titratable acid excreted was much greater than that which was filtered off in the glomerulus. When the plasma phosphate concentration reached 6 to 7 mM (millimols) per litre the hypothetical filtration-reabsorption mechanisms for phosphate and bicarbonate together could account for only one-third of the titratable acid excreted. Acid must have been added to the urine by the renal tubule. The rate of ammonia excretion averaged 0.066 mEq (milliequivalents) per minute which, though much increased over normal, was not high compared with that observed in diabetic acidosis. The ratio of ammonia to titratable acid, normally between 1 and 2.5, fell with the infusion of phosphate to 0.16 solely because of the increase in rate of excretion of titratable acid. In three experiments on 2 subjects the *p*H of the urine ranged between 4.48 and 4.6. Three experiments on 3 different subjects were made in which creatinine was substituted for phosphate. Again the carbonic-acid filtration could account for only 35 to 56% and the phosphate reabsorption for only 5.4 to 8.7% of the excreted acid. The mechanism for acid excretion in the human kidney is qualitatively similar and, judged by these experiments, quantitatively greater than that described in the dog kidney (Pitts and Alexander, *Amer. J. Physiol.*, 1945, **144**, 239). *C. C. N. Vass.*

The Renal Regulation of Acid-base Balance in Man. II. Factors Affecting the Excretion of Titratable Acid by the Normal Human Subject. SCHIESS, W. A., AYER, J. L., LOTSPEICH, W. D., and PITTS, R. F. (1948). *J. clin. Invest.*, **27**, 57.

This paper records a study on one subject (R.F.P.) but the results obtained were confirmed on other normal adult males. With the subject in a state of moderate 24-hour acidosis (plasma bicarbonate concentration 14.4 mM (millimols) per litre, plasma *p*H 7.37) the amount of phosphate in millimols excreted per minute during infusion of neutral phosphate bore a direct relation to the amount of titratable acid in milliequivalents excreted per minute. The results are in accord with the view that the urine is acidified by the exchange of hydrogen ions formed within the tubular cells for ions of fixed base in the tubular urine. *C. C. N. Vass.*

A New Clearance Substance in Renal Function Tests. (Eine neue Clearance-Substanz zur Nierenfunktionsprüfung.) FUHRMANN, G., and SCHUBERT, H. (1947). *Z. ges. inn. Med.*, **2**, 451.

The use of inulin and of creatinine clearance substances in testing renal function is unsatisfactory. A new agent, triticin, has been employed; it is also a fructose-yielding polysaccharide but of low molecular weight and soluble in water (25%). It may be injected rapidly and never causes shock. It is excreted completely in the urine in about 4 hours, none being retained by the tissues. Hydrolysis and the Selivanoff test, employed quantitatively with photometric measurement, proved satisfactory for estimation of triticin. The normal clearance values as well as the abnormal are approximately those obtained with inulin. *D. T. Barry.*

The Titratable Acidity, *p*H, Ammonia and Phosphates in the Urines of Very Young Infants. MCCANCE, R. A., and VON FINCK, M. A. (1947). *Arch. Dis. Childh.*, **22**, 200.

For some time after birth the kidney function is still immature, and it has been shown that the glomerular filtration rate, and the urea, sodium, and chloride clearances are low in newborn babies. This paper extends these observations by furnishing data on the *p*H, the titratable acidity, the ammonia coefficients, and the phosphate in the urine of newborn babies born in occupied Germany. Comparisons are made with specimens obtained from healthy Britains and Germans.

The data are based on the examination of urine from 72 infants, 36 adults, and 10 diabetics. All the babies were breast-fed and no additional water was given. The

following results were obtained: (1) The average *p*H tended to fall slightly after birth with an increase as milk flow was established. The *p*H did not differ from the average in urine from healthy adults. (2) The titratable acidity varied with the concentration of the urine and fell as the *p*H rose. (3) Ammonia coefficients were unaffected by the age of the baby but on the average were higher than in normal adults. (4) The ratio of the ammonia to the acidity was higher in infants than in adults. (5) Urine of newborn infants contained very little phosphate. This might lead to an incapacity to deal with an acidosis, should one occur. (6) Urine passed *in utero* was very dilute but differed in no other way from that passed in the first few days of life.

A. G. Watkins.

Response of New-born Children to Hypertonic Solutions of Sodium Chloride and of Urea. DEAN, R. F. A., and MCCANCE, R. A. (1947). *Nature, Lond.*, **160**, 904.

The authors examined the diuresis following injection of hypertonic saline and urea in infants suffering from meningomyelocele, and compared the findings with those in normal adults. While a diuresis occurred in both infants and adults, this was much less marked on a basis of surface area in infants, while after saline the osmotic pressure of the urine behaved differently in the two groups, falling in adults and rising in infants. Excretion of administered salt was much slower in infants. Similar results were obtained with urea, though the discrepancies between age groups were less marked and the diuresis less.

Alex Comfort.

Influence of the Diet on Urea Clearance. (Kostens Indflydelse paa Urinstof-clearance.) BANG, H. O., and NIELSEN, A. L. (1947). *Nord. Med.*, **36**, 2376.

The authors report the effects of alternate high-protein and low-protein diets on urea clearance in 5 nurses and 5 patients with healthy kidneys. The good diet was the full Danish hospital diet with 100 g. of meat added daily; the poor diet contained 25 to 30 g. of protein daily and had a calorie value of about 2,000. Subjects were given the diets for from 6 days to over 3 weeks and were in nitrogen balance; the nurses lost some weight when on the poor diet.

Urea clearance was estimated during two 1-hour or three ½-hour periods with an indwelling catheter. Diuresis was maintained to give maximal clearances. In all there were 25 estimations after a good diet and 15 after a poor one; with insignificant exceptions, individuals on the poor diets showed a fall in clearance down to as low as 44% of the previous values; the average fall was to about 70%. On return to the good diet clearance rose again. Other features of the poor-diet period were lowered urinary output (average 700 against 950 ml. a day), low plasma-urea levels (average 19 against 28 mg. per 100 ml.) and a low nitrogen output (average 4.1 against 10.7 g. a day).

A. M. M. Wilson.

Examination of Diodrast Clearance and Tubular Excretory Capacity in Man by Means of Two Single Injections of Diodrast (Umbradil). (In English.) JOSEPHSON, B. (1947). *Acta med. scand.*, **128**, 515.

A method of testing renal function is described based on changes of the plasma and urine concentration of "diodrast" after one intraglutaeal and one intravenous injection, combined with a clearance test of creatinine and inulin.

Nitrogen and Fluid Balance in Treatment of Acute Uremia by Peritoneal Lavage. Analysis of Peritoneal Washings for Protein, Nonprotein Nitrogen and Phosphorus. BASSETT, S. H., BROWN, H. R., KEUTMANN, E. H., HOLLER, J., ALSTINE, H. E. V., MOCEJUNAS, O., and SCHANTZ, H. (1947). *Arch. intern. Med.*, **80**, 616.

A woman aged 21, who in the course of progressive subacute glomerulo-nephritis became uraemic and practically anuric, was treated during the last 21 days of her life by peritoneal lavage. Altogether 257 g. of nitrogen was removed in the washing (140 g. of non-protein nitrogen and 117 g. of protein nitrogen), in addition to 92 g. in the gastric contents obtained by suction and 5 g. in the urine. At first substantial reduction in the non-protein nitrogen in the blood and inorganic phosphorus in the serum were obtained, but as the patient lost oedema fluid the values finally exceeded the prelavage figures.

L. H. Worth.

The Urinary Excretion of Amino Acids by a Cystinuric Subject. YEH, H. L., FRANKL, W., DUNN, M. S., PARKER, P., HUGHES, B., and GYÖRGY, P. (1947). *Amer. J. med. Sci.*, **214**, 507.

In 7 normal subjects the amino-acid excretion showed a remarkably uniform pattern, regardless of age differences. In a cystinuric child there were marked changes from the normal in the excretion of some amino-acids, both in absolute and relative amounts. Ingestion of methionine increased the urinary excretion of cystine in the cystinuric patient. It appears that in the normal subject arginine, cystine, and histidine, and in the cystinuric patient arginine, cystine, and lysine are present mainly in the unconjugated state, since the values for these amino-acids were essentially the same before and after hydrolysis of the urine.

