

3-1959

Abstracts Of Recent Publications Of The Professional Staff Of The Henry Ford Hospital And The Edsel B. Ford Institute For Medical Research

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Recommended Citation

(1959) "Abstracts Of Recent Publications Of The Professional Staff Of The Henry Ford Hospital And The Edsel B. Ford Institute For Medical Research," *Henry Ford Hospital Medical Bulletin* : Vol. 7 : No. 1 , 40-51.

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ABSTRACTS OF RECENT PUBLICATIONS OF THE PROFESSIONAL STAFF OF THE HENRY FORD HOSPITAL AND THE EDSSEL B. FORD INSTITUTE FOR MEDICAL RESEARCH

NEEDLE BIOPSY OF THE KIDNEY. A. W. BOHNE, C. ACKLES, R. DREW AND K. L. URWILLER. *J. Urol.* 79:393, 1958.

Needle biopsy of the kidney, although a relatively new procedure, is being used rather extensively in this country and Europe as an aid in the diagnosis of renal disease. In the past 18 months we have performed 30 biopsies. In 23 we have obtained renal tissue, 76 per cent, which compares favorably with figures of Iversen who reports 38 per cent success, Kark who reports 93 per cent success, and Schwiebinger who reports 54.5 per cent success. In the 23 successful renal biopsies which we have performed, the clinical impression has been confirmed in 10 cases. In another 10 successful biopsies, the pathological diagnosis has differed from the clinical impression. In both groups the further clinical management of the patient has been aided by the knowledge gained. In the three remaining successful biopsies, the pathological findings were inconclusive. We have experienced very little in the way of complications following this procedure. In all cases we have noted microscopic hematuria, and in three cases gross hematuria, but no instance of retroperitoneal hemorrhage has occurred. Complications which have been reported or anticipated include retroperitoneal hemorrhage, perforation of an intra-abdominal viscus, dissemination of a malignant or tuberculous process, or perirenal infection. We believe that the patient should be hospitalized for this procedure, mainly for adequate post-biopsy follow-up. This is certainly a relatively safe procedure if done with adequate knowledge of renal position, and realization of possible complications. We believe that needle biopsy of the kidney is a valuable procedure, which can either correct or confirm clinical impressions. It is a safe procedure if proper precautions are taken. The results compare favorably with biopsies obtained from other organ systems, carried out in routine manner.

FUNGUS DISEASE AS A COMPLICATION OF STEROID THERAPY. R. E. BURNS. *A.M.A. Arch. Dermat.* 77:686, 1958.

An awareness of the risk of dissemination of fungous disease by the steroid hormones is necessary. However, this danger is not so great that it should influence the physician to the extent that he will withhold treatment in essential cases. Naturally good medical precepts will be followed, and a complete examination of the patient, including chest x-ray, will be performed before major steroid therapy is initiated. If this is done, and reasonably thorough follow-up examinations are performed, then there will be little chance of serious trouble. Despite all these precautions the rare patient will develop systemic fungous disease, and we must count this as one of the calculated risks of steroid therapy. Superficial mycotic infections should always be brought under control before the start of treatment if it is feasible, and if it is not, certainly active treatment should be carried on during systemic steroid therapy.

Abstracts

HYPOVENTILATION SYNDROME: PHYSIOLOGIC STUDIES IN SELECTED CASES. E. O. COATES, JR., G. L. BRINKMAN, AND F. E. NOE. *Ann. Int. Med.* 48:50, 1958.

Hypoventilation of the lungs leading to pulmonary insufficiency and respiratory acidosis may be present in a variety of conditions which either mechanically restrict thoracic motion or depress the respiratory center. Arterial blood and ventilation studies in four patients with diagnoses of kyphoscoliosis, bilateral pleuritis, radiation fibrosis and gross obesity, respectively, are presented. All four patients demonstrated varying degrees of alveolar hypoventilation, accompanied by low arterial oxygen saturation, elevated carbon dioxide tension and low pH. Administration of 100% oxygen resulted in reduction of ventilation in all, and symptoms of confusion and stupor in three. Respiratory depth is the best practical guide to adequacy of ventilation. In the presence of hypoventilation, caution is necessary in the use of high concentrations of oxygen and in the administration of narcotics. Therapy with mechanical aids to respiration should be tried, and tracheotomy used early when indicated.

