BRITISH CHEMICAL AND PHYSIOLOGICAL ABSTRACTS

A., III.-Physiology and Biochemistry (including Anatomy)

DECEMBER, 1942.

I.—GENERAL ANATOMY AND MORPHOLOGY.

Blood vessels of human Gasserian ganglion. L. Bergmann (Anat. Rec., 1942, 82, 609—629).—The blood supply is derived from an arch connecting a Gasserian twig of the internal carotid with the middle meningeal. The venous drainage passes in part through dense intradural plexuses into adjacent sinuses and in part through a basal set of veins to the cavernous sinus, middle meningeal vein, and emissaries of the foramen lacerum. In radicular expansions of the trigeminal nerve the vascularity is dense and is even more abundant in the grey matter of the ganglion. Vessels in trigeminal divisions are scanty. W. F. H.

Observations on the Lacertilian sympathetic system. W. E. Adams (J. Anat., London, 1942, 77, 6–11).—A description is given of the general topography of the sympathetic system in *Lacertilia*. A bilateral paravertebral ganglionic chain is present between the limb plexuses and is connected by pre- and post-ganglionic fibres with the spinal nerves (9-24). It is suggested that certain preganglionic fibres pass beyond the chain into the head region.

W. J. H. **Renal fascia.** C. P. Martin (*J. Anat., London*, 1942, 77, 101— 103).—The anterior layer of renal fascia crosses the middle line of the body in front of the aorta and inferior vena cava. The posterior layer of the renal fascia blends with the fascia covering the psoas major muscle; in addition a deeper stratum connects the anterior and posterior layers around the medial border of the kidney. This deeper stratum is pierced by the renal vessels. At the upper pole, lateral borders, and to a smaller extent at the lower pole, the layers fuse. W. J. H.

Radiological study of deglutition. A. S. Johnstone (J. Anat., London, 1942, 77, 97-100).--X-Ray examinations were made during deglutition of an opaque medium. The laryngeal apparatus is elevated and the base of the tongue pressed against the palate; at the same time the upper nasal passages are cut off. During the act of swallowing the epiglottis turns over like a lid to meet the elevated larynx. W. J. H.

Eudiarthrodial joints in fishes. R. W. Haines (J. Anat., London, 1942, 77, 12—19).—Eudiarthrodial joints with a fully developed synovial membrane are found in the more primitive types of bony fishes, including the Dipnoi, Polypterus, and Holostei. It is suggested that eudiarthrodial joints were first developed in the common ancestors of the bony fishes as part of the jaw mechanism; other types of joints are discussed. W. J. H.

Appearance of ossification centres. M. Robinow (Amer. J. Dis. Child., 1942, 64, 229-236).—The ages at which certain centres of ossification appeared in a group of 31 children are given and these data intercorrelated and subjected to factor analysis.

C. I. C. B.

Alterations in X-ray diffraction pattern of rat tibia in rickets. C. I. Reed and B. P. Reed (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 196—198).—Rachitic pattern was present in bone although a healing diet had been given for 275 days. Mechanical efficiency (breaking stress) was not impaired. V. J. W.

Platybasia, Klippel-Feil syndrome, and Sprengel's deformity. W. Furst and H. W. Ostrum (Amer. J. Roentgenol., 1942, 47, 588-590). H. L.

Marble bones (Albers-Schönberg disease). B. W. Anthony and H. C. Pollack (*Radiology*, 1942, 38, 355-359).—Case report of a Negro child. E. M. J.

Cleft sternum in full-term human fætus. B. M. Desai (J. Univ. Bombay, 1942, 10, B, Part 5, 77-79).—The sternum was in the form of two halves consisting of hemimanubria and hemisternebræ separated by a wide "sternal fissure," Heart and pericardium were covered by skin and fascia only. Hemimanubria and the upper three hemisternebræ showed normal osseous development. An embryological explanation of the anomaly is discussed.

Anomalous single azygos-hemiazygos vein associated with retroaortic left renal and accessory renal veins. H. B. Hamilton and R. G. Meader (*Yale J. Biol. Med.*, 1942, 14, 463-468). - F. S. 865 Congenital cardiac abnormality with partial situs inversus. E. W. Walls (Anat. Rec., 1942, 82, 497-505).—The cardiac defects included a common atrio-ventricular orifice, incomplete atrial and ventricular septa, and a small infundibulum and pulmonary trunk. They were associated with dextrocardia, partial subdiaphragmatic situs inversus, and anomalous arrangement of the great veins. W. F. H.

POLITECHEIRE

Bilateral hyperthelia in guinea-pig. H. Speert (Anat. Rec., 1942, 83, 317-320).—The third recorded instance of hyperthelia in the guinea-pig and the first in which supernumerary nipples were present bilaterally. W. F. H.

Growth changes in ammonite Promicoceras marstonense. E. D. Currie (Proc. Roy. Soc. Edin., 1942, **61**, **B**, 344—367).—The ammonite shell studied approximates closely to a logarithmic spiral but a change of spiral angle occurs about the 6th half-whorl and also between the 2nd and 3rd half-whorls. The angle of the spiral changes with a change in the rate of increase of the radius of the spiral. The umbilical spiral, like the median spiral, also changes its spiral angle at 2 points. Max. whorl breadth increases in a manner const. for the species. The final form of the shell is the result of several growth gradients operating simultaneously. W F. H.

Displacement method of weighing living aquatic organisms. A. G. Lowndes (J. Marine Biol. Assoc., 1942, 25, 555-574).—The method by which wt., vol., density, and sinking factor of aquatic organisms can be determined is extended. A quick and accurate method for determining the % of water in a living organism is described. The sinking factor of several fish and of crustacean embryos at different stages has been determined. The effect of this factor on swimming and the effects of spinous outgrowths in pelagic crustacea are discussed. W. F. H.

II.—DESCRIPTIVE AND EXPERIMENTAL EM-BRYOLOGY. HEREDITY.

Early human twins with peculiar relations to each other and chorion. P. Gruenwald (*Anat. Rec.*, 1942, 83, 267-279).—The longitudinal axes of both embryos are in one line, both twins facing in the same direction. One twin shows a normal attachment to the chorion. In the other, body stalk and allantois are absent and the embryo is not directly attached to the chorion but is connected to the other twin by the common amnion and probably a common yolk sac. Blood of one twin must have passed through the other to reach the chorion. W. F. H.

Parallel embryonic development in rat and its bearing on question of superfectation. C. K. Weichert (Anat. Rec., 1942, 83, 511— 519).—The animal, suckling 9 young, was inseminated during post-partum œstrus after which the male was removed. When killed at the 28th day of pregnancy, two sizes of embryos, $4\frac{1}{2}$ days apart in age, were found. The ovaries showed that only one ovulation had occurred. The bearing of the report on the question of superfectation is discussed. W. F. H.

Survival of spermatozoa in female reproductive tract of bat. W. A. Wimsatt (Anat. Rec., 1942, 83, 299-307),—Spermatozoa may survive within the female genital tract of Myotis lucifugens and Eptesicus fucus throughout the period of hibernation and evidence is also advanced to show that spermatozoa of autumnal inseminations are able to initiate development of ova released from ovaries in the spring. W. F. H.

Stages in normal development of Rana pipiens. W. Shumway (Anat. Rec., 1942, 83, 309-315).—A method for the identification of stages from sectioned material is described. W. F. H.

Origin of Mauthner cells in axolotl. A. Weber (Arch. Sci. phys. nat., 1941, [v], 23, Suppl., 226-229).—The development of the cells, which are recognised and localised at very early stages of growth, is described. W. McC.

Apparatus for rapid sterile removal of chick embryos from eggs. E. G. Pickels (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 224-228).—An apparatus is described, with photographs, for removing egg-tops with a blow-pipe while the eggs are rotated by a motor.

v. J. w. 866 Toxicity of antiseptics for chick embryo. W. B. Dunham (Proc. Soc. Exp. Biol. Med., 1942, 50, 274-276).—Toxicity of phenol, HgCl₂, and I to chick embryos is the same in mg. per kg. as to men. Toxicities of many other substances are tabulated. V. J. W.

Vital dyes on Arbacia eggs. E. B. Harvey (Biol. Bull., 1941, 81, 114-118).—Differential staining of the stratified centrifuged egg is tabulated. D. M. SA.

Cross- and self-fertilisation in Cynthia. T. H. Morgan (Biol. Bull., 1942, 82, 161-171). D. M. Sa.

Cross- and self-fertilisation in Molgula. T. H. Morgan (Biol. Bull., 1942, 82, 172-177). D. M. SA.

Induced buds in Clymenella. L. P. Sayles (Biol. Bull., 1942, 82, 154-160).—Transplants in C. torquata indicate a strong taildetermining factor in the posterior segments and a weaker headdetermining factor anteriorly. D. M. Sa.

Ultra-violet light and Fucus eggs. D. M. Whitaker (*Biol. Bull.*, 1942, 82, 127—137).—Rhizoids will not form on irradiated surfaces and this result is proportional to the logarithm of the dosage. Cortical injury was found not to be the causal factor. β -Indolylacetic acid does not revive eggs totally inhibited by large doses of ultra-violet light. D. M. SA.

Allometry in regenerating Daphnia. B. G. Anderson and H. L. Busch (*Biol. Bull.*, 1941, **81**, 119—126).—The law of allometry was found to be applicable to regenerating as well as to normal growth of antennal segments. D. M. SA.

Types of development of polytene chromosomes. A. M. Melland (*Proc. Roy. Soc. Edin.*, 1942, **61**, **B**, 316—327).—Polytene chromosomes in the Diptera occur in salivary glands, Malpighian tubules, gut cells, nerve cells, and anal gills. Different degrees of polyteny are correlated with different degrees of uncolling and nucleic acid change in the chromosomes. Unequal polyteny occurs exceptionally in salivary glands. Organisation of salivary blands in Diptera shows evolutionary trends in keeping with the development of polyteny within the nucleus as well as with general adult morphology. W. F. H.

W. F. H. X-Ray-induced structural changes in the chromosomes of Drosophila pseudo-obscura. P. C. Koller and I. A. R. S. Ahmed (J. Genet., 1942, 44, 53-71).—Cytological analysis of salivary gland chromosomes of 425 larvæ showed that 4500 r. induced changes in 40% of the treated sperm. The scarcity of sperms with an uneven no. of breaks is due to "proximity effect" or competition rather than to "terminal deficiency" effect. In larvæ aged over 10 days at the time of treatment there is no differential effect of X-rays on germ cells of different sizes. The distribution of spontaneous and X-rayinduced breaks along the third chromosome is discussed and it is shown that breakage points of induced breaks are distributed at non-random. W. F. H.

Deficiency effects of ultra-violet light in Drosophila melanogaster. B. M. Slizynski (Proc. Roy. Soc. Edin., 1942, **61**, **B**, 297—315).—Out of 6 cases of X-ray-induced lethals, 2 were connected with deficiences; in 21 cases of ultra-violet lethals, 5 were deficiencies, and among 8 spontaneous lethals one deficiency occurred. 5 X-ray-produced lethals were connected with gross chromosomal changes but no such changes were found among the ultra-violet lethals. It is suggested that ultra-violet light acts on genes producing visible gene mutations, lethal gene mutations, and mutations which delay the formation of a new gene, thus rendering it deficient. W. F. H.

Heteroauxin and production of tetraphoid shoots by callus method in *Brassica oleracea*. H. W. Howard (*J. Genet.*, 1942, 44, 1--9).— The frequency of tetraploid callus shoots obtained by decapitation only and by heteroauxin treatment was approx. 10% in each case. The origin of new meristems from vacuolated cells in calluses is described. The tetraploid areas in calluses are caused by the division of vacuolated cells which contain nuclei with diplochromosomes. W. F. H.

III.—PHYSICAL ANTHROPOLOGY.

Standardisation in biometry. K. Solth (Magyar Orv. Arch., 1940, 41, 387–395).—Statistical examination of biological data is discussed. The importance of standardisation is demonstrated with epidemiological and pathological examples. A. W. M.

Squatting index of femora of Punjabis. M. A. Shah (J. Anat., London, 1942, 77, 110—111).—The femora from Punjabis show that in squatters the intercondylar fossa is deeper than in nonsquatters. W. J. H.

IV.—CYTOLOGY, HISTOLOGY, AND TISSUE CULTURE.

Cytology of anterior pituitary of the fowl. F. Payne (*Biol. Bull.*, 1942, 82, 79—111).—Functional basophils are present at ten days. Chromophil cells arise from chromophobes but a reverse change is

uncertain. General unfavourable conditions and low diet cause basophil regression; castration causes acidophil regression. D. M. Sa.

Cell changes in pituitary and ovary of the white rat following exposure to constant light or darkness. G. R. Pomerat (Anat. Rec., 1942, 82, 531—542).—Ovaries of rats kept under continuous light are consistently smaller and contain fewer corpora lutea than those of controls. Even greater reduction in size and in amount of luteal tissue takes place in animals kept in continuous darkness. Cellular changes in the pituitaries of rats kept in const. light were slight and inconst. There was marked increase in the no. of acidophils and the basophils doubled in no. in the pituitaries of rats kept in continuous darkness for $1\frac{1}{2}$ months. With continuous exposure these changes became less marked. Recovery changes in the ovary as the length of exposure to darkness increased are discussed.