L. H. Worth.

Chemical Studies in Children with the Nephrotic Syndrome. GOTTFRIED, S. P., STEINMAN, J. F., and KRAMER, B. (1947). *Amer. J. Dis. Child.*, **74**, 283.

For 2 years the authors studied 10 children between 16 months and 5 years old; 2 of the children died during this period. Extensive examinations were made of the blood chemistry and hepatic function. An increase or decrease of oedema seemed dependent on the serum protein and serum albumin being below or above 4 g. and 1.5 g. per 100 ml. respectively. Therapeutically, concentrated plasma and various forms of protein hydrolysate failed to produce any constant effect upon the total protein and serum-albumin levels. Some impairment of hepatic function was noticeable in all cases, and a defective production of protein is postulated. Low calcium values in serum were consistently present, and slight generalized osteoporosis was visible in radiographs.

W. G. Wyllie.

The Addis Count in the Prognosis of Acute Nephritis in Childhood. GILES, M. D. (1947). *Arch. Dis. Childh.*, **22**, 232.

The Addis count was used as a guide to prognosis in acute haemorrhagic nephritis. A red cell count of 600,000 per c.mm. or under in an 18-hour specimen of urine was considered to be normal. The result of the Addis count in 218 cases of acute haemorrhagic nephritis was compared with results of renal function tests, including estimations of non-protein nitrogen, serum proteins, and urea concentration and clearance tests. If the Addis count returns to normal and remains so it may be assumed that the renal lesion is healed and that a relapse is unlikely.

A. G. Watkins.

Comparative Absorption, Excretion, and Storage of Oily and Aqueous Preparations of Vitamin A. LEWIS, J. M., BODANSKY, O., BIRMINGHAM, J., and COHLAN, S. Q. (1947). *J. Pediat.*, **31**, 496.

Previous observations by these authors indicated that aqueous solutions of vitamin A are much better absorbed by premature infants than oily preparations, and the present investigation was undertaken "to ascertain whether the same phenomenon obtained for full-term infants, children, and adults." It was found that the average maximum blood level of vitamin A was five times higher after the aqueous product than after the oily solution. That this was due almost entirely to better absorption was shown by the fact that an average of 38% was wasted in the stools after ingestion of the oily product, whereas only 7% of the vitamin-A intake was lost in the stools when the aqueous solution was given. Similar studies on an 8-year-old boy with cystic fibrosis of the pancreas suggest that it should be possible to eliminate vitamin-A deficiency as a complication of this disease. It should also be possible to improve the absorption and effectiveness of vitamin D in the prevention and treatment of rickets. *M. Baber.*

Thiamine, Riboflavin, Nicotinic Acid, Pantothenic Acid and Biotin in the Urine of Newborn Infants. HAMIL, B. M., CORYELL, N., RODERUCK, C., KAUCHER, M., MOYER, E. Z., HARRIS, M. E., and WILLIAMS, H. H. (1947). *Amer. J. Dis. Child.*, **74**, 434.

Estimations of the daily urinary excretion of the vitamins of the B complex was undertaken in the newborn as a preliminary to assessing the nutritional status of the babies as regards these substances. Maximal average concentrations of thiamine and of pantothenic acid were found in urine excreted on the third day of life. For riboflavin the maximal average value was found on the first day, and for nicotinic acid and biotin on the second. The concentration of all vitamins in the urine decreased greatly after the first few days, very low levels being reached by the fifth day post partum in spite of abundant intake of breast milk. This large excretion of vitamins presumably indicates a high foetal storage. *M. Baber.*

The Effect of Dietary Restriction of B-complex Vitamins and Protein on the Excretion of Creatinine by Human Subjects. FRIEDEMANN, T. E., KINNEY, V. M., BERRYMAN, G. H., HENDERSON, C. R., and YOUMANS, J. B. (1948). *J. Nutrit.*, **35**, 117.

Seven men, aged 22 to 27 years, initially physically fit, were given 3 different diets and physical exercises over a period of 50 weeks, during which the variations in creatinine excretion and their relation to changes in weight and physical performance were studied. The results support the theory of early physiologists that there is a "constancy" in the relation between the creatinine excretion and the physical and nutritional state of the individual.

Vitamin C in the Blood and Urine of the Newborn and in the Cord and Maternal Blood. HAMIL, B. M., MUNKS, B., MOYER, E. Z., KAUCHER, M., and WILLIAMS, H. H. (1947). *Amer. J. Dis. Child.*, **74**, 417.

The plasma concentration of reduced ascorbic acid was estimated in samples of cord blood, capillary blood from 24 male breast-fed infants, and venous blood from their mothers, and compared with the amounts of vitamin C excreted in the infant's urine during the first week of life. The results showed wide variations, but cord blood contained by far the highest concentration of vitamin C, and the average value for the babies' blood, though only about half that for cord blood, was higher than for mothers'. Concentrations of vitamin C in urine were high during the first 2 days of life, but if the babies were not supplied with vitamin C urinary excretion dropped rapidly to low levels or disappeared as the blood level of the vitamin decreased. *M. Baber.*

Changes in Serum Calcium and Inorganic Blood Phosphorus after Treatment with Massive Doses of Vitamin D_2 in Some Cases of Tuberculosis in Children. (Variazioni del calcio sierico e del fosforo inorganico ematico dopo urtoterapia D_2 in alcuni casi di T.B.C. infantile.) RAGAZZIKI, F. (1947). *Riv. Clin. pediat.*, **45**, 473.

The behaviour of blood calcium and inorganic phosphorus levels was studied in 14 children with tuberculosis and 1 normal control; all were given massive doses of vitamin D_2 (calciferol), with and without intravenous calcium.

Cases were divided into 3 groups of 5. Patients in the first 5 were given 600,000 units intramuscularly and the serum calcium was estimated 1½, 3, 6, 24, 27, 33, 48, 51, 57, 72, and 96 hours later. There was a maximum rise of calcium late on the second or early on the third day to 0.8–1.9 mg. per ml. above the "resting" value; this maximum was maintained for 12 to 24 hours, and thereafter the level slowly fell, but in no case did it reach the former "resting" figure within 4 days. There was a small initial drop in blood calcium at 1½ hours. The second group was investigated over a period of 2 weeks, with daily serum calcium estimations for the first 7 days, and then on alternate days. A maximum rise on the third day was confirmed, and some cases showed a second but lesser peak about the sixth to eighth day. The blood calcium returned to its former level during the second week, in all cases by the fifteenth day. In the third group were 4 children with some form of tuberculosis, and 1 control. Phosphorus levels were found to parallel closely those of calcium in the serum, but the rise was more persistent. The daily intravenous injection of 10 ml. of 10% calcium gluconate produced greatly increased serum calcium, and the rise was more prolonged but there was no further effect on the phosphorus level. If calcium was given alone without vitamin D_2, there was no significant change in either the calcium or the phosphorus level, but if the vitamin was then administered there was an immediate and marked rise in calcium. Calcium given a week after the injection of calciferol had no effect in raising the calcium level in the blood. The normal control showed no change in phosphorus levels in spite of increase in serum calcium. The author recommends simultaneous administration of calcium and vitamin D_2, as calcium is then better utilized and the initial hypocalcaemic effect is obviated. *F. G. Sita-Lumsden.*

Utilization of Parenteral Protein Hydrolysate in the Normal. BARBORKA, C. J., CARROLL, W. W., and HEPLER, O. E. (1947). *Gastroenterology*, **9**, 579.

The preparation used in this study was "aminosol-fibrin," a partial acid hydrolysate of fibrin, 5% w/v, with 5% dextrose. About one-third of the amino-acids was in free form, and the remainder approximately in the tripeptide state. There were no toxic reactions, provided the solution was administered at a rate not

exceeding 80 drops a minute. Ten healthy 75-kg. medical students were chosen for the experiment. The administration of hydrolysate was preceded by a control period when the students were subjected to a protein intake varying between 75 and 10 g. daily. On this dietary a slight to definite negative nitrogen balance existed in all the subjects. A significant positive balance was obtained by the daily administration of 2 litres of the hydrolysate in all except those subjects whose diet contained only 10 g. of protein, these required 3 litres. The administration of larger doses was found to be unnecessary and wasteful. The positive balance was obtained only while the hydrolysate was being administered, and was rapidly lost during the ensuing 24 hours.