LANGUAGE DEVELOPMENT THROUGH SPEECHREADING. M. R. COSTELLO. Volta Bureau, Washington, D. C., Reprint No. 705.

We usually look upon speechreading achievement as a rather specific receptive skill — a way in which the hearing impaired may understand spoken language. For the adult who has mastered a verbal language system this viewpoint is satisfactory. For the child who is developing language we must approach speechreading training from the standpoint of its function in total language acquisition as well as from the standpoint of its specific function in understanding. By the very nature of the language role in the growth and development of the individual, the teacher is entrusted with a great responsibility to recognize the problems associated with this task and to bring to bear the influence of those conditions which accelerate its achievement.

OBTURATOR NERVE PARALYSIS FROM RADIOACTIVE GOLD. E. T. DRAKE. *Am. J. Obst. & Gynec.* 75:216, 1958.

From this case report, it is apparent that a permanent injury to the obturator nerve can occur following the injection of radioactive gold. Injection of radioactive material should be made with consideration of major nerves and other vital structures. Patients with symptoms of neuritis following the injection of radioactive materials should have orthopedic and neurological examinations.

A REASONABLE ATTITUDE TOWARD THE MEDICAL USE OF DIAGNOSTIC RADIATION. W. R. EYLER, AND W. M. BURNS. *J. Michigan M. Soc.* 57:357, 1958.

The production of mutations by radiation absorbed by the gonads prior to parenthood is a linear function of the quantity of radiation without any evidence of a threshold effect and for this reason, all unnecessary pre-parenthood gonadal radiation is contra-indicated.

The incidence of clinically apparent mutations induced at the present rate of utilization of diagnostic medical x-rays and present quantity of fall-out from nuclear

explosions is predictable with fair certainty as approximately 1/10,000 new births compared to 800/10,000 stillborn or malformed due to other causes. This does not appear excessive in view of the benefits derived from diagnostic radiation, but such radiation should be reduced by all possible means.

Those procedures which produce a particularly high dose to the patient, such as pelvimetry, should be carefully re-evaluated both for possible improvements in technique and as to indications for their use.

The probability of an individual developing leukemia, in addition to the spontaneous incidence, appears to be a direct function of the amount of radiation absorbed by him, again without a threshold level, but with a linear relationship between radiation absorbed by the red bone marrow and frequency of leukemia.

The yield from diagnostic roentgen studies at the present time is far greater than the hazards of leukemia. The current publicity concerning radiation hazards has neglected to mention the considerable benefit to many patients from such studies.

CRITICAL ANTIBIOTIC CONCENTRATIONS FOR SUSCEPTIBILITY TESTING OF CUTANEOUS PYOGENIC BACTERIA. J. E. GREER, R. R. MENARD AND P. F. LESNEY. *Bact. Proc.* 1958, p. 88.

Controversy exists concerning the proper concentrations of antibiotics in discs used for bacterial susceptibility testing, and recently the concentrations employed in commercial discs were changed. In spite of numerous reports that broth dilution and disc techniques are well correlated, requests are frequently made for the exact minimal inhibitory concentrations (M.I.C.) of antibiotics by the tube dilution technique *in lieu* of the disc method which classifies bacteria as only sensitive or resistant. This suggested a comparison, using cutaneous pyogenic bacteria, of the M.I.C. of 8 antibiotics (bacitracin, chloramphenicol, chlortetracycline, erythromycin, neomycin, novobiocin, penicillin, and tetracycline) in 8 concentrations for broth dilution and as many as 6 concentrations for discs. Frequency distributions of these M.I.C. by both techniques reveal curves with peaks at either the low or high concentrations, but with few intermediate points. With tetracycline, *e.g.*, staphylococci which were resistant to 1 microgram discs were also resistant to the 2, 5, 10, 30, and usually the 60 microgram discs as well. Determinations by the tube dilution technique agreed. Certain inaccuracies in commercial discs resulted from special characteristics of the antibiotics, *e.g.*, the thermolability of bacitracin and penicillin, and the chemolability of neomycin when sterilized with ethylene oxide. Experience during a 3 year period indicates the validity of using certain commercial discs for *in vitro* antibiotic susceptibility testing for cultures from infected dermatoses. Data based on tests with more than 2000 strains of staphylococci show the reliability of using only two discs (low and high concentrations) for each antibiotic. Studies on the correlation between these results and clinical response are in progress.