W. F. H. Structure of neurohypophysis (horse) with special reference to nerve endings. E. Vasquez-Lopez (*Brain*, 1942, 65, 1-33).—The blood vessels are surrounded by a perivascular space which, varying in width, is comparatively free from cells and never encroached on by the neighbouring nerve bundles. Numerous isolated nerve fibres leave the bundles to end in one or other of 3 main sites : (*a*) around the blood vessels of the pars nervosa, (*b*) in the pars intermedia, mostly in relation to blood vessels, (*c*) in the meningeal terminal corpuscles which are sensory structures very rich in nerve endings, projecting into the meningeal tissue at the apex of the pars nervosa. Along their course and at their ends, these terminal nerve fibrils show swellings resembling the perivascular sensory endings in other organs. Their no, and perivascular arrangement suggest that the nerves of the pars nervosa are mainly centripetal conductors and that the pars nervosa is primarily a sensory organ (? chemo- or presso-receptive apparatus for hypothalamic control of metabolic and hormonal functions). The casual relationship between neuroglial cells and nerve endings and the morphological characters of the latter are not compatible with the assumption that the pituitary neuroglial cells constitute a sp. gland of internal secretion innervated by the hypothalmic-hypophyseal system.

H. L.

Histologic analysis of uterine growth during pregnancy in rabbit. B. Krichesky (Anat. Rec., 1942, 82, 551-564).—Histological changes in the surface and glandular epithelium of the uterus in the first 6 days of pregnancy are detailed. Hypertrophy of individual muscle fibres and intercellular cedema contribute significantly to the increase in vol. of the myometrium during pregnancy. The marked cedema which precedes delivery is regarded as a significant fact in the sequence of events leading to parturition. W. F. H.

Action of hydrocarbons and sex hormones on cell nuclei. I. L. Kuklianskis (Schweiz. Z. Path. Bakt., 1941, 4, 167-173).—No karyoclasis was found in the organs of 53 mice and rats killed 9-38 hr. after subcutaneous injection in oily solution of 2-10 mg. of benzpyrene, dibenzanthracene, or methylcholanthrene, or 0.05-6 mg. of estradiol, æstrone, or equilenin. E. M. J.

Nucleolus and cytoplasm in marine eggs. R. R. Gates (*Biol. Bull.*, 1942, 82, 47—51).—Fresh eggs of *Asterias forbesii* showed the nucleolus to consist of two immiscible parts, one a central, yellowish, refractile droplet. Very rapid magenta coloration of the cytoplasm took place with Feulgen solution. D. M. SA.

Osmotic properties of nucleus. L. Churney (*Biol. Bull.*, 1942, 82, 52-67).—Immature eggs of *Arbacia punctulata* were tested with diluted and conc. sea-water and the cell and nuclear diameters measured. The nuclear membrane was semi-permeable and the nuclear responses osmometric. D. M. SA.

Method of culturing tissue on natural and artificial animal membranes. M. Vanýo (Magyar Orv. Arch., 1940, 41, 124–129).— Tissue culture was explanted on membranes of the subcutaneous tissue, on omentum, on digested frozen sections, and on fibrous membrane artificially prepared from collagenic solution. A. W. M.

Histological radiography. J. Turchini (Schweiz. Z. Path. Bakt., 1942, 5, 137-149).—A review. E. M. J.

Analysis in human semen of staining method for differentiating live and dead spermatozoa. J. Macleod (Anat. Rec., 1942, 83, 573-578).—The staining technique advocated by Lasley et al. (A., 1942, III, 569) for ram semen cannot be applied to human spermatozoa. Staining reactions of human spermatozoa are influenced by factors other than the ability of the cells to perform functions usually associated with a live, functioning organism. W. F. H.

Colloidal factors controlling silver staining. M. L. Silver (Anat. Rec., 1942, **82**, 507—529).—Specificity of Ag staining is analysed from the colloid-chemical viewpoint. Application of the principles detailed to the staining of nervous tissue permits controlled staining of neurones, astrocytes, or microglia, as well as precise staining of nuclei, axis cylinders, or myelin sheaths. W. F. H.

Introduction of biological stains: employment of saffron by Vieussens and Leeuwenhoek. F. T. Lewis (Anat. Rec., 1942, 83, 229-253). W. F. H.

V.—BLOOD AND LYMPH.

Supravital and vital staining of blood elements. G. Kiszely (Magyar Orv. Arch., 1940, 41, 113-116). A. W. M.

Blood volume of newborn infant in relation to early and late clamping of umbilical cord. Q. B. DeMarsh, W. F. Windle, and H. L. Alt (*Amer. J. Dis. Child.*, 1942, 63, 1123—1129).—The average total blood vol. of human infants allowed to retrieve their placental blood at birth was 361 c.c. or 12% of the body wt. between birth and the 3rd day of life. Deprivation of the newborn of 107 c.c. of placental blood, by clamping the umbilical cord immediately, gave an average total blood vol. of 301 c.c. or 9.6% of the body wt. C. J. C. B.

In vivo survival in human subject of transfused erythrocytes after storage in various preservative solutions. P. L. Mollison and I. M. Young (Quart. J. Exp. Physiol., 1942, 31, 359-392).—The survival of transfused red cells was studied by agglutination tests after group 0 transfusion into group A or B recipients. In vivo fragility tests are no indication of survival in vivo. Rous-Turner erythrocyte suspensions rapidly hemolyse in hypotonic NaCl but, after 18—27 days' storage, survive in vivo as well as fresh cells. Red cell-sucrose suspensions become more resistant to hypotonic NaCl but, after 15 days' storage, are completely destroyed in the recipient within 2—3 days. The in vivo survival of blood stored without carbohydrate is as good as that of fresh blood when stored up to 6 days; "I. H. T." solution, Na citrate, and heparin have similar effects on subsequent survival. Blood stored for 14 days without carbohydrate is useless as red cell carrier. Dextrin and sucrose do not increase the *in vivo* survival of blood with glucose concns. of 0.6—2.2% have no effect on survival; it is markedly prolonged with glucose concn. of 2.7%; Rous-Turner blood is as good as fresh blood after 21 days' storage. The large vol. of diluent in Rous-Turner blood, however, is a disadvantage; it should be used only when blood is stored for more than 10 days. A. S.

Blood transfusion for obstetric shock and hæmorrhage. H. L. Sheehan (*Lancet*, 1942, 242, 616-618).—An analysis of 765 blood transfusions for obstetric conditions causing hæmorrhage and shock showed that transfusion reduced the mortality rate from hæmorrhage but not that from shock. C. A. K.

Advantages and clinical uses of desiccated plasma prepared by Adtevac process. E. E. Muirhead and J. M. Hill (Ann. int. Med., 1942, 16, 286-302).—The Adtevac method of mass production of desiccated plasma is described. 4 times conc. plasma was successfully used in the treatment of 93 patients suffering from traumatic shock (5 cases failed to respond). Any degree of clinical plasmaprotein loss can be controlled with hypertonic plasma. (B.) A. S.

Simplified method for administration of plasma. L. K. Pitman (N.Y. Sta. J. Med., 1942, 42, 1356-1357).---2 rubber-stoppered and screw-capped bottles are used for the storage of plasma and distilled water, the latter hanging a little higher. A glass Y-tube connects the 2 bottles as soon as hollow needles fixed to the upper arms penetrate the rubber stoppers and water will flow into the plasma bottle; on opening the third arm the restored plasma will flow into the vein. E. M. J.

Retention of injected serum in circulation. E. P. Sharpey-Schafer and J. Wallace (*Lancet*, 1942, 242, 699-701).—The degree of retention of injected serum was followed by serial hamoglobin determinations in subjects with stable blood vol. and after venesection. With stable blood vol. serum leaves the circulation, but usually more slowly than saline; conc. serum behaves similarly and since plasma-proteins were unchanged protein must leave the circulation. After venesection, immediately injected serum is retained in the circulation, whilst saline is not. C. A. K.

Air accidents during transfusion. K. Simpson (Lancet, 1942, 242, 697-698).-4 cases of fatal air embolism during blood or plasma transfusion are described, with autopsy in each case.

C. A. K.

Plasma volume changes following intravenous injection of pectin and physiological saline in man. S. D. Jacobson and C. J. Smyth (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 218-220).—Plasma vol., determined by injection of Evans-blue dye, was increased by the vol. of pectin solution injected and the increase was maintained for 4 hr. Larger injections of saline had much less effect. Pectin alone had no toxic effects, but when given with the dye caused a purpuric rash.

V. J. W. Essential requirements in blood donors. R. Meyer-Wildisen (Schweiz. med. Wschr. 1941, 71, 1550-1552).—A review. A. S.

A and B globulin fractions for blood typing. W. Thalkimer and S. A. Myron (J. Amer. Med. Assoc., 1942, 118, 370–372).—Blood group-sp. isoagglutinins can be greatly conc. by globulin fractionation with Na_5SO_4 . If the grouping tests are performed on not too porous paper the macroscopic test is easy to read and a permanent record can be kept after drying. C. A. K.

Effect of external pressure on vascular volume of forearm and its relation to capillary blood pressure and venous pressure. C. E. McLennan, M. T. McLennan, and E. M. Landis (J. clin. Invest., 1942, 21, 319-337).—With external pressures of 0.—90 mm. Hg, pressure-vol. curves are determined in 20 normal subjects (a) by suddenly arresting the circulation to the forearm and measuring decrease in vol. and (b) by releasing circulation suddenly after prior arrest and measuring increase in vol. during the ensuing hyperæmia. The term "dynamic vascular vol." was used to indicate that the vol. of blood in actual movement was being measured under these conditions. In the normal forearm "dynamic vascular vol." were greatest when external pressure was 15-35 mm. Hg, becoming less at external pressures above and below this range. To record the relation between "dynamic vascular vol." and external pressure in the form of a single numerical val., an objective method of analysing the pressure-vol. curves was adopted. The single val. thus obtained was termed *Pmvo* and was defined as "that external pressure at which the *vis a tergo* of the circulation is able to keep open the greatest collective dynamic vascular vol." *Pmvo* determined in the forearms of 20 normal subjects with the forearm segment at heart level and 34° was 21 mm. Hg. This similarity between *Pmvo* and directly determined capillary blood pressure held also wheat tevel. The plethysmographic method may thus be used in studying the vol. of olood and the pressure in the minute vessels of the forearm in clinical conditions. C. J. C. B.

Effect of temperature on antihæmolytic activity of lecithin and cholesterol. J. S. Lee and C. Tsai (Quart. J. Exp. Physiol., 1942, 31, 271—280).—The antihæmolytic effects of cholesterol towards saponin, digitonin, crude bile acid, and natural hæmolysin are accelerated by a rise of temp.; those of cholesterol towards lecithin, oleic acid, Na taurocholate, and Na glycocholate are not. Q_{10} (hæmolysin inactivated at θ_2 /hæmolysin inactivated at θ_1 , where θ_2 is 10° above θ_1) of cholesterol-saponin and cholesterol-digitonin systems lies between 2 and 4, that of cholesterol-crude bile acid or cholesterol-natural hæmolysin is less than 1, indicating that the reactions in the former group are chemical and those in the latter physical or physicochemical. The interaction between lecithin and other hæmolysins is not accelerated by the rise in temp. Owing to the high velocity of the reactions at low temp. the temp. effect on cholesterol-saponin and cholesterol-digitonin systems is smaller in the presence of lecithin; there is no temp. effect on the rate of combined antihæmolysis. A. S.

Antihæmolytic properties of lecithin and cholesterol. J. S. Lee and C. Tsai (*Quart. J. Exp. Physiol.*, 1942, 31, 281—297).—Lecithin is hæmolytic towards oleic acid, taurocholate, and glycocholate, but antihæmolytic to digitonin, crude bile acid, and natural hæmolysin (dog's citrated plasma or serum against rabbit's red cells). The antihæmolytic effect of lecithin to crude bile acid is not due to the interaction between taurocholate and glycocholate. The antihæmolytic action of cholesterol is potentiated by lecithin in all lysin systems except natural hæmolysin, regardless of whether lecithin diminishes or accelerates hæmolysis in the absence of cholesterol. The potentiation is most marked in saponin and digitonin, less in crude bile and oleic acid. It is insignificant in Na taurocholate and Na glycocholate. A. S.

Transfusion reactions and erythroblastosis fœtalis caused by Rh-factor. G. N. Aagaard (Minnesota Med., 1942, 25, 267– 269).—Report of 2 cases. E. M. J.

Hæmolytic transfusion reactions. I. Diagnosis, with special reference to method of agglutination. A. S. Wiener (*Amer. J. clin. Path.*, 1942, 12, 189–198).—The diagnosis of hæmolytic transfusion reactions rests on the demonstration that the donor's blood has been eliminated from the patient's circulation. A test for this is described (see original for details). C. J. C. B.

Hæmolytic transfusion reaction with special reference to the Rh and cross-match tests. A. S. Wiener (*Amer. J. clin. Path.*, 1942, 12, 302—311).—Methods of testing for the Rh factor of human blood are described, including the prep. of the testing sera.

Erythrocyte sedimentation. R. E. Nichols (J. Lab. clin. Med., 1942, 27, 1410—1422).—Wintrobe's method was used with a photographic record of the rate, and tests on several aliquots of the same blood showed the results to be reproducible. C. J. C. B.

Micro-method for estimation of the sedimentation rate of red cells. H. Trought (Arch. Dis. Childh., 1942, 17, 136-138).

Factors influencing erythrocyte sedimentation rate. W. P. Belk and M. K. Wilson (Penn. Med. J., 1942, 45, 1045-1048).—A review. E. M. J.

Effect of liver extracts on erythropoiesis in chick embryo. E. E. Hays, J. H. Last, and F. C. Koch (Amer. J. med. Sci., 1942, 203, 843—848).—Injection of eggs prior to incubation with liver extracts containing 7 or more human antipernicious anæmia units increase the no. of early adult cells in the circulating blood of the 5-day chick embryo. Injection at the 3rd day of incubation with yeast and heart extracts, saline, or low doses of liver extracts produced a non-sp. and irregular increase in the no. of these cells in the 5-day chick embryo.; injection prior to incubation with more purified liver extracts produced no increase in no. or mean nuclear diameter of the cells. Yolk sac preps. of these embryos showed no consistent change in the rate of maturation or formation during erythropoiesis in the yolk sac, indicating that the response noted in the injected embryos was due to a pouring out of these immature forms. Statistical analysis showed that the responses obtained were not significant. C. J. C. B.