During administration there was no elevation of the non-protein nitrogen content of the blood and no significant alteration in the serum proteins.

J. B. Hannah.

The Effect of Dietary Fat upon Gastric Evacuation in Normal Subjects. ANNEGERS, J. H., and IVY, A. C. (1947). *Amer. J. Physiol.*, **150**, 461.

The authors, investigating the statement that fat delays gastric emptying, administered standard meals containing varying proportions of fat, and studied the emptying of the stomach by radiography. They conclude that while there is no difference in effect between saturated and unsaturated fats, statistically significant delay occurs in most subjects receiving a high-fat meal.

Alex. Comfort.

Anomalies of Intestinal Absorption of Fat. II. The Haematology of Idiopathic Steatorrhoea. COOKE, W. T., FRAZER, A. C., PEENEY, A. L. P., SAMMONS, H. G., and THOMPSON, M. D. (1948). *Quart. J. Med.*, **27**, 9.

It is interesting to have fresh confirmation that the pale faeces of steatorrhoea contain normal or increased amounts of bile pigments. The authors are inclined to attribute any increased pigment excretion to increased haemolysis rather than to a failure of absorption.

L. P. R. Fourman.

The Chylomicron Count in Normal Subjects and Patients with Sprue. FOURMAN, L. P. R. (1948). *Trans. R. Soc. trop. Med. Hyg.*, **41**, 537.

The difficulties involved in counting chylomicrons are discussed, but the general conclusion is that counts of the fatty particles in serum do give some indication of the amount of absorbed fat in the serum at the time of the count. The chylomicron count does not, however, bear a close relation either to total fat absorption or to any individual fraction, though of these it is most nearly related to the neutral fat fraction. In patients with sprue depressed chylomicron curves were common, although the degree of depression was little related to the severity of the fat absorption defect as judged by results of fat-balance studies; moreover, treatment with liver improved the chylomicron count without greatly affecting the steatorrhoea. The author's deduction is that the proportion of absorbed fat which contributes to the chylomicron count is small. On the other hand, Elkes Frazer, and Stewart have shown that "chylomicron fat" represents an appreciable portion of the serum fats during fat absorption. To resolve this difficulty Fourman suggests that chylomicrons are removed from the blood more slowly than are other forms of absorbed fat. The general trend of results supports Frazer's partition hypothesis of fat absorption; and they are consistent with Stannus's suggestion that absorption of neutral fat in sprue is less affected than is absorption of split fat.

D. A. K. Black.

Aetiology of Steatorrhoea. FRAZER, A. C. (1947). *Brit. med. J.*, **2**, 641.

The author emphasizes the importance of balance experiments rather than estimations of the percentage of fat in the faeces in any study of fat absorption. In a diet containing 50 g. of fat 95% or more is normally absorbed. Defective emulsification was found in biliary obstruction and hepatic cirrhosis and in cases of atrophic pancreatitis, but in no other cases of defective fat absorption. In sprue systemic lipaemia is absent, though intraluminar changes are normal and 60 to 70% fat is absorbed: in regional ileitis, on the other hand, lipaemia is present. Adrenalectomy prevents the characteristic loading of the cell with fat globules, and this may be corrected by adequate salt therapy. Adrenal cortical deficiency has been suggested as a factor in the sprue syndrome, but if symptoms suggestive of adrenal insufficiency, such as dehydration and low serum-sodium levels, are relieved by appropriate treatment the fat absorption defect remains unchanged.

Alternative routes are available for fat absorption, the triglycerides largely absorbed in the particulate form passing by the lymphatic route, the fatty acids by the portal vein. Variations in the proportion of fat passing by these two routes may occur without any great effect on the total fat absorbed. Thus in lymphatic obstruction the quantitative decrease in fat absorption is much less than might be expected.

Since active absorption of fat occurs from the mid-duodenum downward the long-chain triglycerides are absorbed mainly in the particulate form in the upper intestine and as fatty acid in the lower intestine. The tolerance of patients with fat-absorption defects to different dietary fats appears to vary considerably. The *p*H of the upper intestine may also affect the routes of absorption, since an alteration towards increased alkalinity would produce a decrease in particulate and an increase in fatty-acid absorption.

O. L. V. de Wesselon.

The Diagnosis of Pancreatic Disease by Enzyme Tests. MORRISON, L. M. (1947). *J. Lab. clin. Med.*, **32**, 1107.

Specimens of duodenal contents were examined for proteinase, amylase, and lipase in fasting subjects and after the introduction of olive oil. In 6 cases of pancreatic carcinoma or cirrhosis these enzymes were consistently absent or were present only in traces. In 8 normal subjects the enzymes were occasionally but never repeatedly absent. In patients with non-organic digestive disturbances, or organic disease of the upper gastro-intestinal tract, the findings were not diagnostic. In 10 patients with "chronic low-grade or moderate inflammation of the pancreas as revealed at operation" the enzyme content was not abnormal.

Marjorie Le Vay.

Antithyroid Activity of Ergothioneine in Man. ASTWOOD, E. B., and STANLEY, M. M. (1947). *Lancet*, **2**, 905.

The previous findings that ergothioneine has an antithyroid effect similar to that of thiouracil, and that this substance occurs naturally in the blood have suggested that it might be involved in the regulation of thyroid

function. The substance, therefore, was administered to 5 normal persons in doses of 50, 200, and 400 mg. by mouth and 120 and 400 mg. intravenously, but without significant results.

Periodic Paralysis in a Patient with Exophthalmic Goiter Controlled by 6-Propylthiouracil. SEED, L. (1947). *W.J. Surg. Obstet. Gynec.*, **55**, 640.

The author's patient was a young man who developed symptoms of exophthalmic goitre and periodic paralysis after the aircraft carrier in which he was surving had been sunk. His serum potassium level was not significantly lowered, and administration of 2 g. of potassium chloride four times a day had no effect on his condition. His symptoms were relieved by treatment with 6-propylthiouracil, and his condition was finally controlled by 50 mg. three times a day. *J. B. Hannah.*

Metabolic Studies in Periodic Paralysis. (Stoffwechseluntersuchungen bei paroxysmaler Lähmung.) JANTZ, H. (1947). *Nervenarzt*, **18**, 360.

Nine patients (7 men, 2 women) suffering from periodic paralysis were studied in 8 years; altogether 68 attacks were observed. In every case the potassium content of the blood serum was lowered during an attack. The lowest value was 5.5 mg. per 100 ml. As soon as the paralysis receded, the potassium content of the blood serum reached the original level of about 20 mg. per 100 ml. Potassium chloride in 15- to 20-g. doses dissolved in water and given by mouth stopped every attack.

F. K. Kessel.

Potassium-calcium Metabolism in Chilblains. (Der Kalium-Calcium-Stoffwechsel bei der Perniosis.) SCHNEIDER, W., and ERASMY, H. (1947). *Arch. Derm. Syph., Wien.*, **186**, 137.

The normal ratio of potassium to calcium in the serum is taken as being 2 to 1. Twenty-three cases of chilblains were investigated and it was found that the average K/Ca ratio was 1:6; most of the values were below 2. The calcium was both relatively and absolutely increased; the potassium was absolutely increased but relatively diminished. The authors claim that in perniosis the preponderance of calcium in the blood varies with the arteriolar spasm, the latter being due to a low preponderance of sympathetic tone. It is not only a matter of the preponderance of one of the components; a failure of co-ordination is involved. It seems probable that perniosis is not due principally to the influence of cold but that is a disorder of the vegetative nervous system-hormone–electrolyte complex. *F. F. Jacobson.*

The Relative Importance of Dietary Sodium Chloride and Water Intake in Cardiac Edema. GORHAM, L. W., LESTER, D. E., WOLF, A. V., and SHULTZ, H. H. (1947). *Ann. intern. Med.*, **27**, 575.