NEOMYCIN SUSCEPTIBILITY FOR DIFFERENTIATING COAGULASE-POSITIVE FROM COAGULASE-NEGATIVE STAPHYLOCOCCI. J. E. GREER AND R. R. MENARD. *Antibiotics Annual* 1957-58, p. 149.

A study of 814 coagulase-positive and 336 coagulase-negative staphylococci has shown neomycin susceptibility and the coagulase reaction to be correlated in 800

Abstracts

(98.3 per cent) of the coagulase-positive and 310 (92.3 per cent) of the coagulase-negative staphylococci. This offers a method of differentiation similar to the bacitracin differentiation of group A from other beta-hemolytic streptococci. The effect of various techniques and commercial products was also studied.

CYCLODIALYSIS WITH AIR INJECTION. TECHNIQUE AND RESULTS IN NINETY-FOUR CONSECUTIVE OPERATIONS. M. W. HAUSTEN AND J. S. GUYTON. A.M.A. Arch. Ophthal. 59:507, 1958.

A series of 94 consecutive cyclodialyses employed in the surgical treatment of varied types of glaucoma has been reviewed, with emphasis being placed upon the evaluation of results obtained and complications encountered. The operative technique employed has been described in detail.

The indicated role of a specific operative procedure in the surgical treatment of glaucoma is always controversial and often somewhat cyclical. At present, cyclodialysis appears to be widely favored for aphakic glaucoma but only occasionally favored for other types.

In this series of cases cyclodialysis has given rather good results in chronic simple glaucoma, in chronic noncongestive narrow-angle glaucoma, and in aphakic glaucoma. Cyclodialysis would appear to be the surgical procedure of choice in those cases in which a filtering type of operation has proven unsuccessful. Because of the frequency of failure of the filtering operations in the Negro race, we feel that cyclodialysis is the indicated procedure in most cases of glaucoma in this group of patients.

The results were poor in the few instances where cyclodialysis was utilized for congenital glaucoma, for glaucoma secondary to siderosis bulbi, for glaucoma secondary to perforating injuries, and for primary acute congestive glaucoma.

RHABDOMYOSARCOMA: A CLINICOPATHOLOGICAL STUDY AND CLASSIFICATION OF 39 CASES. R. C. HORN, JR., AND H. T. ENTERLINE. Cancer 11:181, 1958.

Thirty-nine cases of rhabdomyosarcoma are reported. On the basis of their clinical and pathological characteristics they lend themselves to subdivision into 4 categories: pleomorphic, alveolar, embryonal, and botryoid. The pleomorphic rhabdomyosarcomas are the classically recognized type and are usually tumors occurring in the extremities of patients of the older age groups. The "alveolar tumor" is a recently recognized type of rhabdomyosarcoma that occurs in adolescents and young adults. Only 3 of 8 tumors in this group involved extremities. The embryonal and botryoid rhabdomyosarcomas are closely related, differing chiefly in the distinctive gross form and the location of the latter. They are tumors of infants and children and occasionally young adults, involving the head and neck, especially the orbit, and the urogenital tract most commonly. Approximately 75% of the tumors occurred in male patients. Although 31 of the 39 patients are known to have died of their disease, a review of methods of treatment and the clinical courses suggests that immediate aggressive surgery following prompt recognition and appreciation of the potentialities of this tumor type may offer hope for better results in the future.

THE BLOOD COAGULATION MECHANISMS IN THROMBOCYTOPENIC BLOOD. S. A. JOHNSON, M. J. CALDWELL, AND R. W. MONTO. *Thrombosis et Diathesis Haemorrhagica* 1:3, 1957.

Thrombocytopenic serum supports a short prothrombin consumption time, however, the same serum contains as little prothrombin as normal serum. The prothrombin consumption test of thrombocytopenic serum can be prolonged by adsorption on BaCO₃ or reduced again by the addition of the sodium citrate eluate. The antihemophilic activity of thrombocytopenic blood disappears when the blood clots as in normal blood and autoprothrombin I is present in much smaller amounts than in normal serum. The authors suggest that a new factor, a possible derivative of prothrombin, is responsible for the short prothrombin consumption value in thrombocytopenic blood.