Hæmopoietic effect of nucleic acid on rats kept on milk diet. K. C. Saha and N. C. Ghosh (Ann. Biochem. Exp. Med., 1941, 1, 151—158).—In rats fed on milk addition of Fe and nucleic acid increases hæmoglobin and red cell count; the total Fe content of the rats is also increased. If nucleic acid alone is added hæmopoiesis is stimulated for the 1st 2 weeks, after which hæmoglobin and red cell counts fall to low vals.; stored Fe is decreased. If Fe alone is added hæmopoiesis is unaffected and stored Fe increases. With no dietary additions the blood-hæmoglobin and red cell count are steady for 3 weeks, then slowly decrease. Nucleic acid does not promote growth. P. C. W.

Rapid technique for production of nutritional anæmia in rats. K. C. Saha (Ann. Biochem. Exp. Med., 1941, 1, 257—262).— Nutritional anæmia was produced in rats on an all-milk diet by the addition of Na nucleate (5 mg. of nucleic acid per day) together with weekly bleeding. No leucocytosis is produced. Hæmoglobin and erythrocyte regeneration is more rapid if the milk + Fe diet is supplemented with nucleic acid. P. C. W.

Value of iron in iron-copper-nucleoprotein complex from fish muscle tissue [in anæmia]. K. C. Saha (Ann. Biochem. Exp. Med., 1941, 1, 263—270).—Hæmoglobin regeneration is slow in anæmic rats on a milk diet + Fe in spite of considerable Fe absorption; addition of Cu increases Fe utilisation. Cu alone has no hæmopoietic effects. The Fe-Cu-nucleoprotein obtained from fish muscle has marked hæmoglobin-regenerating capacity, which is diminished if the complex is freed from Cu. The protein content of the complex may have a positive rôle in hæmoglobin formation. P. C. W.

Blood of monkeys in nutritional deficiency states. H. E. Wilson, C. A. Doan, S. Saslaw, and J. L. Schwab (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 341-343).—All monkeys (macaques) on diets deficient in certain vitamin-*B* factors developed leucopenia and some became anamic. 2 derived benefit from injections of folic acid from yeast autolysate. V. J. W.

Sphere of action of hæmopoietic factor in pernicious anæmia [and hæmolysis]. C. D. de Langen (Gastroenterologia, 1942, 66, 288-297). E. M. J.

Pernicious anæmia. J. P. McGowan (Edinb. Med. J., 1942, 49, 568-583).—A hæmatological discussion. The author holds that in pernicious anæmia blood formation belongs to the primitive embryonic type and is "megalocytic." In cytologically similar forms of anæmia (sprue, pellagra, etc.) blood formation is definitive and "macrocytic." H. S.

"Span" in anæmias. M. N. Rao and G. K. Roy (Ann. Biochem. Exp. Med., 1941, 1, 277–284).—The span of the blood [difference between max. a absorption bands of oxy- and carboxy-hæmoglobin in A.] was determined in 108 cases of anæmia. No relation was found between the span val. and the type of anæmia or the hæmoglobin concn. P. C. W.

Liver cirrhosis and pernicious anæmia. H. W. Hotz (Schweiz. med. Wschr., 1941, 71, 1173—1176).—22 patients developed pernicious anæmia in the course of cirrhosis of the liver. There was marked macrocytosis and a higher reticulocyte and a lower lymphocyte count than in ordinary pernicious anæmia. There was a hyperplastic bone marrow with pronounced megaloblastosis, increase in the no. of lymphoid reticulum cells, and many macrophages. The patients responded well to liver treatment. Spontaneous remissions were frequent. 10 patients showed histamine-resistant gastric achylia. Fatty diarrhœa was frequent. Serum-Fe was the same as in usual pernicious anæmia. A. S.

New test for activity of the anti-anæmic principle of liver. G. G. Yillela and M. I. Mello (*Rev. Brasil. Biol.*, 1941, 1, 329-335).—The increase in the no. of eosinophils in blood of guinea-pigs following injection of anti-anæmic liver extracts is proposed as a test for their therapeutic activity. Extracts inactivated with charcoal in acid medium did not affect the ratio of eosinophils, nor did stomach and spleen extracts, thiamin, and ascorbic acid. I. C.

Treatment of secondary anæmia with Ferrum reductum. L. Feil (Schweiz, med, Wschr., 1941, 71, 1180-1183).—The prep. "Ferrum 3585, Roche" was successfully used in doses of 0.6—1.8 g. per day in various types of secondary anæmia. A. S. Anæmia in infectious mononucleosis. T. Carlile and J. M. Blackford (*Northw. Med.*, 1942, **41**, 137–139).—Report of a case which at one time had a hæmoglobin content of 46% and 1.93×10^6 erythrocytes per cu. mm. A skin rash and jaundice were also present. E. M. I.

Aleukæmic reticulo-endotheliosis and Auer's bodies. R. Pimenta de Mello (*Rev. Brasil. Biol.*, 1941, 1, 161–163).—Auer's bodies have been found in a case of aleukæmic reticulo-endotheliosis.

Mediterranean anæmia in adults. M. L. Goldhamer (Ohio Sta. Med. J., 1942, 38, 321-324).—Report of a family of 12 members in 3 generations and of Italian descent, 3 of whom showed definite and 5 others changes suggestive of an adult type of Cooley's anæmia. E. M. J

Cytology of human peripheral blood neutrophils and lymphocytes. K. M. Richter (J. Morph., 1942, **71**, 53-75).—An experimental study of the protoplasmic phenomena occurring in lymphocytes and neutrophils of human whole peripheral blood *in vitro* during the course of transformation of normal polymorphonuclear neutrophils into monomorphonuclear ones. By nuclear confluence, condensation of chromatin, fusion of nucleoli, confluence of osmiophile Golgi apparatus, and mitochondrial fusion lymphocytes and neutrophils show a general reduction in the ratio of reactive protoplasmic surface area to protoplasmic mass. The changes are accompanied by an increase in protoplasmic activity and are due to loss of water from the cell. J. D. B.

Agranulocytosis (type Schultz) in children. E. Glanzmann (Schweiz, med. Wschr., 1941, 71, 1386-1391).—A review, with case reports. A. S.

[Symptoms, duration of life, and prognosis in] chronic leukæmia. L. M. Pascucci (*Radiology*, 1942, 39, 75-80).-97% of 64 cases of chronic myeloid and 78% of 64 cases of chronic lymphatic leukæmia had splenomegaly; the spleen was palpable more than 8 cm. below the costal margin in 75 and 42%, respectively, lymphadenopathy occurred in 35 and 83%; retinitis (24%) was 4 times as common in the myeloid cases. Average survival was 2.5 and 2.8 years; between 34 and 36% lived more than 3, and 5 and 15% more than 5 years. Survival periods varied from 2.2 to 3.9 and 1.8 to 5 years according to the duration of symptoms before treatment of less than 6 months to over 2 years. Short survival periods could also be correlated to low red cell and platelet counts when first seen. E, M. I.

Effect of maternal influence on spontaneous leukæmia of mice.— See A., 1942, III, 823.

Radiological evidence of Gaucher's disease. J. Reed and M. C. Sosman (*Radiology*, 1942, 38, 579-583).—A woman aged 21 years who 12 and 9 years previously had been operated on for supposed osteomyelitis of both femora showed widespread skeletal deposits, a radiologically enlarged but impalpable spleen, an enlarged heart, and increased auriculo-ventricular conduction time. Histological proof was obtained from a bone. E. M J.

Monocytic leukæmia. E. H. Sterne (Ohio Sta. Med. J., 1942, 38, 234-238).—Report of 5 cases. E. M. J.

Inner part of spleen. G. Ludány, L. Goreczky, and E. Sárfy (Magyar Orv. Arch., 1940, 41, 378–386).—Serum of the blood proper of the spleen contains more cholesterol, K, Mg, inorg, and acidsol. P, Fe, creatinine, urea, and uric acid than does that of the peripheral blood. The serum of the reserve blood also contains more residual N as proteins. The Na, Ca, and Cl contents of both sera are similar. After several consecutive contractions of the spleen, the sera of the spleen and peripheral blood show the same chemical and immunological characteristics. — A. W. M.

Method of Vilarino and Pimentel and new direct method of counting blood platelets. A. L. Copley and T. P. Robb (Amer. J. clin. Path., 1942, 12, 362-371; cf. Klin. Woch., 1934, 18, 1252). C. J. C. B.

Sodium hexametaphosphate as anticoagulant. S. Caspe and L. G. Hadjopoulos (Amer. J. Pharm., 1942, **114**, 175—179).—(NaPO₃)₆ is an excellent anticoagulant, in vitro and in vivo. Intravenous injection of 1 c.c. of a 10% solution per kg. in a rabbit prolongs the coagulation time to 32 min. In 1% concn. it prevents both hæmolysis and coagulation of human blood in vitro at 10° for at least 72 hr. O·3 c.c. of a 10% solution will postpone the souring of 25 c.c. of milk for over 24 hr. P. G. M.

Hæmostatic effect of oxalic acid. A. W. Blain and K. N. Campbell (Arch. Surg., Chicago, 1942, 44, 1117—1125).—The coagulation time of the blood in rabbits was reduced by 50% within 30 min. after intravenous administration of 2—10 mg. of oxalic acid. The optimal dose for human beings is 20 mg. It was given intramuscularly in 440 clinical cases to control bleeding and was a satisfactory hæmostatic agent in all circumstances. F. S.

Neutralisation of Vipera russellii venom. by homologous antiserum. N. K. Roy Chaudhuri and B. N. Ghosh (Ann. Biochem. Exp. Med., 1941, 1, 169-174).—The amount of anti-serum required to neutralise 5 d.c.l. (lethal dose) of venom is more than 5 times the amount necessary to neutralise 1 d.c.l. Up to a level of 20 d.c.l. the relation between the doses of venom and anti-serum is approx. linear. Dilution of the anti-serum with physiological saline causes a proportional reduction in potency, showing that dilution has no effect on the activity of antibody mols. P. C. W.

Studies on the anticoagulant 3:3'-methylenebis-(4-hydroxycoumarin). R. K. Richards and R. Cortell (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 237-242).—This substance reduced incidence and degree of thrombus formation following injection of monolate in dogs. It caused some liver necrosis and anæmia, but in absence of bleeding glucose tolerance and bromsulphalein retention were not affected. At very low prothrombin levels blood transfusions were of only temporary benefit. V. J. W.

Toxicity of 3: 3'-methylenebis-(4-hydroxycoumarin). C. L. Rose, P. N. Harris, and K. K. Chen (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 228-232).—Intravenous L.D. 50 for rats is 52'13 mg. per kg. 1 mg. per kg. daily is fatal to rabbits in about 10 days, and 5 mg. per kg. daily by mouth is fatal to dogs. Symptoms consist of hæmorrhage into various organs with pulmonary ædema (cf. Link *et al.* A., 1941, II, 202). V. J. W.

Isolation and crystallisation of fibrinogen from pig blood. K. Laki (Z. physiol. Chem., 1942, 273, 95–96).—Fibrinogen is pptd. from oxalated plasma by 20% saturation with $(NH_4)_2SO_4$, and is then dissolved in 0.7% NaCl. After centrifuging, the fibrinogen is adsorbed on freshly prepared $Ca_3(PO_4)_2$ gel, eluted with 0.5M-PO4" buffer ($p_{\rm II}$ 6.6), pptd. from the eluate by 20% saturation with $(NH_4)_2SO_4$, and redissolved in PO4" buffer. The solution is treated with 10 vols. of water at 40°, and after cooling for a long time, the fibrinogen crystallises in aggregates of needles. Conversion of fibrinogen into fibrin is a unimol. reaction. J. N. A.

Loss of prothrombin caused by rate earths and effect of vitamin- K_5 . E. Vincke and E. Schmidt (Z. physiol. Chem., 1942, 273, 39-46). LaCl₃, CeCl₃, NdCl₃, PrCl₃, and Sm acetate in aq. solution injected into rabbits act as anti-prothrombins and inhibit blood coagulation. This is due to decrease in blood-prothrombin. Injection of vitamin- K_5 (4-amino-2-methyl-1-naphthol hydrochloride) annuls the effect of the rare earth ions, and clotting time returns almost to normal. J. N. A.

Effect of air currents on plasma-prothrombin. A. J. Quick (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 317—318).—Passage of CO_2 -free air over plasma for 1 hr. does not alter prothrombin of dog or rabbit at any temp. or of man at room temp. It causes a slight loss of human prothrombin at 38°. Prothrombin is independent of CO_2 content. V. J. W.

Failure of heparin to inhibit coagulation of citrated blood and plasma in presence of staphylococci. R. H. Rigdon (Proc. Soc. Exp. Biol. Med., 1942, 50, 324-325).—Heparin in 25% concn. does not inhibit coagulation of citrated plasma by growing staphylococci. V. J. W.

Heparin and thrombosis. C. H. Best (*Harvey Lectures*, 1940-41, Ser. 36, 66-90). E. M. J.

Heparin therapy in thrombosis of central vein of retina. L. A. Levison and J. L. Roberts (*Ohio Sta. Med. J.*, 1942, **38**, 338-339).— Improvement was seen after 5 days' treatment by intravenous injections of 400 mg, of heparin in divided doses in a case of less than 1 month's duration. No change was obtained in another case treated late. E. M. J.

Heparin in treatment of thrombosis of central vein of retina. R. O. Rychener (Sth. Med. J., 1942, 35, 652-656). E. M. J.

Classification of heemorrhagic diatheses. R. Jürgens (Schweiz. med. Wschr., 1941, 71, 1473-1476, 1494-1498). A. S.