The authors investigated 22 patients with cardiac oedema who were placed on a low-salt diet containing less than 1 g. of sodium chloride daily, and also 8 patients who were given a diet containing 3 g. of sodium chloride. Daily fluid intake varied from 1,000 ml. to 7,500 ml. Sodium and chloride levels were determined in serum twice weekly and a 24-hour specimen of urine was also collected daily. The loss of sodium on the diet of less than 1 g. of sodium chloride was shown to be appreciably greater than on the diet of 3 g. Very satisfactory clinical improvement was recorded in the majority of those patients on a diet containing less than 1 g. of sodium chloride. Some patients showed a urinary output exceeding the fluid intake. In general the clinical response of the patient appeared to depend on the ability to excrete sodium. In no case was there an adverse effect from the ingestion of large amounts of water when the diet was kept low in sodium chloride.

The object of the treatment is to maintain a low ratio of sodium intake to water intake, rather than a low sodium or a high water intake, and the restriction of salt is more effective in relieving cardiac oedema than is the forcing of fluid to a high level. *G. Hesketh.*

An Evaluation of Methods for Serum Proteins. BERRY, T. J., and PERKINS, E. (1947). *Amer. J. clin. Path.*, **17**, 847.

The serum protein concentrate was estimated in 327 consecutive blood donors, comparing the tubridimetric, the micro-kjeldahl, and specific gravity methods. The range of serum-protein concentrations was from 5.2 to 7.7 g., with a mean of 6.33 g. and a standard deviation of 0.58 g. It is concluded that the turbidimetric method (Looney and Walsh, *J. biol. Chem.*, 1939, **130**, 635) is the most suitable for use in clinical laboratories.

R. B. Lucas.

HAEMATOLOGY

A Simple Quantitative Formol-gel Reaction and its Relation to the Euglobulin and Gamma-globulin Content of Serum. (Een eenvoudige quantitatieve formolgelreactie en haar verband met het euglobulinegehalte en gamma-globulinegehalte van het serum.) VERHAGEN, B. A. (1947). *Ned. Tijdschr. Geneesk.*, **4**, 3524.

Gel formation occurs after the addition of a calcium-formalin solution to serum if the γ-globulin content is raised above a certain critical level. A simple quantitative technique is described to estimate the amount of γ-globulin present. The results compare well with those given by electrophoresis.

A Study of 114 Patients with Haemorrhagic Syndromes Seen within One Year. (A Critical Study of Tests of Haemostasis.) (Étude de 114 cas de syndromes hémorragiques examinés en l'espace d'un an. (Étude critique des épreuves fonctionnelles de l'hémostase.) TZANCK, A., and SOULIER, J. P. (1947). *Rev. Hémat.*, **2**, 429.

This long paper should be read by all interested in the haemorrhagic diatheses.

Thrombocytic Acroangiothrombosis. FITZGERALD, P. J., AUERBACH, O., and FRAME, E. (1947). *Blood*, **2**, 519.
Thrombocytic Thrombocytopenic Purpura. SINGER, K., BORNSTEIN, F. P., and WILE, S. A. (1947). *Blood*, **2**, 542.

These two papers refer to a rare fatal haemorrhagic state of acute or subacute course and unknown causation. The essential pathology is blockage of capillaries and arterioles by thrombi, mostly composed of platelets. Many organs are involved, and the clinical picture varies. The brain is often affected, and there may be mental symptoms. The spleen is sometimes palpable. A tendency to bleed is always present at some stage, and the platelet count is generally reduced.

Diagnosis of Thrombocytopenic Purpura. (Diagnostic des purpuras thrombopéniques.) DREYFUS, B., and SOULIER, J. P. (1947). *Rev. Hémat.*, **2**, 305.

In 9 patients with primary thrombocytopenic purpura the total number of megakaryocytes in the bone marrow varied from 450 to 4,000 per million nucleated cells, compared with counts of 175 to 600 in 5 normal subjects and in 3 patients with constitutional athrombopenic purpura. There was less evidence of platelet formation by budding, and an increase in young forms of megakaryocytes in the cases with primary thrombocytopenia. In 6 patients with secondary thrombocytopenia the megakaryocytes were present in normal or reduced numbers.

Clotting Defect in Hemophilia : Deficiency in a Plasma Factor Required for Platelet Utilization. BRINKHOUS, K. M. (1947). *Proc. Soc. exp. Biol., N.Y.*, **66**, 117.

Experiments are described in which platelet-free and platelet-rich plasmas were obtained from haemophiliacs and normals. Methylchlorosilane was employed to impart a non-wettable surface to all apparatus used so as to prevent the plasma from clotting during centrifugation. The author's results indicate that a plasma factor is required in addition to platelets for the proper coagulation of blood. This plasma factor is deficient in haemophilia.

Differences During Dicoumarol Therapy in the Quick and Russell Viper Venom Methods for Prothrombin Determination. WILSON, S. J. (1947). *Proc. Soc. exp. Biol., N.Y.*, **66**, 126.

Prothrombin estimations using both Russell viper venom and rabbit brain as sources of thrombokinase were carried out in parallel on 7 patients receiving dicoumarol therapy. The author concludes that the changes observed when rabbit brain was used reflect the clinical condition more closely, and that the use of the viper venom may be dangerous, as the prothrombin level so measured may appear to be a safe one when, in reality, the patient is about to bleed.

Hemophilia. A Report on the Mechanism of the Development and Action of an Anticoagulant in Two Cases. CRADDOCK, C. G., and LAWRENCE, J. S. (1947). *Blood*, **2**, 505.

Two haemophilic patients became refractory to treatment by whole blood transfusion or anti-haemophilic globulin. The patient's plasma contained an anticoagulant factor which was able to prolong the coagulation of normal plasma *in vitro*. The anticoagulant was of the nature of a γ-globulin and the authors suggest that this may have developed as an immune response to the many transfusions the patients had previously had.

Detection of Intravascular Clotting Tendency by Heparin Tolerances Principle. TUFT, H. S., and ROSENFIELD, R. E. (1947). *Amer. J. clin. Path.*, **17**, 862.

The authors have modified the Waugh-Ruddick test. They estimate the delay in the clotting of venous blood *in vitro* produced by adding to it heparin at a concentration of 0.01 mg. per ml. blood. In a group of 25 patients with various conditions of thrombosis or embolism the clotting times were 30 minutes or less, compared with 60 minutes using normal blood. It was shortened also in 15 out of 25 patients with myocardial infarcts.

A Modification of the Waugh-Ruddick Test for Increased Coagulability of the Blood and its Application to the Study of Postoperative Cases. SILVERMAN, S. B. (1948). *Blood*, **3**, 147.

Using a modified Waugh-Ruddick test (coagulation in the presence of a small standard concentration of heparin) in which recalcified plasma was used in place of whole blood, a postoperative increase in coagulability of the blood was demonstrated which began within 24 hours and lasted from 7 to 14 days after operation.

Prothrombin, Fibrinogen, and Protein Content, and Viscosity of the Blood in Thromboangiitis Obliterans. (Comportamento della protrombina, fibrinogeno, viscosimetria, e proteinemia nella tromboangioite obliterante di Burger.) SPOSITO, M., GIANNICO, O., and MARRAZZA, P. (1947). *Policlinico, sez. prat.*, **54**, 1235.

The authors studied 29 cases of Buerger's disease and claim that the prothrombin level was raised by an average of 15%. In 22 patients the fibrinogen averaged 570 mg. per 100 ml. The average total plasma protein was 8.1 g. per 100 ml. The authors believe that similar small rises in prothrombin and fibrinogen are found in many conditions where blood vessels are diseased. The use of dicoumarol is suggested.

Streakiness of Blood Films. Relation to Sedimentation-Rate and Plasma-Fibrinogen. BOVERI, R. M., WATERFIELD, R. L., and NEWMAN, T. H. (1947). *Lancet*, **2**, 831.

Streakiness in blood films spread on slides is due to an excess of plasma fibrinogen. This phenomenon is associated with a raised sedimentation rate, but not all bloods which undergo rapid rouleaux formation and have a raised sedimentation rate make streaky films. This is because a raised plasma globulin which increases rouleaux formation and rate of sedimentation does not cause streakiness.

The Action of Cobalt in Man. (Kobaltwirkungen am Menschen.) WEISSBECKER, L., and MAURER, R. (1947). *Klin. Wschr.*, **24/25**, 855.

