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The distribution of C^{14} between fecal neutral sterols and bile acids in various animals has been the subject of a number of studies. Results show that some species excrete the largest amount of activity in the bile acid fraction. It appears that in these animals conversion of tissue sterols to bile acids, with subsequent fecal excretion, is the major pathway of sterol metabolism. However, in other species, bile acids may not be the predominant mode of excretion. Frantz et al. have reported that in the human a majority of activity is excreted in the neutral sterol fraction, while in the mouse we have observed a more or less equal distribution of activity between the sterol and bile acid fractions. Other studies show that many factors influence the distribution and excretion rate of fecal steroid-C^{14}. The present study compares the time course of fecal steroid-C^{14} excretion in normal mice, hamsters, rats, guinea pigs, gerbils, and rabbits maintained on standard laboratory rations. Mevalonic acid-2-C^{14} (MVA-2-C^{14}) was the precursor of tissue sterol-C^{14}. The use of MVA-2-C^{14} also circumvents the question of the relative suitability of various cholesterol-C^{14} emulsions for such a study.


Sixteen patients with genetic lymphedema were seen and ten were studied by lymphangiography, venography, Na^{22} and RISA. The ages of onset ranged from birth to 28 years. Of the ten cases studied at least two seemed to be suitable for possible surgical intervention at a later date because their lymphatics were hyperplastic. When the technique of lymphaticovenous anastomosis becomes further defined, this will be offered to them. A classification of the lymphedemas based on their genetic or non-genetic origin was introduced. The existence of an avalvular, interanastomosing, superficial, papillary capillary lymphatic plexus in the skin was suggested by the RISA lymphangiography and the clinical significance of this will be reported elsewhere. Attention was called to the need for standardizing the basic techniques of radioisotopic lymphangiography. There appeared to be a compensatory rapid clearance rate for the Na^{22} in those limbs where the RISA clearance rate was markedly diminished. Variations in the thickness of the skin and subcutaneous tissues of both the normal and abnormal limbs apparently preclude specific injection depths for tracer studies.


It seems advisable to treat intermittent claudication in its early stages by either pressure-gradient stocking alone (as I have done in the past), or more effectively by initial intermittent compression pumping coupled with or followed by the use of pressure gradient supports. Certainly, the "walkless walk" obtainable with the pump should help open the arterial col-

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lateral sooner and more than justify the expense incurred, to say nothing of possibly obviating the pain and crippling that might otherwise ensue. In cases of arteriosclerotic gangrene the combined therapy of intermittent compression during the day and pressure-gradient dressings during the night seem to decrease the morbidity by about 50 per cent.


Data has been reported on radioactive film profiles for simulated vacuum distillation sources. New experimental information has now been collected on families of profiles, using this method for continuous linear and single ring sources. The line source profile (h is 40 cm) exhibited variations of 6 per cent over 10 cm and 10 per cent over 15 cm regions (agreeing qualitatively with Holland). Quantitatively, thickness exceeded prediction. Theoretical ring source families, computer produced, exhibit near-planar areas. Our work shows a 3.8 per cent variation where Oberg's calculations predict 2.1 per cent. Thickness was 133 per cent of Oberg's prediction.


A survey on the use of deliberately induced hypotensive technics in resident training program centers in the United States was answered by 160 program directors. The technic is reportedly used in approximately 0.15 per cent of a total of 1,474,835 anesthetics administered. It is reported to be a valuable technic in selected intracranial operations and in some new therapeutic situations. Most directors indicated that the technic should not be abandoned, but that it should be used rarely and only in selected cases.


Thirty second-third-and fourth-grade articulatory defective children were compared with an identical number of normal speaking children. The subjects were given tests of filtered speech and binaural summation utilizing a “picture-word test” and a direct response “talk-back test”. The control group responded significantly better than the experimental group on the picture-word test and the talk-back test in both the filter and bi-naural summation conditions. The results indicate that children with severe articulation problems have more difficulty dealing with a distorted speech signal than do children with normal speaking ability. The results further suggest that the filtered speech and the binaural summation tests could be utilized as diagnostic aids in the assessment of the central mechanism of hearing as related to speech-articulation deficiency.


Five cases of attempts at salvage of seriously damaged limbs are reported: 3 of them successful, 2 involving major vascular injury. From this direct experience, plus some unquoted indirect experience, the writer suggests some principles for handling such cases. These are: Repair the major arterial and venous structures necessary to maintain viability of the limb, after an initial intramedullary osteosynthesis with one of the solid cross-section devices. Repair all nerves primarily, and primarily repair or/and rearrange all possible motor structures, so that the limb leaves the operating room in a potentially functioning state. Skin defects should be handled in the usual manner. If subsequent procedures are necessary to obtain acceptable function and cosmesis, they should be done at as few sittings as possible and delayed until after the patient has been able to return home and, if possible, to do some type of work.

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A perilacunar "halo" of low density bone has been observed around the osteocyte lacunae in undecalcified sections obtained from four cases of vitamin D resistant rickets, three being from Henry Ford Hospital Orthopaedic Research Laboratory and one previously reported by Engfeldt, Zetterström & Winberg. This feature and its pattern appear to be characteristic of and unique to this disease.