Crystal structure of oxyhæmoglobin. M. F. Perutz (Nature, 1942, 150, 324—325).—Horse oxyhæmoglobin crystals have cell dimensions a 77.6, b 86.8, c 58.3 A., cell vol. 393,000 A.³ The space-group is P2,2,2, with 4 mols. in the unit cell. E. R. S.

Relation between red blood cell density and corpuscular hæmoglobin concentration. E. Ponder (J. Biol. Chem., 1942, 144, 333— 338).—The Linderstrom-Lang method for measuring d is inaccurate owing to packed red cells not always reaching the same equilibrium position, largely due to the solubility of cell-lipins in the bromobenzene-kerosene medium. A direct gravimetric method is preferable. The correlation between cell d and corpuscular hæmoglobin concn. determined from the Fe content is 0.59, suggesting that hæmoglobin in the cell may be replaced by a precursor of the same d and/or that the Fe content of human hæmoglobin is not const. A modification of Wong's method (A., 1928, 785) for determination of hæmoglobin is described. H G. R.

Errors affecting the acid and alkali hæmatin methods of determining hæmoglobin. E. Ponder (*J. Biol. Chem.*, 1942, **144**, 339— 342).—The errors are due to the long and variable time required for full development of colour (only 90% is developed in 30 min.) and the influence of extraneous substances contained in both the plasma and cells on colour development. H. G. R.

Histidine content of hæmoglobin of man, horse, and sheep, determined with aid of 3:4-dichlorobenzenesulphonic acid. H. B. Vickery(*J. Biol. Chem.*, 1942, 144, 719–730).—Histidine is separated from the mixed amino-acids and pptd. from the protein hydrolysate by Ag salts at neutral reaction as the cryst. disulphonate. Human, horse, and sheep hæmoglobins contain $8\cdot09\pm0\cdot04$, $7\cdot66\pm0\cdot16$, and $7\cdot38\%$ of histidine, respectively. Assuming a mol. wt. of 66,700 these vals. correspond with 35, 33, and 32 histidine residues per mol. of hæmoglobin. Human hæmoglobins yields $4\cdot21\%$ of arginine and sheep $3\cdot89\%$. This corresponds with 16, 14, and 15 arginine residues per mol. of human, horse, and sheep hæmoglobin, respectively. Preliminary data for edestin yield a histidime content of $2\cdot6\%$. H. G. R.

Protein content of normal human venous and capillary serum and factors affecting accuracy of its determination. B. M. Kagan (J. Lab. clin. Med., 1942, 27, 1457—1463).—Blood is collected within 1 min. after the application of the tourniquet. Non-hæmolysed serum is used, kept in an icebox, and analysed within 24 hr. A difference of protein content of 0.2 g.-% is quantitatively significant in one individual (using the falling drop or Kjeldahl method). The range of serum-protein concn. in 150 normal persons was $6\cdot1--7\cdot6$ g.-% (average 6.7). Vals. greater than 7.5 or less than 6 g.-% are considered abnormal until proved otherwise. There are no sex differences. C. J. C. B.

Relation of pituitary, thyroid, and adrenal glands to maintenance of normal serum-albumin and -globulin levels.—See A., 1942, III, 889.

Regeneration of serum-albumin with hydrolysed protein in chronic hypoproteinæmia produced by diet. R. Elman, L. A. Sachar, A. Horwitz, and H. Wolff (Arch. Surg., Chicago, 1942, 44, 1064— 1070).—In dogs receiving only sucrose and vitamin-B concentrate in Ringer's solution, a progressive fall in serum-albumin concn. developed, averaging 1·2 g.-%, or 30% of the initial val., in 3 weeks; serum-globulin remained unchanged. Administration to these dogs of 4 g. per kg. of body wt. per day of hydrolysed protein by mouth or intravenously for one week led to positive N balance and increase of serum-albumin (by 0·4 g.-%). 96·5% of the retained N was used for restoring tissue-proteins and 3·6% for serum-albumin. F. S.

Relation between specific gravity of serum and its protein concentration. J. M. Looney (J. Lab. clin. Med., 1942, 27, 1463— 1469).—The correlation between the 2 variables was too low to permit accurate determination of serum-proteins from sp. gr. vals.

C. J. C. B. Serum-proteins in mental disease. A. A. Kondritzer and S. E. Barrera (*Psychiat. Quart.*, 1941, 15, 336-342).—Low euglobulin vals. were found in schizophrenia. Metrazol or insulin shock treatment did not alter the ratio between the protein fractions. H. L.

Intravenous and subcutaneous administration of alkali-treated bovine serum-albumin to man and lower animals. H. A. Davis and A. G. Eaton (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 246—248).— This solution (no details of prep. given) was not toxic to man, dogs, rabbits, guinea-pigs, or mice and was not antigenic. It raised and maintained blood pressure in bled dogs. V. J. W.

Bovine albumin as antigen. H. L. Taylor and A. Keys (Proc. Soc. Exp. Biol. Med., 1942, 50, 325—328).—Bovine albumin caused anaphylactic death in guinea-pigs and rabbits, and symptoms in one patient. V. J. W.

Intravenous administration of bovine plasma-albumin, H. L. Taylor, A. Keys, and G. Savage (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 328-331).—Pptn. of albumin by methyl alcohol gives a product causing fewer reactions than that given by pptn. with $(NH_4)_2SO_4$. V. J. W.

Mechanism of delayed wound healing in hypoproteinemia. J. E. Rhoads, M. T. Fliegelman, and L. M. Panzer (J. Amer. Med. Assoc., 1942, 242, 21-25).-Dogs in which the plasma-proteins were reduced to 2% showed normal wound healing if 2-3.6% of gum acacia was present in the plasma. Thus normal fibroplasia seems to depend on adequate serum osmotic pressure. Gum acacia is not recommended clinically since it accumulates in the liver. C. A. K.

Electrolytes of tissues and body fluids. A. B. Hastings (Harvey Lectures, 1940-41, Ser. 36, 91-125).-A review. E. M. J.

Use of sulphanilamide in measurement of body-water in dog. A. Waterhouse and J. A. Shannon (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 189—192).—Sulphanilamide is evenly distributed through the tissues independently of their water content. It can therefore not be used to determine total water of the body. The agreement between distributions of sulphanilamide and urea is due to compensating errors. V. J. W.

Biochemistry of blood of Uca maracoani. G. G. Villela and L. P. H. de Oliveira (*Rev. Brasil. Biol.*, 1941, 1, 69–73).—The blood vals. in this crab were : $p_{\rm H}$, 7.62; surface tension, 6.3 dynes; n, 1.3465—1.3597; Ca, 39:1—56.8 mg.-%; acid-sol. PO₄^{'''} 1.2—2.5 mg.-%; total proteins, 5.94—8.16 g.-%. I. C.

Nicotinic acid in blood cells. B. D. Kochhar (Ann. Biochem. Exp. Med., 1941, 1, 285—292).—Of the nicotinic acid in a dog's blood 77% is present in the erythrocytes, 12% in the leucocytes, and 11% in the plasma. The average nicotinic acid content was $85 \times 10^{-11} \mu$ g. per erythrocyte and $40 \times 10^{-9} \mu$ g. per leucocyte. Oral administration of nicotinic acid (15 mg. per kg.) caused an increase in plasma-nicotinic acid and a smaller increase in erythrocyte-nicotinic acid. P. C. W.

Association of blood cell factors with transplantability of the Brown-Pearce tumour.—See A., 1942, III, 825.

Arterial and cerebral venous blood. Arterial-venous differences in man. E. L. Gibbs, W. G. Lennox, L. F. Nims, and F. A. Gibbs (J. Biol. Chem., 1942, 144, 325-332).—During passage through the brain the blood loses 6.7 vols.-% of O_2 and gains 6.6 vols.-% of CO_2 ; the $p_{\rm H}$ decreases by 0.053. 10 mg.-% of sugar are removed and 1.6 mg.-% of lactic acid added. Total serum-base is increased by 1.2 m-equiv. per l. and is due to redistribution of water between the cells and plasma; there is no change in PO₄^(''). The R.Q. is 0.99, indicating that sugar is the sole source of energy for the brain *in vivo*, but a small part is converted into lactic acid. H. G. R.

Stability of ascorbic acid in whole blood, plasma, and plasma filtrates. W. R. C. Golden and L. Garfinkel (*J. Biol. Chem.*, 1942, **144**, 447-452).—Blood drawn for plasma-ascorbic acid determinations keeps 3 hr. at room temp. and 24 hr. at 0° without loss of ascorbic acid. After separation of plasma it keeps only 3-4 hr. at 0°; rapid loss occurs at 15°. HPO₃ centrifugates will keep for 24 hr. at 0°. If HPO₃-protein ppts. are filtered significant loss of ascorbic acid occurs; this is obviated by centrifugation.

L. L. W. Distribution of free and bound ascorbic acid and hemoglobin in blood of normal vertebrates. K. C. Saha, A. C. Majumdar, and B. C. Guha (Ann. Biochem. Exp. Med., 1941, 1, 135–138).—Free and combined ascorbic acid were detected and determined in blood of man, rabbit, guinea-pig, rat, fowl, and pigeon. Mean vals. for free acid were 0.56—1.00 mg.-% in the different species and of combined ascorbic acid (expressed as ascorbic acid) 0.44—1.31 mg.-%. There was considerable individual variation in each species and no relation between vals. for hæmoglobin, free and/or combined ascorbic acid. P. C. W.

Relation between blood-ascorbic acid, -ascorbigen, and -hæmoglobin at different stages of scurvy in experimental guinea-pigs. K. C. Saha, A. C. Majumdar, and B. C. Guha (Ann. Biochem. Exp. Med., 1941, 1, 139-146).—Free and combined ascorbic acid and hæmoglobin in guinea-pig blood decrease during the progress of scurvy. Ascorbic acid administration restores the blood concn. of all 3 substances. The hæmoglobin increase is not due to increased food intake. In normal guinea-pigs the combined blood-ascorbic acid averages 1·31 mg.-% and the free acid 0·86 mg.-%; with the onset and cure of scurvy the combined acid undergoes more rapid decrease and restoration than the free acid. P. C. W.

Determination of serum-iron. R. S. Pereira (*Rev. Brasil. Biol.*, 1941, 1, 271–277).—The Fe is ionised by heating the serum with dil. HCl at 37° , and after deproteinisation with trichloroacetic acid is determined by Pereira's method (A., 1941, III, 316). Vals. of 0.051–0.057 mg. Fe % were found. I. C.

Blood-ammonia in nephrectomised and nephritic dogs. H. Koprowski and H. Uninski (*Rev. Brasil. Biol.*, 1941, 1, 253—262).—In nephrectomised dogs and in dogs in which nephritis was induced by injection of U nitrate (7 mg. per kg. body wt.) the blood-NH₃ level is greatly increased. It is suggested that the kidneys are not able to synthesise, but only to concentrate and excrete, NH₃. I. C.

Microscopic diagnosis of uræmia. C. Wegelin (Schweiz. med. Wschr., 1941, 71, 1517—1518).—Star-like crystals of dixanthylurea can be seen if a small drop of c.s.f. or pleural or abdominal exudates of patients who died of uræmia is mixed with a 6% xanthhydrol solution in glacial acetic acid. Triple phosphate crystals were seen in pharyngeal nuccus, often *in vivo*. This was seen in some nonuræmic conditions, associated with an increase in the blood-nonprotein-N level. A. S.

Determination of lactic acid in blood. M. I. Mello (*Rev. Brasil. Biol.*, 1941, 1, 63-68).—Blood-lactic acid was determined in 20 human subjects using Edwards' modified technique (A., 1939, III, 13) and the Miller-Muntz (*ibid.*, 110) and Mendel-Goldscheider methods (A., 1926, 212). The average vals. (mg.-%) were: 10.30 (Edwards), 10.58 (Miller-Muntz), 10.78 (Mendel-Goldscheider). Anticoagulants such as Roche liquoid, K oxalate, and NaF do not affect the vals. The best results after pptn. of blood-proteins were obtained by treating the blood with Na tungstate and CuSO₄.

Sex function and serum-choline-esterase in man. E. A. Zeller, H. Birkhäuser, H. von Wattenwyl, and R. Wenner (*Helv. Chim. Acta*, 1941, 24, 962—968; cf. A., 1941, III, 579).—In women, serum-choline-esterase decreases at puberty but regains its original val. after the menopause. During sexual maturity the val. is approx. $25\,\%$ higher in men than in women but it decreases in men after the age of 60. W. McC.

Determination of cholesterol in whole blood serum or plasma. H. Gershberg and J. C. Forbes (*J. Lab. clin. Med.*, 1942, 27, 1439— 1443).—Interfering substances, such as bile pigments or coloured substances, produced during the extraction process are removed by means of a commercial synthetic zeolite (doucil). C. J. C. B.

Serum-cholesterol and atherosclerosis in chronic glomerulonephritis. A. Steiner and B. Domanski (*Amer. J. Med. Sci.*, 1942, 204, 79—84).—52 of 54 patients aged 1—39 years, dying of chronic glomerulonephritis, had gross aortic atherosclerosis. In 38 gross coronary atherosclerosis was present. Serum-cholesterol vals. determined in 30 of these 54 patients exceeded 300 mg.-% in 17. In 12 the val. exceeded 400 mg.-%. C. J. C. B.

Cholesterolæmia in rat. M. Monnier, A. Farchadi, and A. Maulbetsch (Arch. Sci. phys. nat., 1941, [v], 23, Suppl., 244—248).— Arterial blood obtained under local anæsthesia in rats contains 0.08% of cholesterol of which 30% is free. During vitamin- B_1 deficiency these vals. remain unchanged. The content is greatly increased during -B deficiency if a large dose of cholesterol is administered; the ratio of free cholesterol to cholesteryl ester is also greatly increased. The content and ratio are not affected by large doses of -A; the ratio is decreased by large doses of dl-a-tocopherol. W. MCC.