This paper is a preliminary report on the action of cobalt on blood formation in man. Increases in reticulocytes and erythrocytes were noted in normal subjects and in anaemia due to haemorrhage and infection. The authors suggest that cobalt acts as a stimulus to erythropoiesis and indirectly affects the formation of haemoglobin. Cobalt is a toxic substance, and minor effects are described after the oral or intravenous administration of small doses.

Genuine Aplastic Anaemia with Complete Absence of Erythroblasts. (Über eine isolierte aplastische Anämie mit vollständigem Fehlen der Erythroblasten (Erythroblastophthise.)) BEGEMANN, H. (1947). *Klin. Wschr.*, **24/25**, 850.

The author describes the incidence in a man aged 59 of a rare disorder—primary aplastic anaemia affecting erythropoiesis only. The formation of leucocytes and platelets was unaffected.

The Development and Progression of Subacute Combined Degeneration of the Spinal Cord in Patients with Pernicious Anemia Treated with Synthetic Pteroylglutamic (Folic) Acid. ROSS, J. F., BELDING, H., and PAEGEL, B. L. (1948). *Blood*, **3**, 68.

The authors describe the development and progression of subacute combined degeneration of the cord in 11 of 25 patients maintained in satisfactory haematological remission with oral folic acid. The possibility that folic acid has actually a deleterious effect on the nervous system is discussed.

Changes in the Bone Marrow in Megaloblastic Anemias of Infancy Before and After Folic Acid Therapy. ZUELZER, W. W., NEWHALL, A., and HUTAFF, L. (1947). *J. Lab. clin. Med.*, **32**, 1217.

The authors studied the bone marrows of 15 children suffering from the megaloblastic anaemia of infancy. In some a primitive megaloblastic picture was seen, in others a less typical picture with cells intermediate in appearance between megaloblasts and normoblasts. In those cases with a typical megaloblastic marrow intermediate types were conspicuous for a day or two after folic-acid therapy and were then themselves replaced by normoblasts. This paper should be read by all interested in megaloblasts.

Refractory Megaloblastic Anemia. DAVIDSON, L. S. P. (1948). *Blood*, **3**, 107.

The author describes cases of anaemia with megaloblastic marrows partially or completely refractory to parenteral liver therapy. Some were examples of anaemia associated with sprue, pregnancy, or malnutrition. In 25 patients no cause was obvious. Ten of these responded slowly to numerous injections of liver extract and blood transfusions, the rest to proteolysed liver or folic acid. The superior value of oral as contrasted with parenteral liver in the treatment of refractory patients is discussed.

Experimental Study on the Localization of Castle's Intrinsic Factor in the Human Stomach. Antianemic Effect of Powdered Human Fundus and Pylorus. LANDBOE-CHRISTENSEN, E., and PLUM, C. M. (1948). *Amer. J. med. Sci.*, **215**, 17.

Extracts of the fundus of human stomachs were more effective in treating pernicious anaemia than were extracts of the pyloric region. In the case of the hog the reverse is true.

Acute Hemolytic Anemia in Primary Atypical Pneumonia Produced by Exposure and Chilling. COLMERS, R. A., and SNAVELY, J. G. (1947). *New Engl. J. Med.*, **237**, 505.

Anaemia rapidly developed in a woman with clinical and radiological signs of primary atypical pneumonia. A cold-agglutinin was present, titre 1: 1280 at 7° C., but still active (titre 1: 5) at 37° C. This was thought to be responsible for the anaemia.

A New Antibody in Serum of Patients with Acquired Hemolytic Anemia. STURGEON, P. (1947). *Science*, **106**, 293.

The authors claim to have demonstrated by means of the "indirect Coombs' Test" an antibody free in the sera of three patients with acquired haemolytic anaemia, a distinctly unusual finding. In one case the titre of antibody was 1: 4,000. The antibody could be eluted off the patient's red cells by incubating them at temperatures between 37° C. and 56° C.

The Cryptogenic Acquired Haemolytic Anaemias. FISHER, J. A. (1947). *Quart. J. Med.*, **16**, 245.

This is mainly a clinical review of 18 cases, in 4 of whom liver dysfunction was present. The results of splenectomy and of transfusions are considered.

Determination of Haemoglobin. II. The Haldane Haemoglobin Standard Compared with Iron and Gasometric Estimations. KING, E. J., GILCHRIST, M., WOOTON, I. D. P., DONALDSON, R., SISSON, R. B., MACFARLANE, R. G., JOPE, H. M., O'BRIEN, J. R. P., PETERSON, J. M., and STRANGEWAYS, D. H. (1947). *Lancet*, **2**, 789.

As a result of thorough large-scale investigations it has been found that the Haldane colour standard of British Standards Institution specification corresponds to 14.8 g. Hb. per 100 ml. of blood. If this figure is accepted, the supposed differences in the normal haemoglobin range between Britain and America as suggested by pre-war surveys can be explained. In reality, no differences probably exist.

Effect of β-Chlorethylamine Hydrochlorides in Leukaemia, Hodgkin's Disease, and Polycythaemia Vera. Report on Eighteen Cases. WILKINSON, J. F., and FLETCHER, F. (1947). *Lancet*, **2**, 540.

Eleven patients with chronic leukaemia, four with Hodgkin's disease, and three with polycythaemia vera were studied. There was a satisfactory reduction in the leucocyte level, splenomegaly, and lymph-adenopathy in the leukaemias, but in only 5 patients any rise in haemoglobin level. A striking improvement resulted in 3 of the 4 patients with Hodgkin's disease, but only 1 of the cases of polycythaemia showed any improvement. Except possibly in Hodgkin's disease, these dangerous and toxic compounds do not seem to have any advantage over *x*-ray therapy.

Familial Idiopathic Methaemoglobinaemia. Five Cases in One Family. GIBSON, Q. H., and HARRISON, D. C. (1947). *Lancet*, **2**, 941.

Quantitative estimations of methaemoglobin gave figures of 1.9 to 5.1 g. per 100 ml. blood in the five affected subjects. Treatment with methylene blue reduced these figures to 0.1 to 1.3 g. per 100 ml. It is thought that deficiency of coenzyme factor I is responsible for the presence of methaemoglobin, and that all the red cells contain a proportion of this pigment. Methylene blue is considered to catalyse the enzymic reduction of methaemoglobin.

The Relating O_2 in Bone Marrow Blood to Post-haemorrhagic Erythropoiesis. GRANT, W. C., and ROOT, W. S. (1947). *Amer. J. Physiol.*, **150**, 618.

Reduced oxygen tension has been held to be a stimulus for increased erythropoiesis. A single large haemorrhage resulted in a transient reduction in oxygen tension in the blood from the humerus of dogs, but repeated small haemorrhages were without effect. Both procedures were equally effective as stimuli of erythropoiesis. The authors experiments thus suggest that anoxia has no direct stimulatory action on the bone marrow.

Raynaud's Syndrome Originating from Reversible Precipitation of Protein. (In English.) HANSEN, P. F., and FABER, M. (1947). *Acta med. scand.*, **129**, 81.

The authors describe the onset of Raynaud's syndrome due apparently to the presence of an abnormal plasma euglobulin which was reversibly precipitated by cold. Multiple arterial embolisms were thus produced. The circulation could be restarted by applying warmth. The pathological diagnosis was aleukaemic plasma-cell leukaemia.

Some Investigations of Erythropoiesis in Human Bone-marrow Cultivated in Various Media. (In English.) PLUM, C. M. (1947). *Acta physiol. scand.*, **14**, 383.

This paper deals with the cultivation of aspirated normal and pathological bone marrow in Locke's solution with additions of serum, liver extract, folic acid, etc. It should be read by all interested.

Cold Hemagglutinins in Sickle-Cell Anemia. MCSWEENEY, J. E. J., MERMANN, A. C., and WAGLEY, P. F. (1947). *Amer. J. med. Sci.*, **214**, 542.

Sixty per cent of sera from 30 cases of sickle-cell anaemia contained cold agglutinins at a titre $> 1:40$; in 36% the titre was $> 1:80$. Three out of 30 control sera contained cold agglutinins of titre 1:40.