A NEW APPROACH TO THE THROMBOCYTOPATHIES. THROMBOCYTOPATHY A. S. A. JOHNSON, R. W. MONTO, AND M. J. CALDWELL. *Thrombosis et Diathesis Haemorrhagica* 2:279, 1958.

A group of patients with clinical hemorrhagic disease who exhibited a prolonged bleeding time and a short prothrombin consumption time classified as Thrombocytopeny A were studied utilizing procedures involving isolated platelets and purified prothrombin. These frozen and thawed platelet extracts had poor platelet factor 3 activity which was normal after the extracts had been treated with ultrasonic oscillations. The electron microscope studies of the morphology of these platelets were abnormal. It is concluded that these platelets contain adequate amounts of platelet factor 3 but are resistant to disintegration and the activity is only liberated with difficulty.

PLATELET FACTOR 3 IN BLOOD COAGULATION. S. A. JOHNSON AND D. H. BASINSKI. *Fed. Proc.* 17:81, 1958.

Crude platelet extracts and purified platelet factor 3 both activate purified prothrombin to thrombin, are active in the thromboplastin generation test and correct the poor prothrombin consumption of the thrombocytopenic state (50,000 platelets/cu mm or less). Further purification by ether extraction of platelet factor 3 only results in a product which is active in the last two tests, but not the first. The poor prothrombin consumption time of the thrombocytopenic state is due not to residual prothrombin but to a component that can be purified partially using techniques similar to those used to purify prothrombin. This component exhibits some of the same chemical characteristics as prothrombin. The relationship of platelet factor 3 activity to various platelet fractions is being studied using these assay procedures.

PROTEIN REQUIREMENTS OF ADOLESCENTS. J. A. JOHNSTON. *Ann. New York Acad. Sc.* 69:881, 1958.

Our data suggest that the optimal intake of protein for the adolescent should constitute 15 per cent of an adequate caloric intake. It is suggested that the recommendations of the National Research Council for this age group be revised upward. It is urged that one criterion of "optimal" be the relation of a nutrient to infection.

The complexities of our society, rather than economics, have conspired to make it difficult for the child to obtain enough protein. Pressures on the protein level of

Abstracts

the child's diet recur regularly throughout his many years of growth and development.

Feeding the child, which is a long task, in reality becomes an uphill struggle to provide him with enough protein.

Good child nutrition in our civilization requires the development of an enlightened philosophy of nutrition in order to apply the science of nutrition. This will require the combined efforts of the biochemist, the clinician, and the psychiatrist.

INDUCED CARDIAC ARREST AS AN AID IN OPEN HEART OPERATIONS. C. R. LAM, T. GAHAGAN, C. SERGEANT, AND E. GREEN. *J. Michigan M. Soc.* 57:49, 1958.

Induced cardiac arrest is a valuable adjunct to extracorporeal oxygenation in intracardiac operations. The cardioplegic drug acetylcholine was shown to be very efficient in the experimental laboratory, and it has been used in 121 human operations with satisfaction.

INDUCED CARDIAC ARREST (CARDIOPLEGIA) IN OPEN HEART SURGICAL PROCEDURES. C. R. LAM, T. GAHAGAN, C. MOTA, AND E. GREEN. *Surgery* 43:7, 1958.

The agent acetylcholine has been used to produce cardioplegia (induced cardiac arrest) in 88 human cases as an adjunct during intracardiac surgical procedures. Fifty-eight of the operations have been for the closure of interventricular septal defects, and 30 have been for the correction of a great variety of congenital and acquired lesions. The method has appeared to be safe and valuable for use in these open heart operations.

ANTIGENICITY OF COMBINED β -PROPIOLACTONE AND ULTRAVIOLET INACTIVATED VIRUS VACCINES. G. A. LoGRIPPO. *J. Immunol.* 80:198, 1958.

A comparison is made of the antigenicity of eastern equine encephalomyelitis (EEE) and rabies (CVS) vaccines prepared with β -propiolactone (BPL) and ultraviolet (UV) irradiation used singly and in combination.

The resistance indices obtained with the inactivated vaccines prepared with BPL and UV combined are not diminished as compared with the vaccines containing active virus.