Effect of removal of lipins on solubility of antibody proteins and on reaction between antigens and antibodies. B. N. Ghosh, N. K. Roy Chowdhury, and M. L. Kundu (Ann. Biochem. Exp. Med., 1941, 1, 175—178).—Extraction of the lipins from the antiserum to V. russellii venom alters the solubility of the serum in Na₂SO₄ solutions. Under suitable conditions 80% of the antibody can be pptd. with only 30% of the original serum-protein. Removal of the lipins from venom and antiserum has no effect on the turbidity produced by balanced mixture of the two. P. C. W.

VI.—VASCULAR SYSTEM.

Postoperative administration of fluids to children. G. M. Arnott and W. F. Young (*Lancet*, 1942, 242, 523-526).—Case reports with measurements of fluid intake and output and biochemical data on postoperative children showed that their fluid requirements are proportional to surface area. C. A. K.

Intra-mural course of intestinal vessels and relation to connective tissue strands. G. Wolf-Heidegger (Gastroenterologia, 1942, 66, 249—287).—The relations of the intra-mural blood vessels of the small intestine to the functional connective tissue structure were examined in cat and dog. The perforating vessels destined for the mucosa are embedded in connective tissue forming a continuous bridge between the subserosa and submucosa. The direction of these strands and the vessels and the angle of branching were different in contracted and relaxed intestine. The direction corresponded to the momentary fibre direction of the connective tissue, the angles of branching to the angles of crossing of the connective tissue lattice. Muscle fibres derived from the circular muscle layer of the intestine are inserted in the adventitia. The morphological and functional consequences of these arrangements for the uninterrupted blood supply of the intestinal mucosa are discussed. E. M. J.

Use of the tilt-table [circulatory] test in aviation medicine. A. Graybiel and R. A. McFarland (J. Aviat. Med., 1941, 12, 194-211).—Vasomotor responses were tested in 91 subjects on a table which could be tilted through 65°. The usual response was a fall in systolic and a rise in diastolic pressure and an increase in heart rate. There is a full analysis of the results and their significance regarding physical fitness. F. S.

Effects [of over-ventilation] on cardiovascular system from viewpoint of aviation. A. Graybiel (*J. Aviat. Med.*, 1941, **12**, 183-193).—A review with observations on e.c.g. irregularities produced in normal subjects by alkalosis resulting from hyperventilation. F. S.

Reflex variations of coronary flow. N. C. Gilbert (Nebraska Sta. Med. J., 1942, 27, 117-123).---A review. E. M. J.

Action of drugs on coronary vessel calibre.-See A., 1942, III, 841.

Proprioceptive cardiac reflex (Bezold effect). A. Amann, A. Jarisch, and H. Schaefer (*Naturwiss.*, 1942, **30**, 314—315).—Injection of 0·1 mg. of veratrine immediately increases the rate of electrical discharge from the peripheral end of the cut cardiac vagus in cats under chloralose anæsthesia. The potentials increase progressively in amplitude over some min. and then diminish in size. The drug is thought to set up impulses in the heart which ascend in the vagus. A. S.

Portal venous pressure in man. C. J. Bellis (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 258-260).—A needle in an omental vein was connected with a manometer filled with saline. Portal pressure was taken as the height of the meniscus over the portal vein level, and

averaged 10 cm. of saline higher than venous pressure at the ankle determined in the same way. V. J. W.

Management of paroxysmal tachycardia of supraventricular origin. E. H. Schwab and J. G. Willis (*Sth. Med. J.*, 1942, 35, 687—692).—A review. E. M. J.

Coronary embolism in subacute bacterial endocarditis. H. Parks (Ann. int. Med., 1942, 16, 339-349).—Report of a case. A. S.

Reentgenological appearance of heart in thyrotoxicosis. G. Levene and L. C. Miller (*Radiology*, 1942, **38**, 573-578).—Uncomplicated cases of thyrotoxicosis showed a diminished heart-lung ratio, and progressive diminution with increase in average duration. Cases complicated by myocardial or valvular disease generally showed an enlarged heart. 3 contour types of the thyrotoxic heart are described. E. M. J.

Medical and surgical treatment of chronic constrictive pericarditis. B. S. Oppenheimer, W. M. Hitzig, and H. Neuhof (J. Mt. Sinai Hosp., 1941, 7, 270-289).—Report of 8 cases treated by surgery. E. M. J.

Early recognition of myocardial disease by use of vibrocardiogram. W. B. Kountz and J. R. Smith (*Sth. Med J.*, 1942, **35**, 713-720). E. M. J.

Etiology of disturbances in conducting system of heart. E. Attinger (Schweiz. med. Wschr., 1941, 71, 1176-1180).—Cases with different ætiology are reported. Small doses of digitalis may produce disturbances of cardiac conduction if the myocardium is damaged. A. S.

Contribution of electrocardiogram to prognosis in heart disease. J. F. Borg (*Minnesota Med.*, 1942, 25, 709-713).—A review. E. M. J.

Cardiac infarction induced by unusual effort. E. P. Boas (J. Mt. Sinai Hosp., 1941, 7, 307-309).—Report of 3 cases. E. M. J.

Inhibition of experimental auricular fibrillation by procaine and other substances. A. D. Hirschfelder and G. Tamcales (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 272–274).—Fibrillation produced by faradism or by acetyl- β -methylcholine in dogs was inhibited by procaine, pantocaine, or nupercaine. V. J. W.

Reentgen diagnosis of vitamin $[-B_1]$ deficiency cardiac conditions. L. H. Garland and A. C. McKenney (*Radiology*, 1942, **38**, 426– 444).—An excessive transverse diameter of the heart was reduced on an average by 2.7 cm. in 15 days in 11 cases by the administration of thiamin, and cardiac excursions increased. Cases in extremis did not respond. E. M. J.

Ratio of cardiovascular malformations to other types of heart disease in children. J. H. Wallace (Amer. J. Dis. Child., 1942, 63, 1096—1100).—239 of 598 children attending a cardiac disease clinic showed definite heart disease (90 congenital). C. J. C. B.

Electrocardiogram in metrazol therapy. L. Wender and A. Jezer (*Psychial. Quart.*, 1941, 15, 680—692).—Transient arrhythmias (sinus arrhythmia, auriculo-ventricular nodal rhythm, heart block) due to increased vagal tone were observed. H. L.

Cardiovascular system of American roentgenologists beyond age of 45 years. W. Raab (Amer. J. Roentgenol., 1942, 47, 555-562). H. L.

Changes in vascular pattern of the brain in experimental trauma. M. Helfand (*Psychiat. Quart.*, 1941, 15, 33-41).—Cats subjected to cranial trauma showed temporary or permanent diffuse or localised disturbances in the vascular pattern of the cerebral cortex (benzidine stain). With lasting circulatory disturbance, ganglion cells showed ischæmic lesions or areas of global necrosis. H. L.

Cardiovascular changes in shock therapy. H. Cleckley and D. Egleston, jun. (*Psychiat. Quart.*, 1941, 15, 662-679).—Cases are reported showing under metrazol shock therapy e.c.g. evidence of myocardial damage; in others improvement of a previously abnormal e.c.g. was found. H. L.

Blood pressure during convulsive therapy. H. Cleckley, W. P. Hamilton, R. A. Woodbury, and P. P. Volpitto (*Sth. Med. J.*, 1942, **35**, 375–380).—Blood pressure in man measured by an intraarterial cannula rose by up to 100 mm. Hg systolic and 60 mm. Hg diastolic and intragastric pressure from 0 to over 100 mm. Hg during the convulsions of metrazol or electric shock therapy. Premedication with curare or β -erythroidine or spinal anæsthesia prevented this rise. E. M. J.

Origin of cerebral hæmorrhages in experimental animals. T. Broman (Acta Psychiat., Kbn., 1939, 14, 395—411).—When intracarotid injection of starch particles or of Forssmann's sheep hæmolytic rabbit serum was followed 8 hr.—5 days later by raising of arterial blood pressure (adrenaline, pituitrin), cerebral hæmorrhages were found in all cases (guinea-pig, rabbit). Raising of venous pressure after primary vessel injury produced no effect. H. L.

Antipressor and depressor effects of oxidation products of pressor amines. K. A. Oster (*Nature*, 1942, **150**, 289–290).—Review and discussion. X 2 (A., III.)

Capillary fragility in peace and war. H. N. Munro, S. Lazarus, and G. H. Bell (*Lancet*, 1942, **242**, 648—649).—There was no significant difference between the capillary fragility of 182 healthy students on a war-time diet and that of a similar group on a pre-war diet.

C. A. K. **Pulmonary embolism in beriberi heart disease.** H. H. Hussey and S. Katz (*Med. Ann. Columbia*, 1942, **11**, 247–253).—Report of 3 cases. E. M. J.

Shock produced by crush injury: effects of administration of plasma and local application of cold. G. W. Duncan and A. Blalock (*Arch. Surg., Chicago*, 1942, **47**, 183—194),—Crush injuries were inflicted on the thigh muscles of dogs with a mechanical press. After injection of dog plasma in an amount equal to the average local fluid loss into the extremities of untreated animals, 9 out of 15 dogs died with an additional local fluid loss of approx. 2% of the body wt. into the injured area. Local application of ice during compression reduced the local swelling and increased the survival rate. Cooling after compression was of no val. The results showed that death was due to local fluid loss and absorption of toxic products.

Traumatie shock. G. T. Root (Proc. Staff Mayo Clin., 1942, 17, 218-221).—A brief review of its ætiology. H. H. K.

Acetone-soluble lipin of atheromatous aorta. C. S. McArthur (*Biochem. J.*, 1942, 36, 559-570).—The composition of the phospholipin-free fat from atheromatous intimal tissue of aorta has been determined. The mixture of fatty acids obtained from this lipin contains stearic 2.9, palmitic 14.6, oleic and more highly unsaturated 65.2, linoleic 9.4, arachidonic 2.1, and petroleuminsol. acids 5.8%. The glyceride content of the lipin determined from the amount of glycerol isolated and the amount of acid in excess of that required for cholesteryl esters is 1.8 and 4.0% respectively. A qual. and quant. comparison is made between the phospholipin-free fat from atheromatous aortæ and similar fractions from other parts of the body, and the differences and similarities in these are discussed. J. N. A.

Fibrinoid neerosis in arteriosclerosis, N. C. Schlossmann (Arch. Path., 1942, 34, 365—374).—Homogeneous masses with staining properties of fibrin and located within and on arteriosclerotic plaques of the aorta and peripheral vessels were examined. Fibrinoid substance could be differentiated from fibrin by controlled tryptic digestion; it was probably largely necrotic collagen. (2 photomicrographs.) C. J. C. B.

[Ætiological relationship of] thrombo-angiitis and rickettsia. C. Goodman (J. Mt. Sinai Hosp., 1941, 7, 391-404). E. M. J.

Renal artery loop in dogs. M. F. Lockett, W. J. O'Connor, and E. B. Verney (*Quart. J. Exp. Physiol.*, 1942, **31**, 333–336).—The left renal artery is enclosed in a loop of skin by an adaptation of van Leersum's carotid loop method. A. S.

Pregnancy in patients with chronic hypertension. F. J. Browne and G. H. Dodds (*J. Obstet. Gynæc.*, 1942, **49**, 1—17).—The course of 239 pregnancies is analysed in 222 patients having chronic hypertension before the onset of pregnancy. Exacerbation with albuminuria, ædema, and other signs of pre-eclampsia occurred in 18% of cases and with rise in blood pressure or ædema alone in 82% of cases. Exacerbation chiefly occurred in patients over 30 years of age. Fætal and neonatal mortality was 16%. Diastolic pressure was a reliable guide to prognosis and if it was initially 100 mm. or over the chances of successful pregnancy were poor (32%). Renal function tests were of little val. in prognosis; if blood-urea was 30 mg.-% or over prognosis was poor. P. C. W.

Principles of [medical] treatment in peripheral vascular disease. S. Silbert (J. Mt. Sinai Hosp., 1941, 7, 503-515).—A review.

E. M. J

Treatment of hypertensive disease. E. A. Hines, jun. (Proc. Staff Mayo Clin., 1942, 17, 184-187).—A discussion. H. H. K.

Hypertension in bilateral renal infarction. M. Prinzmetal, N. Hiatt, and L. J. Tragerman (J. Amer. Med. Assoc., 1942, 118, 44–46).—A patient with rheumatic heart disease became hypertensive a few days after bilateral thrombosis of the renal arteries. Post mortem both main arteries were occluded and there was extensive renal infarction. A perfusate of one kidney, obtained 20 min. after death, raised the blood pressure of a cat anesthetised with sol. pentobarbital; repeated injections gave smaller responses (tachyphylaxis). The pressor effect was not influenced by cocaine. Perfusates of normal human kidneys are not pressor. C. A. K.

Absence of renin in glomerular kidney of marine fish. M. Friedman, A. Kaplan, and E. Williams (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 199—202).—The kidneys of the sole and cod, like that of the midshipman (A., 1942, III, 580), contain no renin, whilst those of the fresh-water catfish and carp contain a large amount.

V. J. W. Effects on arterial hypertension of heat-inactivated tyrosinase preparations. M. Prinzmetal, G. A. Alles, C. Margoles, S. Kayland, and D. S. Davis (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 288-290).-Such preps., heated at 60° for 40 min., were as effective as fresh preps. in treatment of 4 hypertensive patients. V. J. W.

Restoration of blood pressure by renin activator after hæmorrhage. L. A. Sapirstein, F. D. Southard, jun., and E. Ogden (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 320—324).—Injection of ox serumglobulin caused lasting recovery of blood pressure in dogs with hæmorrhagic shock. Gelatin solution, or plasma which had lost its activator by keeping, had no such effect. V. J. W.