The Prozone Phenomenon in Rh Blocking Serums. HATTERSLEY, P. G., and FAWCETT, M. L. (1947). *Amer. J. clin. Path.*, **17**, 695.

A high degree of immunization is reported in 3 cases where a marked prozone prevented the recognition of hyperimmune or incomplete antibody by a single-tube technique, even when the test cells were suspended in 30% bovine albumin. Investigation of the causes of zone phenomena elicited the following facts. The zones were relatively unaffected by: (1) variation in cell concentration; (2) speed of centrifuging; (3) presence or absence of complement. They were influenced by: (1) temperature of incubation (prozone was most marked at 37° C., weak or absent at room temperature); (2) time of incubation prozone increased with prolonged incubation. The authors concluded that sera should never be heated, and that the bovine albumin test of Diamond and Denton (*J. Lab. clin. Med.*, 1945, **30**, 821) can be improved by centrifuging both immediately before and after incubation, the cell deposits being examined microscopically after each spinning. (Sera from cases with such suggestive histories should be examined by the indirect sensitization test of Coombs and others.) *John Murray.*

Studies on the Conglutination Reaction, with Special Reference to the Nature of Conglutinin. WIENER, A. S., HURST, J. G., and SONN-GORDON, E. B. (1947). *J. exp. Med.*, **86**, 267.

The authors have tested various blood-protein-containing preparations for their power of agglutinating Rh-positive cells which have absorbed incomplete Rh antibody. Albumin, fibrinogen, and β-globulin make up conglutinin, or *X*-protein. One part of albumin added to 5 parts of human plasma notably increases the conglutination activity of the latter.

The conglutinin titre of foetal blood is low, but quickly increases after birth. Wiener recommends removing part of the donor's plasma before exchange transfusions so as to reduce its conglutinin content.

Haemolytic Icterus (with Special Reference to its Pathogenesis). (Icterus haemolyticus. Med saerlig henblikk på patogenesen.) OWREN, P. A. (1947). *Tidsskr. norske Laegeforen*, **67**, 665.

The author reports interesting serial blood and bone marrow findings which suggest that in familial haemolytic icterus the "haemolytic crises" are due to temporary marrow aplasia rather than to increased haemolysis (see also *Blood*, 1948, **3**, 231). The mechanisms of erythrocyte destruction in the familial and acquired types of haemolytic anaemia are also considered and contrasted.

Erythropoiesis in Chronic Erythroblastosis in Adults. (L'erythropoïèse dans les erythroblastoses chroniques de l'adulte.) OLMER, J., and GASTAUT, H. (1947). *Ann. Méd.*, **48**, 458.

This interesting, obscure, and not very uncommon disorder is generally referred to in British and American literature as myelosclerosis or chronic non-leukaemic myelosis. Anaemia, erythroblastaemia with some primitive granulocytes, a greatly enlarged spleen, moderate enlargement of the liver, and an atrophic or fibrotic marrow are the main characteristics. Its course is a prolonged one.

Studies in Erythroblastosis Fetalis. I. Activation of the Incomplete Rh Antibody by the Blood Serum of Full-term and Premature Newborn Infants. WITEBSKY, E., RUBIN, M. I., and BLUM, L. (1947). *J. Lab. clin. Med.*, **32**, 1330.

Studies in Erythroblastosis Fetalis. II. Investigations on the Detection of Sensitization of the Red Blood Cells of Newborn Infants with Erythroblastosis Fetalis. WITEBSKY, E., RUBIN, M. I., ENGASSER, L. M., and BLUM, L. (1947). *J. Lab. clin. Med.*, **32**, 1339.

The authors have found that cord sera from newborn infants and in particular from premature infants are generally much less active than the sera of adults in causing agglutination of Rh-positive cells which have been subjected to "incomplete" or blocking Rh antibody. The sera of infants 24 to 48 hours old were more active than cord sera. It is suggested that this increase in serum activity developing after birth may be connected with the delayed post-natal onset of haemolysis sometimes observed in haemolytic disease of the newborn.

In the second paper the authors recommend suspending the cells suspected of sensitization in adult serum, preferably on a tile.

Breast-feeding in Erythroblastosis Foetalis. CATHIE, I. A. B. (1947). *Brit. med. J.*, **2**, 650.

The author has demonstrated that Rh antibody in serum is not destroyed by 1 hour's incubation in infant's gastric juice. However, there was no evidence of any absorption when breast milk containing antibodies or high-titre Rh anti-serum was fed to Rh-positive infants or to an adult. It is concluded that it is safe and justifiable to breast-feed infants with haemolytic disease of the newborn even if the mothers' milk contains Rh antibodies.

Multiple Myeloma. A Survey Based on Thirty-five Cases, Eighteen of which came to Autopsy. LICHTENSTEIN, L., and JAFFE, H. L. (1947). *Arch. Path., Chicago*, **44**, 207.

In this review clinical, biochemical, haematological, and pathological features are considered. In half the cases serum calcium is raised. Calcium granules are

deposited in the kidneys and renal failure may follow. Secondary hyperplasia of the parathyroids may develop, but was not seen in this series. Hyperproteinaemia, and more specifically hyperglobulinaemia, is seen in about half of the cases. Bence-Jones proteinuria was present in 10 of 26 cases; it is very variable in quantity and occurrence. The serum uric acid, as in leukaemia, is increased. Amyloid is mentioned as a complication in 10% of cases, and the disease is considered to be related to the leukaemias. The plasma cells, which vary in maturity, are thought to be abnormal neoplastic haematic cells.

MORBID ANATOMY AND HISTOLOGY

Cranial Trauma and Extrapyramidal Involvement: Cerebral Changes Simulating Those of Anoxia. A Clinico-pathologic Report of Three Cases. MALAMUD, N., and HAYMAKER, W. (1947). *J. Neuropath. exp. Neurol.*, **6**, 217.

Three cases of head injury are described in which the chief lesions were in the lenticular nuclei. In 1 case there was also softening of the substantia nigra and pseudo-laminar cortical necrosis, and most of the Purkinje cells of the cerebellum had disappeared. Cessation of respiration during anaesthesia for reduction of fractures may have been a causative factor in this case. Fat embolism was not found. The authors suggest that similar anoxic lesions may be the basis of cases of post-traumatic Parkinsonism. *J. G. Greenfield.*

The Use of the Smear Technique in the Rapid Histological Diagnosis of Tumors of the Central Nervous System. Description of a New Staining Method. MORRIS, A. A. (1947). *J. Neurosurg.*, **4**, 497.

The author reports favourably on the use of a special eosin-methylene-blue staining technique for the rapid diagnosis of cerebral tumours by the smear biopsy method. (For details of the technique, which is not his own, the author's original article should be consulted.) By this technique smears can be examined under the microscope within 30 to 40 seconds of being made. The author has used the technique in a series of 116 tumours of the central nervous system. He considers the method of great value, although it can, at best, give only a presumptive diagnosis, which should be confirmed whenever possible by routine histological techniques.
J. G. Greenfield.

Positive and Negative Aspects of Hypothalamic Disorders. (In English.) BROUWER, B. (1947). *Proc. Akad. Wet. Amst.*, **50**, 1038.

Ten cases with symptoms attributable to lesions of the hypothalamus were compared with experimental hypothalamic lesions. Discrepancies were found in all types of lesion. Three cases of diabetes insipidus showed bilateral destruction of the supra-optic nuclei as was expected from the experimental work, but one case with similar destruction did not have diabetes insipidus. All the other expected lesions are discussed.

Primitive Malignant Tumours of the Nose and Pharynx. (Primitive maligne Geschwülste der Nasenund Rachengegend.) LÜDIN, M. (1947). *Prat. oto-rhino-laryng., Basel*, **9**, 148.

The author discusses the literature on those tumours most often found in the nasopharynx or oropharynx which invade the lymph nodes early and produce distant metastases. Because of the frequent findings of an epithelial syncytium, in the meshes of which are embedded masses of rounded cells, these tumours have been described as carcino-sarcomata, lympho-epitheliomata, and reticulo-cell sarcomata. The prevailing tendency is to consider these embryonal tumours as sarcomata. Some resemble undifferentiated carcinomata, others lympho-sarcomata, and a third group are so primitive that no distinction between epethelial or mesenchymatous tissue is possible.