The advantages demonstrated by the use of the combination are: a) a marked decrease in the amount of BPL required for complete virus inactivation; b) elimination of the "tailing effect" observed when either agent is used alone; and c) a marked increase in the margin of safety between the concentration required for complete inactivation and the maximum concentration which does not critically alter the antigenicity of the vaccine.

SKIN MANIFESTATIONS IN DIABETES MELLITUS. W. L. LOWRIE, W. E. REDFERN, H. L. JOHNSON, J. B. BRYAN, F. W. WHITEHOUSE, AND E. KISH. *Mod. Med.* 26:96, 1958.

Poor metabolic control is quickly reflected in the skin of diabetic patients. Slow-healing wounds, rashes of boils, and pruritus all accompany poorly controlled diabetes and suggest undiscovered diabetes in individuals presumed healthy. Included

are illustrations of ten skin conditions which appear in diabetics — furunculosis, carbuncle, pyoderma gangrenosum, cellulitis malperforant, dry gangrene, phenol ulcer, ulcer produced by toe-nail scissors, xanthoma tuberosum, and necrobiosis lipoidica diabetorum.

THE DISTRIBUTION OF THE OCCLUSIVE PROCESS IN CORONARY ARTERIOSCLEROSIS: A POSTMORTEM ROENTGENOLOGIC STUDY. R. T. McDONALD, D. E. SZILAGYI, L. C. FRANCE, AND J. C. SIERACKI. S. Forum 8:278, 1958.

One hundred and thirteen unselected hearts (39 grossly normal and 74 with one or more lesions of the coronary system) were examined roentgenologically and pathologically at autopsy.

Forty-three percent of the pathological specimens had significant coronary occlusive disease which had not been manifest clinically. That these were indeed early lesions is borne out by the findings that the majority of lesions involved only one coronary artery and most were theoretically curable.

Seventy-three percent of the cases without angina, but with other clinical symptoms had involvement of two or more arteries; however, only 10% of these lesions were theoretically curable.

Angina did not occur unless at least two arteries had extensive involvement. None of the patients with angina had curable lesions. All but one had had previous myocardial infarctions; the latter suffered infarction terminally. All were cardiac deaths. Angina pectoris instead of being a symptom of early involvement in this series represented severe derangement of the coronary arteries.

The number of patients with diabetes was too small to draw any conclusion. However, their coronary disease tended to be more severe and more widespread. None of these patients had theoretically curable disease.

In general, coronary arteriosclerosis, when clinically manifest, tends to be generalized. In this series 35.9% of the specimens were inoperable; in 52.4% of the cases palliation could probably have been achieved; and only 12.7% of the cases had theoretically curable lesions.

OSTEOTOMY-BUNIONECTOMY FOR HALLUX VALGUS. C. L. MITCHELL, J. L. FLEMING, R. ALLEN, C. GLENNEY, AND G. A. SANFORD. J. Bone & Joint Surg. 40-A:41, 1958.

Over 400 operations have been done for hallux valgus with metatarsus primus varus in which a distal first metatarsal osteotomy with lateral displacement and angulation of the head was used. This operation was not done in patients who had simple hallux valgus without metatarsus primus varus. Fifty-nine patients who had had 100 operations were examined and x-rayed in 1955. The results were generally satisfactory in eighty-two per cent of the operations. It is felt that this operation has merit when done correctly in a suitable patient. The authors plan to continue the use of this operation, and feel that the results can be improved by attention to technical details and by proper selection of patients.

NEW APPROACH TO THE THROMBOCYTOPATHIES (THROMBOCYTOPATHY A). R. W. MONTGOMERY. Fed. Proc. 17:396, 1958.