In 5 dogs which ingested 25 or 50 ml. of D₂O with one daily meal, maximal plasma concentrations of tracer were reached in 12-24 hr. The disappearance rate during 14 days was exponential, confirming studies of others in humans. Water turnover, calculated from values obtained for body water and the disappearance rates, agreed well with total water intake, which included water taken as such and that derived by oxidation. Water intake per square meter of surface area varied widely; there was also no constant relationship between either total turnover or extrarenal loss and caloric intake. Since animals were maintained at nearly constant weights for long periods, caloric intake and total heat production were presumably equivalent. Thus the possibility of estimating total heat production from water turnover or extrarenal loss was not promising, but the validity of body water and turnover estimations was well supported. Average value for body water was 60.6 per cent of body weight, with a range of 56.1 per cent to 66.6 per cent.


This study is part of a continuing investigation of biologic and chemical differences between caries-immune and caries-susceptible human saliva. Study of chromatographic techniques was undertaken to determine if this type of fractionation would disclose any major differences in components of immune and susceptible saliva and if the previously described lactobacillus-lytic factor could be purified to any extent. Ellison and Mandel have demonstrated the applicability of column chromatography to saliva fractionation. Chromatographic fractionation techniques of human saliva on DEAE cellulose were reported. In comparing caries-immune and caries-susceptible salivas, no differences were found in chromatogram patterns of protein, amylase, anthrone-reacting carbohydrates, sialic acids, or in electrophoretic mobilities of the chromatogram fractions. Recovery of a lactobacillus-lytic factor from several fractions indicated its association with heterogenous-globulin component.


A cinemicrographic study of the actions of some hormones was made on goldfish pigment cells cultured in vitro. The ACTH-induced pigment cells in the completely xanthic goldfish cultures are classified as melanocytes which differ from the pre-existing melanophores of the black and grey fish in morphology and their responses to the hormones. The melanophores respond to MSH by dispersion and to melatonin or noradrenaline by aggregation, whereas the ACTH-induced melanocytes either show little or no response to these hormones. When they do respond, the responses are in the form of expansion or contraction accompanied by formation or withdrawal of processes. The cinemicrographic technique was found to be useful in the study of direct effects of hormones on the pigment cells.


The ACTH-induced melanocyte formation in explants of xanthic goldfish tail is inhibited reversibly by a number of mitotic inhibitors, strongly suggesting that the melanocytes are formed as a result of mitotic activity of propigment cells. The time course of this transformation and the site of action of the different inhibitors are summarized in Table 2. Since the

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population of propigment cells in the explants is probably nonhomogeneous, these figures are not absolute, but rather a statistical representation of the nonhomogeneous population of propigment cells in the explants.


This is a review of significant work presently being done or just recently completed in the field of basic research and otologic problems. It is arranged under four categories: OTOPATHOLOGY. Recent techniques concerning fixation of human specimens and some of the important histopathologic findings recently reported are discussed. ELECTROMICROSCOPY. The importance of electromicroscopy as a new tool in otologic research is discussed along with significant anatomical findings which have recently been brought to light as a result of employing this technique. It is pointed out that some of the recent findings are in keeping with theories concerning the mode of transfer of acoustic energy to the neural components at the level of the hair cell. INNER EAR FUNCTION. Recent investigations concerning the nature of the traveling wave are reviewed. Evidence concerning the presence of a chemical mediator is briefly discussed. NEUROPHYSIOLOGY. Studies concerned with neural responses and their relationship to cochlear function, as well as studies of the whole nerve response and its relationship to the traveling wave, are reviewed. A review of the anatomical and functional characteristics of the peripheral and central nervous systems in monkeys is summarized, and recent research concerning the efferent system and its anatomical and physiological implications are discussed.


As experience in the use of anticoagulant drugs accumulates, analysis of the incidence of complications is necessary to assess the risk of outpatient therapy. The records of all outpatients at the Henry Ford Hospital treated with long-term anticoagulants from August, 1961, to August, 1962, were reviewed. Complications and control were studied for this period in all 978 patients, though 808 had received treatment for over one year. All patients were treated for at least three months. Fifteen patients (1.5 per cent) experienced major hemorrhage, and 218 patients (22 per cent) reported minor bleeding not necessitating hospital care. No significant correlation was observed between prothrombin level and major complications. Fifty-five deaths occurred during the period of study, and in four of these patients, anticoagulants may have been a contributing factor. The findings clearly indicate that with adequate precautions, long-term outpatient anticoagulant therapy is practical and safe.


Cushing’s syndrome in infants is a rare disorder, usually caused by adrenocortical carcinoma. Clinical and pathological features of a fatal case occurring in a female infant 8 weeks old are reported. Initial abnormalities were glycosuria, granulocytosis, and failure to thrive. The marked retardation of skeletal maturation, with bone age interpreted as less than term, suggests a prenatal onset of the endocrine disorder. The infant died after adrenal exploration. Both adrenal glands were hyperplastic and nodular while generalized wasting, sparing heart and kidneys, characterized the anatomic changes generally. An unexpected preponderance of acidophils was discovered in cell counts of the anterior pituitary.


An account is given of the experimental and clinical findings in the use of an arterial substitute, woven of Dacron yarn, which is seamless, smooth-walled, finely porous, light, and has elastic qualities. In animal experiments, during 60 months of observation, the prosthesis showed low tissue reactivity, good arteriogenesis, and excellent durability. Used as direct replacement and as bypass graft in the aortoiliac and femoropopliteal areas in 524 clinical cases (the earliest of which has been followed for 5 years), the prosthesis has yielded early patency rates only slightly lower than those obtained by us with homografts and late patency rates that were superior. Further clinical experience is needed to prove that this trend is consistent and stable.