The clinical notes and detailed histology of 21 cases are given. The author considers that those which can with certainty be said to arise from epithelium may be called carcinomata, and those which can be said to arise from a mesenchymal matrix may be called sarcomata, but that the primitive undifferentiated tumours should be called "meristomata." *Stephen Suggit.*

The Histology of the Irradiated Larynx. PRICOLO, V., and PIZZETTI, F. (1947). *Radiolog. med., Torino*, **33**, 586.

The authors find that many of the vascular and cartilaginous changes previously attributed to irradiation of this region are to be found in normal specimens between the ages of 30 and 50. Comparison of controls with non-irradiated and irradiated carcinomatous larynges shows that the only effect attributable to *x*-rays is round-celled infiltration of the mucosa and sub-mucosa.

Primary Carcinoma of the Trachea. ELLMAN, P., and WHITTAKER, H. (1947). *Thorax*, **2**, 153.

The authors summarize and discuss the literature on tracheal tumours and describe a case shown at necropsy to be one of carcinoma of the trachea. The patient complained of hoarseness, largely due to recurrent laryngeal palsy, and had signs deriving from transient collapse of the lower lobe of the left lung. The tumour arose on the posterior wall of the trachea in its lower third. Part of the growth, nearly 2 cm. in diameter, projected into the lumen; a much larger mass, measuring some 5 × 3 cm., extended into the mediastinum. Paratracheal glands and those at the bifurcation of the trachea were involved by metastases, but no other spread of the tumour was found. Section of the growth showed it to be a squamous-celled carcinoma.
W. D. W. Brooks.

An Unusual Hamartoma (So-called Chondroma of the Lung). SIMON, M. A., and BALLON, H. C. (1947). *J. thorac. Surg.*, **16**, 379.

So-called chondromata of the lung are not pure cartilaginous tumours but contain mixtures of elements normally encountered in the bronchial wall and are therefore more properly referred to as hamartomata or hamartoma chondromatosum pulmonis. Such a tumour is usually considered benign and slow-growing. It may, however, undergo malignant change. The tumour here described is unusual because of its enormous size and the fact that it caused symptoms and radiologically simulated bronchiogenic carcinoma.
George A. Mason.

The Myoepithelium in Certain Tumours of the Breast. BIGGS, R. (1947). *J. Path. Bact.*, **59**, 437.

The author describes examples of various neoplastic and hyperplastic lesions of the human and canine breast in which she believes myoepithelial cells to be demonstrable.

Is the Brenner Tumour always a Benign Neoplasm? (Ist der Brenner-tumor immer eine gutartige Neubildung?) DUBRAUSZKY, V., and MASSENBACH, W. VON (1947). *Zbl. Gynäk.*, **69**, 370.

The authors believe that the Brenner tumour originates from the coelomic epithelium, and that some of the solid carcinomata and cystic adenocarcinomata of the ovary may originate in a Brenner tumour. They describe the tumour from a woman aged 70, in which the medullary part of the tumour, as distinguished from the cystic portions, showed definite signs of malignancy, and the transition from benign to malignant epithelium could be followed. The Brenner tumour does not produce any oestrogenic hormone, and bleeding in this case was caused by a polypoid hyperplasia of the endometrium. This would appear to be the first described case of a definitely malignant Brenner tumour.

Composition and Structure of the Liver Cell in Pregnancy. KOSTERLITZ, H. W., and CAMPBELL, R. M. (1947). *Nature, Lond.*, **150**, 676.

The desoxyribonucleic-acid content of the liver of pregnant rats was shown to be significantly increased by the third week of gestation and was greater than could be accounted for by the increase in maternal body weight. The total amount was related to the sum of maternal and foetal body weights and was independent of the diet. A specific rise of 40 to 45% in the ratio of ribonucleic to desoxyribonucleic acids also occurred; this was not due to dietary changes during pregnancy and was correlated with foetal body weight. The increased ribonucleic-acid content was particularly apparent in the periportal area. Glycogen content of the liver was much decreased.

J. Dawson.

Glycogen Formation and Deposition in the Human Liver. (Über Glykogenbildung und Glykogenablagerung in der menschlichen Leber.) EGER, W., and KLÄRNER, G. (1948). *Virchows Arch.*, **315**, 135.

Estimation of glycogen in the liver in 250 necropsies, 19 of them performed on subjects who had died suddenly ("normal cases"), and the rest on subjects who had died after illness of longer duration, was carried out by Pflüger's method. The values were calculated in terms of wet weight, dry weight, or "dry protein weight"—that is, dry weight minus fat and glycogen. The values for glycogen were higher in "normal cases," averaging 7.09% against 2.04% of dry weight in the other cases. No antagonism was found between the quantities of fat and glycogen. The results of histological estimation by the methods of Bauer and Best were not in accord with the chemical determinations. In "normal cases" the glycogen is located in the central parts of the lobules. Deposition in the periphery of the lobules and in the nuclei is explained as a sign of damaged function of the liver. It is suggested that glycogen is normally built up in the nucleus, then goes into the body of the cell for storage; this hypothesis would be in accordance with the fact that livers rich in glycogen contain more uric acid (3,232 mg. per 100 g. of dry protein weight against 1,437 mg.).

O. Neubauer.

Gaucher's Disease Without Splenomegaly. MORGANS, M. E. (1947). *Lancet*, **2**, 576.

A family affected by Gaucher's disease is described. In the father the diagnosis was first made when he was 67 years old; sternal puncture revealed Gaucher cells and radiographs showed translucent areas in bone. There was enlargement of the liver, but the spleen was not palpable. Two of his 3 children, a man aged 23 and a girl aged 14, had radiological evidence of the disease, and in the third child, a boy aged 12, the radiological appearances were not conclusive. The family history indicated that the disease may have occurred in the two previous generations. The series is remarkable in three ways: the absence of splenomegaly, the appearance of the disease in successive generations, and the survival of 1 patient in active life to a good age.

K. Black.

The Hepatitis of Hyperthermia. Report of a Fatal Case. BRAGDON, J. H. (1947). *New Engl. J. Med.*, **237**, 765.

A fatal case of hepatitis and hepato-renal syndrome is described in a patient suffering from sulphonamide-resistant gonorrhoea who was treated by artificial fever. The pathogenesis is discussed.

Gelatin Nephrosis. Renal Tissue Changes in Man Resulting from the Intravenous Administration of Gelatin. SKINSNES, O. K. (1947). *Surg. Gynec. Obstet.*, **85**, 563.

The author has studied the effects of gelatin given intravenously in 8% saline as a treatment for peripheral vascular collapse; 23 patients so treated came to necropsy, most of them having been treated surgically for malignant disease within the abdomen. The kidneys affected by gelatin were swollen and the cut surfaces bulged. Microscopically the kidneys were found to be the seat of a change similar to the nephrosis caused by sucrose. The most important single factor related to these changes was the time interval between gelatin administration and death. All patients examined within 67 hours of their last gelatin injection showed gelatin nephrosis; in patients who died more than 120 hours after the last gelatin injection these changes were not seen.

I. Aird.

Zinc Sulphate Flotation of Faeces. ELSDON-DEW, R. (1947). *Trans. R. Soc. trop. Med. Hyg.*, **41**, 213.

The zinc sulphate flotation technique for the concentration of ova and cysts in faeces (Faust *et al.*, 1938) is described.

In 1,539 specimens, mostly from cases of suspected amoebiasis, this technique was compared with a direct faecal film. A considerable increase in positive results was obtained with most intestinal parasites and protozoal cysts. Thus, with *Entamoeba histolytica, Bact. coli, E. nana*, and *Iodamoeba bütschlii*, the ratio

$$\frac{\text{percentage positive results with flotation technique}}{\text{percentage positive results with direct film}}$$

was 175.5, 170.6, 315.2, and 577.8 respectively; with *Giardia lamblia* and *Cholomastix mesnili*, 500, and 300; with *Ascaris lumbricoides, Trichuris trichura*, and *Ancylostoma*, 122.8, 201.9, and 538.2. The ova of *Taenia* and *Schistosoma mansoni* did not float well, but could often be found in the sediment after the final spinning. This method should only be used, however, as an adjunct to the direct film examination, which reveals the trophozoites in addition.