Fifteen patients with a mild hemorrhagic diathesis demonstrated prolonged bleeding times as the only *in vivo* abnormality and abnormal prothrombin consumption

Abstracts

times as the only *in vitro* abnormality. The serum exhibiting the abnormality short prothrombin time, unlike hemophilia and similar to thrombocytopenia contained as little prothrombin as normal serum, about 25 U/ml. These findings suggested a dysfunction of platelets; and, since platelet factor 3 is the principle activity of platelets known to be involved in the formation of thrombin from purified prothrombin and probably concerned with the prothrombin consumption time, a study of the function of platelet factor 3 in these patients was undertaken. Platelets were collected by differential centrifugation and washed. The platelet factor 3 activity of these platelets was assayed by the method of Alkjeersig, Abe and Seegers involving quantitative activation and purified prothrombin. The patients' platelet extracts activated very little prothrombin, about 100 U, while the normal activated about 800 U/ml. The *in vitro* addition of platelet factor 3 to patients blood corrected the prothrombin consumption. After ultrasonic oscillations the patients' platelet extracts which previously had activated very little prothrombin activated the same amount as normal platelet extracts. The administration of bovine platelet factor 3 to terminal leukemic patients resulted in the correction of the defect in vascular resistance. The results of these observations suggest the designation of Thrombocytopathy A to this bleeding disorder.

SEVERE NUTRITIONAL MACROCYTIC ANEMIA IN EMOTIONALLY DISTURBED PATIENTS. R W. MONTGOMERY, D. KAVANAUGH, AND J. W. REBUCK. *Am. J. Clin. Nutrition* 6:105, 1958.

Emotional instability may be associated with severe nutritional deficiency with resultant macrocytic anemia. The anemia and altered cellular metabolism may augment the nervous symptoms. The macrocytic responds promptly to folic acid, vitamin B₁₂, refined liver extract, and hyperalimentation. The combination of folic acid and adequate supportive psychosomatic therapy offers the most favorable treatment.

A COMPARISON OF ACETYLCHOLINE AND POTASSIUM CITRATE AS CARDIOPLEGIC AGENTS. C. MOTA, T. GAHAGAN, AND C. R. LAM. *Michigan Acad. Sc., Arts & Letters* 43:53, 1958.

In an experimental comparison of acetylcholine and potassium citrate, 1 of 18 potassium-arrested hearts did not recover because of ventricular fibrillation. Two other instances of ventricular fibrillation occurred in potassium-arrested hearts in which defibrillation was successful. Defibrillation was successful in the 4 acetylcholine-arrested hearts in which ventricular fibrillation occurred. None of the 18 hearts arrested with acetylcholine failed to recover. The mean perfusion time required in the acetylcholine group for recovery was 10.2 minutes, slightly shorter than the 12.8 minutes in the potassium group, with the one failure excluded.

MALIGNANT MELANOMA; CLINICAL AND PATHOLOGICAL BEHAVIOR IN 127 CASES. J. L. PONKA, D. M. EVANS, AND J. H. WYLIE. *J. Michigan M. Soc.* 57:563, 1958.

Only 13 per cent of our 127 cases of malignant melanoma survived for a period of five years, or longer, without metastases. Patients, as well as the profession,

should be aware of the serious implications of such changes as growth, bleeding ulceration and color changes when seen in connection with pigmented skin lesions. Inadequate local treatment in this series is reflected in the results. Forty-two per cent of these patients had local recurrences after initial treatment. Treatment with x-ray, cautery (chemical or electrical), incision and drainage, freezing, injections and ointments is condemned. Excision biopsies are encouraged. Microscopic examinations should always be done. We encourage wider resections of the initial lesions. We believe that the scope of the operative treatment should be expanded to include the regional lymph nodes, since they are so often the site of secondary involvement. Another error often made is that radical surgery is not carried out early enough.

*IMAGE FORMATION OF A HIGH TEMPERATURE VACUUM EVAPORATION SOURCE THROUGH COMBINED DISTILLATION CAMERA EXPOSURES AND AUTORADIOGRAPHY WITH Au^{198} , Cr^{51} AND W^{185} . L. E. PREUSS. J. Appl. Rad. & Isotopes 3:143, 1958.

A combination of vacuum distillation self-imaging and autoradiography is described for the production of an image of the vacuum evaporation geometry of an evaporating source at the instant of molecular distillation, or during selected periods throughout the distilling sequence. The mode of the macrodistillation phenomena may be ascertained by the method, which is particularly applicable to the study of distillation phenomena of minute masses of charge material. The system provides an image, the density of which quantitatively represents the intensity of the evaporation rate from any point on the distillation source. A shutter system may be used to provide discrete images of the distillation phenomena at limited, selected time periods throughout the evaporation.