VII.—RESPIRATION AND BLOOD GASES.

Mucosography of respiratory tract. P. L. Fariñas (Radiology, 1942, 39, 84-87).—After anæsthetisation of larynx and trachea with 2 c.c. of a 2% and 1 c.c. of a 1% solution of pantocaine respectively the curved end of an atomiser is introduced behind the epiglottis. A 40% solution of neo-iodipin (Merck) is used as the opaque medium; 5-15 c.c. are used. Films of normal and pathological larynxes, tracheæ, and bronchi are reproduced.

E. M. J. E. M. J. Arch., 1940, 41, 85-96).—The fibrillar systems of the alveoli of the human and animal lung were compared. A. W. M. Bespiration of

Respiration of premature infants. J. L. Wilson, S. B. Long, and P. J. Howard (*Amer. J. Dis. Child.*, 1942, **63**, 1080–1085).—30 healthy premature infants varying in wt. from 2 lb. 14 oz. to 4 lb. 10 oz. showed a respiratory response to atm. of low O_2 and high CO_2 % similar to that of more mature infants. 23 of 28 of these infants while breathing air had periodic respiration which became regular on administration of O_2 . C. J. C. B.

Modified Rose and Sellors oxygen mask. R. S. Aitken and A. B. Cruickshank (*Lancet*, 1942, **242**, 587–588).—A modified form of the Rose and Sellors O_2 mask (*ibid.*, 1940, **237**, 648), made from X-ray film, is described. Alveolar O_2 concns. of 40–60% are readily obtained with rates of flow of 4–61. per min. C. A. K.

Treatment of experimental gas gangrene with oxygen under pressure and active oxygen. A. Ozorio de Almeida and G. Pacheco (*Rev. Brasil. Biol.*, 1941, 1, 1--10).-O₂ under pressure exerts a therapeutic action in cases of gas gangrene experimentally induced in guinea-pigs by subcutaneous injections of *Clostridium septicum* when applied repeatedly. High pressures (3-5 atm.) or prolonged exposures do not exert greater therapeutic actions. O₂ under pressure has no protective influence in cases of experimentally induced gas gangrene produced by *Cl. welchii* and *Cl. novyi*. Active O₂, obtained from a solution of NaBO₃ injected *in loco*, intravenously or intraperitoneally in one or more doses, does not affect the course of experimental infections with *Cl. welchii* or *Cl. novyi* in guineapigs. I. C.

Effect on vital capacity of a swift ascent to simulated altitude of 35,000 feet. M. Eckman and A. L. Barach (J. Aviat. Med., 1942, 13, 36—42).—An apparent marked average fall of 300 c.c. in vital capacity at low barometric pressure equal to an altitude of 35,000 ft. as determined with an ordinary basal metabolism bell at room temp. was largely due to the pptn. of water vapour of the expired gases when they are cooled to room temp. The residual average fall of 190 c.c. was more probably due to temp. changes and expansion of gases in the intestines than to a decrease of pressure only on the outer surface of the lung capillaries with consequent dilatation of these vessels and resultant decrease in lung vol. F S.

Fluorographic examination of chest as routine hospital procedure. F. J. Hodges (*Radiology*, 1942, **38**, 453-461). E. M. J.

X-Ray evidence of characteristic bone and joint changes in compressed-air workers. A. L. L. Bell, G. N. Edson, and N. Hornick (Radiology, 1942, 38, 698-707).-75% of 32 compressed-air workers without skeletal symptoms showed circumscribed changes interpreted as aseptic necrosis of bone with or without surrounding calcifications. Femora, humeri, tibiæ, and fibulæ (1 case) were affected in this order of frequency. 3 degrees of the diaphyseal and 4 of the epiphyseal lesion are differentiated. The average no. of years employed and of months of continuous employment was higher in the affected workers. E. M. J.

Bronchial asthma due to sensitivity to gum acacia. P. H. Sprague (Canad. Med. Assoc. J., 1942, 47, 253).—A case report.

C. J. C. B. Therapeutic procedures in bronchial asthma. W. C. Spain (N.Y. Sta. J. Med., 1942, 42, 1631-1637).—A review. E. M. J. Nature of X-ray effect in carbon monoxide recovery. J. A. Cameron (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 234—236).—Irradiation produces no combination of CO and O₂ in aq. solution, nor any decrease in CO content of monkey blood *in vitro*. V. J. W.

Influence of melanotic pigmentation on intensity of cutaneous respiration in lower vertebrate, Axolo1l mexicanum, Shaw. R. G. Busnel and A. Drilhon (*Compt. rend.*, 1942, **214**, 238—241).—Total, branchial, cutaneous, and pulmonary respiration in black and white axolotIs are determined. For animals of the same wt. the ratio total respiration of black : total respiration of white is 1-13, and in black animals cutaneous, pulmonary, and branchial are 69·5, 16·5, and 14% respectively of the total respiration, whilst in white animals the corresponding vals. are 40, 11·5, and 48·5%. After removal of the branchial tufts there is no alteration in the amounts of riboflavin and substances with blue fluorescence or of their location in the animal. Intensity of respiration probably depends on the pigmentation and content of riboflavin. J. N. A.

Lung-dusting experiments. A. E. Barclay, K. J. Franklin, and M. L. Pritchard (*Brit. J. Radiol.*, 1940, **33**, 410—415, and *Amer. J. Roentgenol.*, 1942, **47**, 362—367).—Various radio-opaque dusts of particle size 0.5—45 μ . were introduced in cats by insufflation or intratracheal inhalation. The lungs were X-rayed immediately before and after the experiment; lungs, heart, and trachea were then exsected en masse, X-rayed, and transferred to a fixative solution. In all animals some dust was found histologically in the alveoli but unless insufflation had been followed by intratracheal injection of a few c.c. of fluid. The amount of dust was never enough to be detectable in the X-ray films even of the exsected lungs. The amount of the alveolar dusting did not necessarily run parallel with the amount of bronchiolar and bronchial dusting. Introduction by insufflation, quiet respiration, and gasping respiration allowed similar intra-alveolar penetration of dusts. Penetration was lowest with powdered Pb-glass, intermediate with C, and greatest with Bi₂(CO₃)₃, and was always greater in inflamed areas of lung. In some cases dust particles were ingested by alveolar dust cells within a few min. after penetration. H. L.

VIII.—MUSCLE.

Distribution of bicarbonate ion in mammalian muscle. W. M. Wallace and A. B. Hastings (J. Biol. Chem., 1942, 144, 637—649).— Changes in blood- and muscle-CO₂, -water, and -Cl' are determined on anæsthetised cats in which mild and severe alkalosis, and acidosis were produced by intravenous and intraperitoneal injection of NaHCO₃ and intravenous injection of dil. HCl, respectively. A method whereby these data can be used to calculate intracellular HCO₃' is reduced in acidosis to 60% of its initial val. and increased in alkalosis (100% after intraperitoneal injection), the final intracellular HCO₃' remains remarkably const. In all cases there is a small decrease in intracellular HCO₃', 10% in the case of controls and 15% where the acid-base balance is altered. It is concluded that intracellular HCO₃' of muscle is not directly influenced by concn. of HCO₃' in the extracellular fluid, that the muscle cell is influenced mainly impermeable to HCO₃, and the intracellular $p_{\rm H}$ is influenced mainly by changes in CO₂ tension. The calc. mean intracellular $p_{\rm H}$ of the skeletal muscle of the cat is 6.93 \pm 0.12. J. N. A.

Carbon dioxide equilibria in mammalian muscle in vitro. W. M. Wallace and O. H. Lowry (*J. Biol. Chem.*, 1942, 144, 651-655).— When surviving rat skeletal muscle is equilibrated in vitro with solutions of widely varying $p_{\rm H}$ (obtained by altering HCO₃' from 0.0 to 87×10^{-3} M.) under const. CO₂ pressure, the intracellular concn. of HCO₃' remains almost const. If the muscle is preheated to 54°, the intracellular depends on extracellular concn. of HCO₃'. I. N. A.

Origin of muscle-creatine. II. F. Menne (Z. physiol. Chem., 1942, 273, 103—114; cf. A., 1942, III, 736).—In presence and absence of O_2 , frog muscle pulp (0.5 g.) produces creatine (but no creatinine) from added histidine (20 mg. of hydrochloride), max. yield being obtained anaërobically in 3 hr. at $p_{\rm H}$ 7.07, and 20°. The rate of creatine production is not higher at 35°. W. McC.

In-vitro effect of a-tocopherol phosphate on oxygen consumption of muscle from vitamin-E-deficient animals. O. B. Houchin and H. A. Mattill (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 216—218).—In rabbits and hamsters a-tocopherol phosphate *in vitro* reduces to normal the O₂ consumption of muscle which is raised through vitamin-E deficiency. V. J. W.

Action of certain drugs on crustacean muscle. F. P. Knowlton (J. Pharm. Exp. Ther., 1942, 75, 154-160).—Irritability and contractility of crustacean striated muscle is increased by perfusion with solutions of adrenaline, pituitrin, eserine, and by certain members of the ergot group. More conc. solutions cause slow contractions independent of electrical stimulation. These contractions resemble those of vertebrate smooth muscle and normally result from repetitive excitation. Atropine and pilocarpine in conc. solutions (1/500) cause reversible depression after a transient

stimulation; the usual twitch is replaced by a small slow contraction. Acetylcholine has no effect, and curare causes slight increase in irritability. Effects of nicotine are inconst. but usually stimulatory. P. C. W.

Curarisation with quinine methochloride to prevent traumatic complications of metrazol shock therapy. A. E. Bennett and P. T. Cash (*Psychiat. Quart.*, 1941, 15, 351—355).—The required dosage of quinine methochloride was easier to gauge than that of curare but drawbacks included relative insolubility of the drug and higher degree of respiratory complications; the latter were readily overcome by prostigmine and artificial respiration. H. L.

Effect of ephedrine in myasthenia gravis. J. H. Burn (Schweiz. med. Wschr., 1941, 71, 1196-1197).—A review. A. S.

Action of prostigmine [on serum-choline-esterase] in myasthenia gravis. E. Ask-Upmark (*Acta Psychiat. Kbn.*, 1939, 14, 307— 310).—Activity of serum-choline-esterase was normal in 3 cases, and increased on 2 out of 3 occasions in a 4th case. H. L.

Objective method for demonstration of local rigidity of the abdominal wall. A. Baron and J. G. Baron (*J. Lab. clin. Med.*, 1942, 27, 1422—1428).—By comparing the respiratory amplitudes of symmetrical parts of the abdominal wall while the subjects is in an exactly horizontal position, differences between the tensions of the 2 sides were demonstrated in an objective manner using a caliper-like instrument. C. J. C. B.

IX.—NERVOUS SYSTEM.

Adjustments of nerve endings. C. C. Speidel (*Harvey Lectures*, 1940-41, Ser. 36, 126-158). E. M. J.

Transplantation of motor nerves and muscles in forelimb of rat. R. W. Sperry (*J. comp. Neurol.*, 1942, **76**, 283-321).—From the analysis of the results of crossing muscles and/or nerves in the forelimb of many rats it is concluded that the basic motor patterns for forelimb co-ordination in the rat are markedly unplastic. In most experiments the motor neurones to the test muscles continued permanently to discharge in their original innate action pattern without adjustment to the reversed anatomical arrangement.

J. D. B.

Internal structure of nerve roots and peripheral nerves. G. Wohlfart (Acta Psychiat. Kbn., 1939, 14, 367—373).—Study of cross-sections of nerve trunks from guinea-pigs and rabbits (Alzheimer-Mann or Os stains) showed that in the first part of nerve trunks, formed by fusion of motor and sensory roots, different types of fibres are mixed. More distally the trunk is divided into several fascicles which are at first of mixed type; gradually functionally equal fibres collect on one side of the fascicle, pure skin and muscle fascicles eventually emerging from the mother fascicle. Numerous anastomoses were found distally between the fascicles, usually connecting those of analogous type. H. L.

Nervous mechanism of touch and pain. Y. Zotterman (Acta Psychiat. Kbn., 1939, 14, 91-97).—Data are given on action potentials (and their conduction rate) of very thin afferent fibres of cutaneous mammalian nerves in response to mechanical and nociceptive stimulation of the skin. H. L.

Localisation of intestinal inhibitory reflex arc. P. Y. Chang and E. Y. Hsu (Quart. J. Exp. Physiol., 1942, **31**, 311–318).—Stimulation of a loop of small intestine by pressure, heat, mechanical injury, or electrical stimulation of its centripetal nerve produces inhibition of the whole intestine; this reflex response is independent of the vagi and adrenal glands. Afferent fibres enter the cord via dorsal roots between T_{g} and L_{1} ; the efferent fibres pass out in the ventral roots between T_{g} and L_{1} . The afferent fibres do not cross in the spinal cord and make connexion with the efferent neurone at the level of their entry into the cord. A. S.

Reflexes of tail of lizards. M. Ozorio de Almeida, H. Moussatché, and M. Vianna Dias (*Rev. Brasil. Biol.*, 1941, 1, 19—25).—In spinal lizards reflex movements of the tail depend on the strength and point of stimulation, the posture of the animal, and position of the tail itself. I. C.

Effect of temperature on duration of reflex activity of isolated spinal cord of frogs. M. Ozorio de Almeida, H. Moussatché, and M. Vianna Dias (*Rev. Brasil. Biol.*, 1941, 1, 95—101).—In frog's isolated spinal cord-leg preps., the reflex response is flexion of the legs for temp. below 18—20° and extension for higher temp. The duration of reflex activity depends on the temp. of the spinal cord and varies according to room temp. and season. I. C.