J. L. Markson.

Thrombosis of the Hepatic Veins. The Budd-Chiari Syndrome. THOMPSON, R. B. (1947). *Arch. intern. Med.*, **80**, 602.

The author reviews 95 cases of thrombosis of the hepatic veins collected from the literature and reports a

further 2 cases. He suggests that the term "Budd-Chiari syndrome" should be reserved for cases in which there is evidence of gross blockage of the hepatic veins; cases without such evidence should be classified as "thrombosis of hepatic veins."

In both groups there were three main sites of obstruction: the hepatic veins, their ostia, and the inferior vena cava. Severe venous engorgement in the acute stage resulted in central lobular necrosis. Later cirrhotic changes and nodular hyperplasia were common. Portal thrombosis was rare and usually a terminal event. Venous engorgement, severe in the spleen and of varying degree in the intestines, was usually found. The age incidence varied from 17 months to 61 years, the average being 34. Males were affected more often than females. There were 8 cases of polycythaemia rubra vera and 4 pregnant women. A probable cause was phlebitis of the hepatic veins, which may be part of a more generalized vascular disease. In the full picture epigastric pain of variable severity was usually the initial symptom. Vomiting occurred in about a quarter of the cases and was severest at the onset. Ascites and marked hepatic enlargement were usual. The liver was generally tender. Splenic enlargement was much less frequent. The development of venous collaterals was one of the most important signs. Oedema of the legs developed in about half the cases. Jaundice was slight or latent. The author suggests that the diagnosis of minor thrombosis should be kept in mind in cases of obscure pain in the upper abdomen, especially where there is evidence of liver damage. As a rule the disease was of short duration but in a small group it lasted for 10 to 28 years. Of 9 patients who underwent operation, 8 died soon afterwards. *J. B. Mitchell.*

Pathologic Significance of the Ductus Arteriosus. Its Relation to the Process of Arteriosclerosis. BLUMENTHAL, L. S. (1947). *Arch. Path.*, **44**, 372.

The histological changes associated with closure of the ductus arteriosus range from replacement of the normal smooth muscle by fibrous tissue to formation of localized areas of necrosis. It is suggested that these changes are the result of anoxic conditions produced by the contraction of smooth muscle of the wall of the ductus. These changes are discussed in relation to the wider problem of arteriosclerosis and to the possibility that localized anoxaemia is the fundamental mechanism in both processes. (There is a useful bibliography.)

R. H. D. Short.

Cholesterol Crystal Embolism of Minor Organ Arteries and its Consequences. (Cholesterinkrystallembolie kleiner Organarterien und ihre Folgen.) MEYER, W. W. (1947). *Virchows Arch.*, **314**, 616.

A new form of embolism—embolic transport of cholesterol crystals from atheromatous ulcers of the aorta into small arteries of different organs—is described. The crystals are easily detected in the lumen of arteries of kidneys, brain, and meninges in frozen sections. Two cases are reported in detail. The embolized cholesterol crystals lead to a particular form of arteritis with numerous giant cells, and later to obliteration of the arteries, with subsequent changes in the tissues, such as scars on the surface of the kidneys and circumscribed softening of the brain. *O. Neubauer.*

Pulmonary Embolism by Amniotic Fluid. Report of 3 Cases with a New Diagnostic Procedure. GROSS, P., and BENZ, E. J. (1947). *Surg. Gynec. Obstet.*, **85**, 315.

Three new cases are presented of a rarely described form of embolism, due to amniotic fluid. Previously 12 cases have been described. In all cases the diagnosis has been made at necropsy, generally after histological examination.

Summary of the necropsy findings shows death to have been asphyxial without gross lesions. The diagnosis is made by finding emboli rich in polymorphonuclear leucocytes, mucin, bile-stained debris (meconium), epithelial squamae, lanugo hair, and granular debris with or without fatty elements in histological preparations of the arteries, arterioles, and capillaries of the lungs. Blood from the right heart or the inferior vena cava (which may be obtained when permission for necropsy is withheld) may show three strata (instead of two) after centrifugation. The presence of the third (top) layer is considered pathognomonic. The top layer is separated. After fixation in alcohol, Zenker's fluid, and formol, sections stained by mucicarmine and Mallory's phosphotungstic acid and haematoxylin are prepared. Constituents of meconium and amniotic fluid are demonstrable.

In these 3 cases (all in multiparae) severe post-partum (1 intra-partum) irreversible shock was followed by death within 65 minutes. No case could be classified as one of difficult labour. Routine aspiration of blood (see above) should be undertaken in all obstetric deaths. (Infant weights are not recorded.) *Magnus Haines.*

Primary Hypertrophy and Hyperplasia of the Parathyroid Glands as a Cause of Hyperparathyroidism. ROGERS, H. M., and KEATING, F. R. (1947). *Amer. J. Med.*, **3**, 384.

The authors review 22 cases from the literature and add 4 from the Mayo Clinic. On analysis there appears to be some curious connexion between hyperparathyroidism and duodenal ulcer; this lesion was present in 3 of the 4 cases here reported, and the authors have noted the co-existence of duodenal ulcer in approximately one-third of all the patients with hyperparathyroidism seen at the Mayo Clinic. They state that "this association seems too frequent to be coincidence but one can only conjecture as to its meaning."

The Intestinal Phase of Human Trichinosis. STRYKER, W. A. (1947). *Amer. J. Path.*, **23**, 819.

Living adult trichinae, including gravid females, were demonstrated in the intestine of a fatal case of human trichiniasis 54 days after ingestion of infected pork—the longest period of persistence of adult trichinae in the human intestine thus far reported. The possibility of continued release of larvae over an even longer period must be taken into account in the therapeutic management of trichiniasis.

Endemic (Murine) Typhus. Report of Autopsy Findings in Three Cases. BINFORD, C. H., and ECKER, H. D. (1947). *Amer. J. clin. Path.*, **17**, 797.

The authors give a detailed description of 3 fatal cases of endemic typhus. An acute interstitial myocarditis, with mononuclear and plasma-cell infiltration but with no apparent damage to the cardiac muscle fibres, was present in all, and was probably a major factor contributing to death. In 2 cases there was severe interstitial orchitis, and in 1 case skin lesions, closely resembling those found in epidemic typhus, showed a cellular perivascular infiltration with oedema and obliteration of several vessels by inflammatory cells or by thrombi. No typical typhus lesions were found in brain or lungs.

Comparative Morphological Investigations on the Mammary Glands of Mice of Different Origin. Investigations Concerning the Morphological Test of the So-Called Milk Factor. (In Russian.) POGOSYANTS, E. E. (1947). *Arkh. Patol.*, **9**, No. 2, 64.

Experiments were carried out to devise a morphological test for the so-called milk factor. Mammary glands were examined by the whole mount technique in in-bred strains of varying incidence of breast cancer and the results confirmed the findings of other workers on the differences in structure in mammary glands between high and low breast cancer strains manifested by greater alveolar proliferation with nodules on hyperplastic tissue. In addition, 35 low-incidence strains received the milk factor whilst 5 to 25 days old, and 10 of these developed breast tumours; 14 receiving the extract when 30 to 45 days old did not develop tumours. The author concludes that the morphological examination of mammary glands of mice by the whole mount technique is a satisfactory test for the presence of the milk factor in breeding females not less than 6 months old.

The Antigenic Relationship of Lymphogranuloma Venereum and Psittacosis by Skin Test in Humans. POLLARD, M., and WITKA, T. M. (1947). *Tex. Rep. Biol. Med.*, **5**, 288.

A psittacosis antigen suitable for carrying out skin tests was prepared, and tests were carried out with this antigen and with lygranum on patients with venereal disease in an army hospital. All 8 confirmed cases of lymphogranuloma venereum gave a severe reaction to the psittacosis antigen; 6 suspected cases, of which 2 were confirmed serologically, gave indefinite reactions; while 5 cases of penile ulcer, 8 cases of syphilis, and 3 suspected cases of syphilis were negative to both skin antigens. Lymphogranuloma venereum and psittacosis thus show an antigenic relation in the skin test, and this test is evidently not suitable for diagnosis when there is any possibility of the diseases co-existing. *D. J. Bauer.*