The method consists first of the use of a simple vacuum distillation camera. The image of the source being formed on a cold target plate at the image plane and made up of the condensed metal distilland, tagged with its radioactive isotope. Single isotopes or combinations of the tagged metals may be used in the crucible and charge. Radioisotopes used here are Au^{198} , Cr^{51} and W^{185} . The metallic condensed metal in image array may be so tenuous as to be invisible on this target plate. This condensed tagged metal is placed in gross apposition with a proper autoradiographic emulsion and the resultant photographic negative presents the true image of the distillation intensities at the source. This image may not necessarily coincide with the geometric, mechanical limits of the filament plus charge. The autoradiographic image reproduces the apparent source seen by the target. This special benefit of the method, in that it demonstrates the source *region* from which the distilling atoms emanate, allows study of wetting phenomena, creep of charge, reflection and distilland scattering phenomena. Image photographic density may be quantitative measure of the source distillation rate, when the photographic process is standardized. The method has potential in binary isotope distillations to determine simultaneous evaporation phenomena of charge and crucible. The method's resolution theoretically extends to the order of 10 micron and has a sensitivity down to 500 microgram charge mass distilled. Source images may consist of as little as 10^{-10} g of metal for certain emitters.

Abstracts

ANTIBIOTICS IN ORAL SURGERY: A REVIEW. M. REVZIN. *J. Oral Surg.* 16:119, 1958.

The entire field of antimicrobial therapy is a constantly expanding one and one which demands that the oral surgeon be constantly alert for new developments in this aspect of the fight against infection. Antibiotics as they are used today constitute two broad groups. Group 1 contains the most often indicated and used penicillin and Group 2 contains the so-called broad-spectrum antibiotics. Untoward reactions and the treatment of undesirable sequelae should be important to all oral surgeons who employ antibiotics.

In the final analysis the use of antibiotics is based on experience and the clinical picture of the patient, but it is most effective when the organism has been demonstrated and when a laboratory has run the proper sensitivity tests to indicate the antibiotic of choice. The intelligent and judicious employment of antimicrobials will prove to be an extremely valuable instrument in the armamentarium of all who are involved in the fight against infection.

CORRELATION OF ULTRASTRUCTURAL PLATELET ABNORMALITIES WITH PLATELET FACTOR 3 DEFECTS. J. M. RIDDLE AND J. W. REBUCK. *Fed. Proc.* 17:454, 1958.

Electron microscopic observations of platelets from patients with thrombocytopathy indicated that there was a structural abnormality which correlated with their poor prothrombin consumption and platelet factor 3 defect. The method used was that of Braunsteiner. Blood drawn by venipuncture into a siliconized syringe was introduced into a siliconized vessel containing heparin and a glass slide previously coated with formvar. This system was incubated for 8 min at 37°C, the slide was then removed, washed in Tyrode's solution, fixed in an osmium solution, washed, dried and examined with the electron microscope. Platelet differentials of 100 platelets revealed 4 stages: 1) circulating or round; 2) dendritic; 3) intermediate; 4) expanded or spread out. In normal individuals the largest number of platelets were in the circulating and dendritic stages, while in thrombocytopathy patients the largest number were in the intermediate and expanded stages. The results suggested an arrest of platelet disintegration at the intermediate and expanded stages resulting in faulty liberation of platelet factors essential in normal hemostasis.

RESULTS WITH THE CHISELS IN STAPES MOBILIZATION. H. F. SCHUKNECHT, A. B. GRAHAM, AND M. R. COSTELLO. *Laryngoscope* 68:726, 1958.

The stapes mobilization operation was performed on 269 patients between October, 1954, and December, 1957. The late success rate (three months, plus) utilizing the tilt technique was 14 per cent of 22 ears; with the needle technique it was 47 per cent of 106 ears; and, with the chisel technique it was 72 per cent of 72 ears.

The chisels designed by Heermann are effective instruments for mobilizing the footplate while preserving the continuity of one or both crura and maintaining thereby the columella effect.

*From Edsel B. Ford Institute for Medical Research.

Abstracts

THE INCIDENCE OF THE L.E. CELL PHENOMENON IN PATIENTS WITH RHEUMATOID ARTHRITIS (A TWO-YEAR STUDY). J. W. SIGLER, R. W. MONTGOMERY, D. C. ENSIGN, G. M. WILSON, JR., J. W. REBUCK AND J. D. LOVETT. *Arthritis & Rheumat.* 1:115, 1958.