Convulsant attack from rapid freezing of spinal cord. M. Ozorio de Almeida, H. Moussatché, and M. Vianna Dias (*Rev. Brasil. Biol.*, 1941, **1**, 165—177).—A technique has been developed by which the spinal cord of *Leptodactylus ocellatus* is frozen and convulsant attack thus caused. Details of the freezing bath, and of the freezing technique with ethyl chloride and solid CO_2 , are given. I. C.

Convulsant attack by rapid freezing of spinal cord. M. Ozorio de Almeida, H. Moussatché, and M. Vianna Dias (*Rev. Brasil. Biol.*,

1941, 1, 179—194).—The typical convulsant attack produced by freezing the spinal cord of *Leptodactylus ocellatus* develops in 4 phases: after a latent period, a tonic contraction of the limb muscles occurs, followed by large clonic movements. The fourth phase (sometimes absent) consists of small clonic movements. The convulsant attack is central (spinal); removal of the skin or section of the posterior spinal roots does not modify the attack. Isolation of the lower levels of the spinal cord from higher centres is equally ineffective, until the section falls below the origin of the fourth spinal nerve when the intensity of the attack is reduced. In Rio de Janeiro the attack developed when the spinal cord temp. reached 8:5°. If the freezing of the cord is slow and progressive, the attack fails to develop or is weak and atypical. I. C.

Atypical convulsant attack in Leptodactylus ocellatus. M. Ozorio de Almeida, H. Moussatché, and M. Vianna Dias (*Rev. Brasil. Biol.*, 1941, 1, 202-205).—The batch of South American frogs brought to the department during the month of September showed an abnormal colour of the blood and gave atypical convulsant attacks after freezing of the spinal cord. I. C.

Action of intrathecally injected prostigmine, acetylcholine, and eserine on central nervous systems in man. M. Kremer (Quart. J. Exp. Physiol., 1942, 31, 337-357).—Prostigmine in doses of 0·1—1·5 mg. was intrathecally injected in 37 patients with disturbances of pyramidal tract function and in 3 subjects with normal central nervous system. Muscle tone and reflexes were depressed in all cases by a direct action on the spinal cord. The effects started in the distal part of the spinal cord and gradually ascended to involve the arms; the face was affected rarely; changes in blood pressure, pulse rate, and respiration were insignificant. Nausea, vomiting, and drowsiness only occurred with large doses. Voluntary movements were impaired. There was temporarily impairment of bladder emptying. There were no changes in sensation. In patients with spinal block, injection below the level of the block produced changes only below the level of the block; there was no nausea or drowsiness; flexor tone, reflexes, and spasms were abolished at the same rate and extent as extensor reflexes. These results were unaffected by subcutaneous injections of atropine and contrast with the effects of intramuscular or intravenous administration. Intrathecal injection of 2—500 mg. of acetylcholine had no effects on the spinal cord; injection of 10 mg. of acetylcholine + 0·1 mg. of prostigmine produced results similar to those after injection of large doses of prostigmine. Intrathecal injection of 0.25—1 mg. of eserine sulphate initially depressed spinal reflexes, followed by marked stimulation above the pre-injection level. The same results were obtained, below the level of the lesion, when eserine was injected below the obstruction in cases of spinal block; the excitatory phase involved flexor and extensor reflexes. Striking sensory stimulation was noted after administration of eserine. A. S.

Inversion of abdominal reflexes of peripheral origin. G. H. Monrad-Krohn (*Acta Psychiat., Kbn.*, 1939, **14**, 281–284).—A case is reported with paralysis of half the abdominal wall showing on stimulation of the paralysed side deviation of umbilicus and linea alba towards the opposite side without delay in response. It is concluded that the normal abdominal reflex includes a slight heterolateral contraction. H. L.

Syringomyelia and cervical ribs in binovular twins. K. H. Krabbe (Acta Psychiat., Kbn., 1939, 14, 489-508).—Case report with compilation of the literature. H. L.

Cranial deformity and syringomyelia. L. Laursen (Acta Psychiat., Kbn., 1939, 14, 509-526).—3 cases are reported. H. L.

Pretectal region of rabbit's brain. H. Kuhlenbeck and R. N. Miller (*J. comp. Neurol.*, 1942, **76**, 323–365).—A detailed account of the pretectal masses in which it is shown that they consist, in the rabbit, of three groups, diencephalic, mesencephalic of tectal origin, and tegmental derivatives. The nuclei of the rabbit and the pretectal cell masses previously analysed in reptilian (turtle and alligator) and avian brains show the same morphological pattern, and complete homology was established for a no. of the nuclei.

J. D. B.

I. D. B.

Dorsal longitudinal fasciculus in *Didelphis virginiana.* E. L. Thompson (*J. comp. Neurol.*, 1942, **76**, 239–281).—This fasciculus is related to the epithalamic and hypothalamic regions, the tectal and tegmental areas of the midbrain, the preganglionic and motor centres of the cranial nerves, various afferent cranial centres (notably fasciculus solitarius and nucleus incerta), and the dorsal tegmental nucleus. It is, therefore, a composite of descending and ascending tracts with the former predominating and its connexions suggest that it co-ordinates the activities of cranial nerve nuclei.

Sexual precocity associated with byperplastic abnormality of tuber cinereum. I. P. Bronstein, J. A. Luhan, and W. B. Mavrelis (*Amer. J. Dis. Child.*, 1942, 64, 211—220).—Sexual precocity in a 22-month-old girl is reported. Death occurred through an accidental meningitis and necropsy showed a small-tumour-like mass beneath the floor of the 3rd ventricle, between the infundibulum and the mamillary bodies, with a structure resembling the tuber C. J. C. B. cinereum.

Human pyramidal tract. IV. Mature, myelinated fibres. A. M. Lassek (J. comp. Neurol., 1942, 76, 217-225).—Counts made on two medullas (from a young negro and negress) stained with Weigert's technique showed approx. 688,800 myelinated fibres at a level just above the motor decussation. 89.6% were of small diameter $(1-4 \ \mu)$, 8.5% of intermediate calibre (5-10 μ), and 1.73% of large size $(11-22 \ \mu)$. More than half of the fibres are about 1 μ . in diameter and the tract as a whole is 61% myelinated. It is unmerted that the tardu myelination of the human pyramidal tract suggested that the tardy myelination of the human pyramidal tract may be due to the fact that so many of the fibres are very lightly myelinated; further only a small % of the fibres are designed for J. D. B. speedy transmission of impulses.

Relation of vasomotor changes in limbs to sleep and sleep-readiness. G. Magnussen (Acta Psychiat., Kbn., 1939, 14, 39-54).—Normal sleep was preceded by increase in foot temp. H. L.

Facial dissociation. G. H. Monrad-Krohn (Acta Psychiat., Kbn., 1939, 14, 557-566).—Exaggeration of homolateral emotional movement was observed in cases of unilateral central facial paresis; this confirms the assumption of 2 separate central paths converging on the "final common path" of the 7th nerve : one serving voluntary innervation (pyramidal fibres) and the other serving emotional innervation (from pallidal system), the latter being normally continuously inhibited by the former. H. L.

Pathogenesis of paralysis agitans. C. E. Benda and S. Cobb (Medicine, 1942, 21, 95-142).—A review. E. M. J.

Treatment of postencephalitic Parkinsonism with belladonna. H. D. von Witzleben (Schweiz. med. Wschr., 1941, 71, 1183—1184).— 827 patients suffering from postencephalitic Parkinsonism were treated with the "Bulgarian" belladonna root extract. 71% were sufficiently improved to be able to work. A. S.

Psychophysiological action of β -erythroidine hydrochloride. S. R. Rosen and M. V. Borenstein (*Psychiat. Quart.*, 1941, 15, 163–169).— S. R. A description is given of the clinical signs in cases in which the drug was used to modify the severity of therapeutic metrazol convulsions. Overdosage effects were readily counteracted by prostigmine.

H.L

Systematic nervous affinity of tri-o-cresyl phosphate (Jamaica ginger palsy). C. D. Aring (Brain, 1942, 65, 34—47).—Jamaica ginger palsy is mainly characterised by hyperplastic fibrosis of the smaller arteries and capillaries, beginning to develop in the latent period. The degeneration in muscles and nerves can be related to some extent to contiguously affected capillaries. Degeneration in the central nervous system (nerve cells, pyramidal tracts, and columns of Goll) are explained on the same basis. H.L.

a-Waves in electroencephalogram in healthy children. C. G. Bernhard and C. R. Skoglund (*Acta Psychiat., Kbn.*, 1939, 14, 223-231).—No significant variations were found when the same subjects was examined on consecutive days. Correlation of increase in a waves to increase in age could be expressed mathematically. in a-waves to increase in age could be expressed mathematically. The range of variations around the average vals. for the different age groups was small. H. L.

Diagnostic and prognostic value of electroencephalogram. F. A. Gibbs (J. Amer. Med. Assoc., 1942, 118, 216-219).—A review.

C. A. K. Differential diagnosis of abnormal electroencephalograms. H. Strauss (J. Mt. Sinai Hosp., 1942, 9, 17-22). E. M. J.

Blood-sugar level and influence of hyperventilation on slow activity in electroencephalogram. M. A. Rubin and E. Turner (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 270–272).—Lowering of blood-sugar below 120 mg.-% causes changes in the electroencephalographic response to hyperventilation, but these changes are not const.

V. J. W. Optic nystagmus in schizophrenia. M. A. Sherman (*Psychiat. Quart.*, 1941, **15**, 797-801).—No disturbance of optokinetic nystagmus was found in 28 chronic schizophrenics. H. L.

Effect of metrazol injections on electroencephalogram. H. Strauss and W. E. Rahm (*Psychiat. Quart.*, 1940, 14, 43–48).—During metrazol seizures, brain potentials showed from the latent stage to the end of the 2nd clonic stage an activity of 30 cycles per sec. in the motor region and during the latent and tonic stage of 10 cycles per sec. in the occipital area. Low-voltage random activity was found during the relaxation period. When metrazol injections were not followed by seizures inconst. findings included drop in %-time of a-waves without appearance of abnormal potentials and return to normal activity within 1 min.; random abnormal potentials with slow return to normal after more than 45 min.; and larval seizures with return to normal in under 15 min. H. L.

Effects of excitatory amino-compounds in neurology and psychiatry. J. E. Staehelin (Schweiz. med. Wschr., 1941, 71, 1197-1202) .- The applicability of central nervous system excitant drugs of the benzedrine type in neurology and psychiatry is discussed. A. S.

Incidence of psychoses and other mental abnormalities in families of recovered and deteriorated schizophrenic patients. O. Kant (Psychiat. Quart., 1942, 16, 176-186).—The familial incidence of functional psycholas yath, 1942, 10, 170–180, 211 failurat incidence of functional psycholes was 40% for the combined groups. Familial schizophrenia was highest among the catatonics of the deteriorated group. The proportion between familial manic-depressive disease and schizophrenia was 5:1 in the recovered and 1:5 in the deteriorated group. H. L.

[Red blood cell-chloride values in] schizophrenia. M. Gross, G. M. Gross, and S. B. Wortis (*Psychiat. Quart.*, 1940, **14**, 834-849).—In 38 schizophrenics the range of red blood cell-Cl' was 180-217 mg.-% (average 197); vals. in a control series ranged from 163 to 195.5 mg.-% (average 182.8). Plasma-Cl' was normal. H. L.

Treatment of schizophrenia by nitrogen inhalation. B. Lipetz (*Psychiat. Quart.*, 1940, 14, 496—503).—The treatment acts by depressing cerebral metabolism. H. L.

Influence of metrazol, insulin hypoglycæmia, and electrically induced convulsions on re-establishment of inhibited conditioned reflexes. E. Gellhorn, M. Kessler, and H. Minatoya (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 260–262).—A conditioned response in rats (jumping over a partition at sound of a bell) was inhibited through lack of reinforcement. It became temporarily re-established by convulsion therapy. V. J. W.

Electric shock treatment in mental depression. F. Kennedy and B. Wiesel (N.Y. Sta. J. Med., 1942, 42, 1663-1667).-43 cases of depression, manic-depressive equivs., and chronic anxiety states and 5 of schizophrenia were given an average of 12 treatments and an average of 6-7 convulsions. All except 2 were treated ambulatory. Cure or great improvement was obtained in 38 and 2 cases respectively. É. M. J.

Drugs and mental disease.—See A., 1942, III, 844.

Cerebral damage from insulin shock. F. N. Allan and R. M. Crommelin (J. Amer. Med. Assoc., 1942, 118, 373-374).—Case C. A. K. report.

Sodium amytal and intelligence-test scores. P. Slater, W. Sargant, and M. Glen (*Lancet*, 1942, 242, 676-677).—Intelligence tests in 390 men showed very little impairment after 3 grains of amytal. C. A. K.

Mental defectiveness with unusual syndrome of congenital physical anomalies. S. Androp (*Psychiat. Quart.*, 1942, **16**, 264–271).—The syndrome included facial and digital port-wine naevi, internal strabismus, horizontal nystagmus, bilateral optic atrophy, a "hole" in the right macula, mongoloid facies, and craniostenosis with mild microcephaly and thinness of the cranium. H. L.

Validity of the Shipley-Hartford retreat test for "deterioration." B. Pollack (*Psychiat. Quart.*, 1942, 16, 119-131).—The test is based on an analysis of the vocabulary level as compared with the power of abstract judgment, standardised on over 1500 normal and psychotic individuals. It is a valuable aid in psychiatric H. L. assessment.

Comparative table of main Rorschach symbols. Z. A. Pietrowski (Psychiat. Quart., 1942, 16, 30-37). H. L.

Rorschach method and its uses in military psychiatry. J. Brussel and K. S. Hitch (*Psychiat. Quart.*, 1942, **16**, 1–29). H. L. I. A.