Forty-five patients with clinically active rheumatoid arthritis were surveyed to determine the number demonstrating L.E. cell phenomena. At the time of the initial survey, 6 of the 45 (13 per cent) showed L.E. cells. During the ensuing two years, 5 additional patients demonstrated L.E. cells. Thus, at some time during the study, 11 of 45 (24 per cent) produced L.E. cells. Two of the 11 who demonstrated L.E. cells (4.4 per cent of the total group) developed symptoms and signs which were compatible with a diagnosis of systemic lupus erythematosus. L.E. cells were found in patients in all stages of rheumatoid arthritis. L.E. cells appeared in patients with rheumatoid arthritis who had the disease from 1 to 35 years. Rheumatoid nodules occurred in 55 per cent of those rheumatoid patients who showed L.E. cells. It is recommended that an L.E. cell preparation be included in the basic evaluation of patients with rheumatoid arthritis.

STUDIES ON THE IN VITRO AND IN VIVO EFFECT OF CYCLOSERINE AND ISONIAZID ON TUBERCLE BACILLI. J. P. TRUANT. *Antibiotics Annual 1957-58*, p. 630.

The present study has shown that high concentrations of cycloserine are necessary to inhibit both the control strain (H₃₇Rv), and the patients' strains. It appears as if there is considerable variation in the inhibitory concentration of cycloserine when the latter is incorporated in different media. Therefore, it is imperative that a strain of known susceptibility to cycloserine be used as a control.

The results demonstrate that a significant number of cycloserine and isoniazid resistant strains were obtained from sputa of untreated patients. One explanation for this finding is that several isolates from each patient were tested, thus the possibilities of demonstrating resistant strains in a predominantly sensitive population are increased. Another possibility for this finding is the fact that the investigator is more likely to find resistant strains when susceptibility tests are performed by the indirect rather than the direct method of testing.

Sputum conversion has been so rapid so as to preclude testing for resistant organisms in about 50 per cent of the cases. Therefore, it seems of questionable wisdom to draw any conclusions as to whether the isolates have developed resistance due to the therapeutic program, especially so if one considers the fact that drug-resistant strains were also demonstrated previous to therapy.

There is no doubt that the combination of the drugs has some effectiveness on tuberculosis. This is evidenced by obvious clearing of the roentgenograms with closure of cavities, disappearance of tubercle bacilli from the sputum, and disappearance of functional symptoms. Although the investigation has been in progress for more than a year, the experimentation is too new to draw any definite conclusions.

Abstracts

*EFFECTS OF MAGNETIC FIELDS UPON ANISOTROPIC IRON CRYSTALS. J. H. L. WATSON, A. ARROTT, AND M. W. FREEMAN. *J. Appl. Physics* 29:306, 1958.

Here are considered problems inherent to aligning certain dendritic, ferromagnetic crystals by magnetic fields: to describe electron microscopic techniques used to study alignment; and to interpret these observations relative to magnetic phenomena associated with alignment. The results are of interest because they concern the monolithic Freeman crystals which demonstrate magnetic behavior associated with shape anisotropy, and which are different from others, being obtainable with consistent and considerably greater, but controlled morphological variety. The particles are agglomerated as they come from the process in its present form. The problems inherent in aligning them are related to the forces responsible for this agglomeration, which are chiefly dipole-dipole with lesser effects of molecular attraction and mechanical interlocking.

MANAGEMENT OF THE PREGNANT DIABETIC. F. W. WHITEHOUSE, W. L. LOWRIE, AND C. P. HODGKINSON. *Med. Times* 86:833, 1958.

Sixty-seven pregnancies in forty-five diabetic mothers have been reviewed. After the fetus is viable there is a fetal wastage of twenty-eight percent in our series. The incidence of preeclampsia is thirty-seven percent, polyhydramnios, twenty-four percent and ketoacidosis, twenty percent. Early timed delivery has been practiced during the time covered by this study. The overall fetal survival rate using Caesarean section has been eighty-nine percent. Only by the closest cooperation between patient and physician can the present tragic fetal loss be lowered.

*From Edsel B. Ford Institute for Medical Research.