Vertigo produced by effort at visual attention in traumatic brain disease. A. Rey (Arch. Sci. phys. nat., 1941, [v], 23, Suppl., 233— 237).—Vertigo or malaise is produced in 70% of patients with brain disease as a result of tests in which they have to follow with their eyes and to identify holes in a rotating plate. The mechanism of the vertigo is briefly discussed. W. McC.

Dementia infantilis with cortical dysrhythmia. A. Kennedy and D. Hill (*Arch. Dis. Childh.*, 1942, 17, 122–129).—A case of dementia with catatonic behaviour starting at the age of 6 is described, in which a marked cortical dysrhythmia was found on electroencephalo-graphic examination. No relationship was observed between the abnormalities of electrical rhythm and the clinical state of the patient at the time of taking the records. Abnormal electrical records were obtained for both parents. C. J. C. B.

Present status of fever therapy in neurosyphilis. A. E. Bennett (Nebraska Sta. Med. J., 1942, 27, 317-320).—A review.

E. M. J.

Androgens in treatment of involutional melancholia. L. Danziger and H. R. Blank (Med. Ann. Columbia, 1942, 11, 181-183).-5 male cases were given 12 intramuscular injections of 25 mg. of testosterone propionate on alternate days, followed by daily applications if necessary. 2 cases recovered and improved sufficiently to be paroled.*

Cerebral changes following asphyxia. W. B. Dublin and R. W. Brown (Northw. Med., 1942, 51, 167-170).—A man aged 38 survived for 80 hr. suspension by the neck of 5 min. duration. He was comatose throughout with flaccid arms and rigidly extended legs. Brain changes included ischæmic degeneration of nerve cells (globus

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pallidus, Purkinje cells of cerebellum, dentate nucleus, inferior olives). Experimental asphyxia in rabbits produced similar changes.

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 Mental mechanisms in alcoholism.
 F. G. Norbury (J. Amer.

 Med. Assoc., 1942, 118, 25—28).—A review.
 C. A. K.

Anosognosia. J. Waldenström (Acta Psychiat., Kbn., 1939, 14, 215—220).—Anosognosia is attributed to an association of paralysis of central origin with grave derangement of position sense but intact "sense of innervation ": an intended movement causes an impulse from the motor to the sensory area and the resulting assumption that the movement has been carried out is not corr. owing to the loss of deep sensibility. H. L.

Neurogenic vesical dysfunction. C. E. Jacobson, jun. (Proc. Staff Mayo Clin., 1942, 17, 286-288).—Three types occur as a result of experimental lesions involving the peripheral nerve supply of the bladder and the spinal cord in man. The atonic bladder is characterised by decreased vesical tone, increased vesical capacity, and absence of vesical contractions and is due to loss of normal transmission of sensory impulses from the bladder to the spinal cord. The autonomous bladder shows increased vesical tone, decreased vesical capacity, and presence of autonomous vesical contraction; this is caused by loss of normal motor innervation. The automatic or reflex bladder shows increased vesical tone, decreased vesical capacity, and the presence of automatic reflex contractions. H. H. K.

Relief of pelvic pain obtained by section of ovarian vessels and adjoining tissue. W. A. Bigelow (*Canad. Med. Assoc. J.*, 1942, 47, 233—234).—The pain was produced by pelvic varicocele or enlarged veins in the broad ligaments or ovarian veins, painful sequela of thrombo-phlebitis of these veins, and persistent pain after the removal of ovarian tumours. 37 of 38 patients obtained complete relief.

Functional reorganisation following preganglionectomy. W. A. Geohegan and O. J. Aidar (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 365–369).—In cats 3—9 anterior roots between T-3 and T-11 were cut, and changes in skin resistance caused by stimulation of roots T-1 to T-3 were determined 2—6 months later. Such stimulation caused increased skin resistance on the operated side and not on the unoperated. (Cf. A., 1942, III, 516.) V. J. W.

X.—SENSE ORGANS.

Pulsating exophthalmos. W. L. Benedict and A. W. Adson (Proc. Staff Mayo Clin., 1942, 17, 207-208).—A discussion. H. H. K.

Treatment of trachoma with albucid. A. Botteri and P. Sokolić (Schweiz. med. Wschr., 1941, 71, 1215—1217).—Local application of a 10% albucid solution (4—6 times per day) was successful in the treatment of trachoma. A. S.

Dioptric apparatus of lateral ocelli. I. Corneal lens. V. G. Dethier (J. Cell. Comp. Physiol., 1942, **19**, 301–313).—The principal photo-receptors of Isia isabella larvæ are six pairs of lateral ocelli or stemmata. Each ocellus consists of one corneal and one cryst. lens and of 7 visual cells. There are two types of corneal lens: the unitary type forming a single image and the tripartite type forming a triple image. The focal points and optical consts. of both types of cornea were determined. A. GL.

Inhibition of Wolffian regeneration by lens. M. Zalokar (Arch. Sci. phys. nat., 1942, [v], 42, Suppl., 58-61).—Reimplantation of the lens immediately after removal from the eyes of triton larvæ inhibits regeneration from the iris. Reimplantation of the lens after an interval of five days does not inhibit the regeneration provided the reimplanted lens is not in contact with the iris. It is assumed that the lens tissue inhibits the inductive substances of the iris. A. Gu

Epithelial tumours of limbus. J. E. Ash and H. C. Wilder (Amer. J. Ophthal., 1942, **25**, 926–932).—An account of an investigation based on 93 pure epithelial tumours of the lumbus. In 31 of these cases the corneal epithelium was found to be metaplastic. In a further 18 cases there was a clinical history of corneal involvement. Epithelial tumours of the limbus are frequently simply leucoplakic metaplasia of conjunctival epithelium. Papillomata or squamous cell carcinomata may develop secondarily in this altered epithelium. Basal cell carcinoma is rare. Local excision is usually sufficient therapy. A. GL.

Five hundred melanomas of choroid and ciliary body followed five years or longer. G. R. Callender, H. C. Wilder, and J. E. Ash (Amer. J. Ophthal., 1942, 25, 962-967).—These cases of malignant melanoma were graded according to cell type and fibre content and the degree of malignancy of each type was assessed. Tumours composed of spindle cells are least, those composed of epithelioid cells most, malignant. Heavy fibre content indicates a low degree of malignancy. Increased pigment content seems to coincide with increased lethality. A. GL. Fluoroscopy, present and future [and importance of dark adaptation]. W. E. Chamberlain (*Radiology*, 1942, 38, 383-413).—A lecture. E. M. J.

Vitamin-A nutrition in man with the Biophotometer. S. Roy and S. Banerjee (Ann. Biochem. Exp. Med., 1941, 1, 127-134).-138 individuals of different classes were examined with the biophotometer (Jeans et al., J. Amer. Med. Assoc., 1937, 108, 451). Only 5 of 127 people aged 19-55 and 3 of 11 school students showed deficient dark adaptation. Clinical signs of vitamin-A deficiency were absent in all cases. Cod-liver oil and lemon juice supplements diminished threshold val. of dark-adaptation in both normal and deficient cases. P. C. W.

Rapid dark adaptation test. R. A. Harvey (*Radiology*, 1942, 38, 353—354).—A film of an Al-step tablet is viewed on the fluoroscopic screen over a fluorescent bulb. Individual variations during the course of the day were noted. E. M. J.

Dark adaptation of children in relation to dietary levels of vitamin-A. —See A., 1942, III, 829.

Stereoscopic vision in industry. M. Davidson (N.Y. Sta. J. Med., 1942, **42**, 1441—1444).—A review. E. M. J.

Experiments on the trichromatic theory of vision. H. V. Walters (*Proc. Roy. Soc.*, 1942, **B**, 131, 27—50).—Using W. D. Wright's binocular matching and colour adaptation technique anomalous results were obtained which can only be accounted for if the "coefficient law" (the rule that sets of colours which match binocularly, added to other sets which match binocularly, produce binocular matches) does not always hold. It is suggested that its failure may be due to interaction between the different colour-receptor systems of the eye. The deduction of the fundamental response curves from the data is thus much complicated; an attempt is made for the red and green receptors, on the assumption that the blue does not respond to $\lambda\lambda$ longer than about 540 m μ . K. J. W. C.

Idea of regulation in study of visual illusions. J. Piaget (Arch. Sci. phys. nat., 1942, [v], 24, Suppl., 72-74).—It is known that a circle, placed inside another circle, appears larger than when seen in isolation; this increase is found to occur for a 3:4 ratio between the radii of the inner and outer circles; for greater or smaller radii of the outer circle the increase is less; for 1:3 ratio it becomes negative and then approaches zero for still larger ratios. The magnitude of all these illusory effects is greater with children aged 5-6 than with adults. A mathematical description of the discrepancy between the objective and subjective relation between the sizes of the circles is given and the changes of sign of illusion are attributed to some regulating factor such as intelligence. K. J. W. C.

Relation between eye ball size and number of optic nerve fibres in dog. L. B. Arey, S. R. Bruesch, and S. Castanares (*J. Comp. Neurol.*, 1942, **76**, 417—422).—There is a small but apparently significant correlation between eye ball size and retinal size, on the one hand, and nerve fibre no. on the other hand. The mean no. of actual nerve fibres is given as 153,712. A. GL.

Identity of amaurotic idiocy of Tay-Sachs with Niemann-Pick disease. S. Scheidegger (Schweiz. Z. Path. Bakt., 1941, 4, 27– 120).—A review. E. M. J.

Juvenile amaurotic idiocy. G. A. Jevis, L. Roizin, and W. H. English (*Psychiat. Quart.*, 1942, **16**, 132–143).—A case report with detailed autopsy findings. H. L.

XI.—DUCTLESS GLANDS, EXCLUDING GONADS.

Cytological criteria of mammalian endocrine activity. C. L. Foster (Nature, 1942, 150, 279-282).—A review. E. R. S.

Commercially available newer endocrine products. W. A. Schonfeld (N.Y. Sta. J. Med., 1942, 42, 1538-1547).---A review.

Hormones and process of ageing. L. Loeb (Harvey Lectures, 1940-41, Ser. 36, 228-250). E. M. J.

Spinal anæsthesia in thyroid crisis. C. E. Rea (Minnesota Med., 1942, 25, 368—369).—A case is reported in which a thyroid crisis following bilateral sub-total lobectomy was successfully cut short by a spinal anæsthesia lasting $1\frac{1}{2}$ hr. E. M. J.

Calcium and phosphorus excretion in thyroid disorders. J. D. Robertson (*Lancet*, 1942, 242, 672-676).—In untreated thyrotoxicosis serum-Ca and -P are diminished, urinary Ca and P output

is increased, but facal Ca is normal. I ingestion reduces Ca output, and restores P balance to normal. Subtotal thyroidectomy restores serum-Ca and -P to normal, restores Ca output to normal, and lowers P balance to below normal. In untreated myxcedema serum-Ca P balance to below normal. In untreated myxedema serum-La and -P are normal while serum-phosphatase is diminished, Ca urinary output is reduced, and P balance is positive. Thyroid feeding lowers serum-Ca, raises $-PO_4^{(r)}$ proportionately, and raises -phosphatase to normal; it increases Ca output to normal and restores the normal negative P balance. Thyroxine probably affects the renal threshold for Ca directly, changes in P excretion being C. A. K. secondary.

Lack of iodine, or a nocuous agent the cause of goitre. F. Blum (Schweiz. med. Wschr., 1941, 71, 1612-1615).—Cabbage goitre in rabbits is not due to deficient I intake or absorption but to a nocuous agent. It is assumed that this factor antagonises the de-iodase of the liver. A. S.

Circulatory apparatus in myxcedema. J. C. M. Fournier (Proc. Staff Mayo Clin., 1942, 17, 212-215).--A discussion. H. H. K.

Production of goitre and myxcedema by thiocyanates. J. L. Kobacker (Ohio Sta. Med. J., 1942, 38, 541-542).—Administration of KCNS for hypertension over a period of 17 months, mostly in daily doses of 0.45 g., in a 48-year-old woman who originally had moderate diffuse thyroid fulness produced a myx ∞ dematous goitre (basal metabolic rate -30). Omission of the drug and thyroid therapy caused return to normal in 2 months. A year later a milder degree of myxædema was caused by a return to KCNS E. M. J. therapy.

Hyperthyroidism. A. Wyss and I. Abelin (Schweiz. med. Wschr., 1941, 71, 1545-1550).—A review. A. S.

Nephrolithiasis in hyperparathyroidism. A. A. Werner (Sth. Med. J., 1942, 35, 671-676).—Case report. E. M. J. È. M. J.

Effect of thyroxine on the bone marrow of cats. G. Kleiner and F. Rényi-Vámos (Magyar Orv. Arch., 1939, 40, 402-405).—Smears from the humerus bone marrow of cats treated with thyroxine showed that 8-22% contained micromyeloblasts 2 or 3 weeks after administration. The no. of erythroblasts did not increase and the black contained not with other of contained in the black contained more solver balls. and the blood contained no such cells. The no. of eosinophils increased from 5% to 34% after a week and among the neutrophil granulocytes many irregular cells occurred, but the bone marrow exhibited no eosinophilia. A. W. M.

Effect of thyroid extract on histamine sensitivity and anaphylactic response. L. Farmer and R. Fribourg (Proc. Soc. Exp. Biol. Med., 1949 - 2000 - 20 1942, 50, 208–209).—Thyroid extract, which is known to increase anaphylactic reaction in guinea-pigs, also increases their susceptibility to histamine. It is suggested that this is due to depletion of adrenal cortin. V. J. W.

In-vitro formation of thyroxine and di-iodotyrosine by thyroid tissue. M. E. Morton and I. L. Chaikoff (J. Biol. Chem., 1942, 144, 565).—When small amounts of ¹³¹I in the form of I' are added to HCO_s'-Ringer's solution containing surviving slices of rat, dog, or sheep thyroid gland, the thyroxine and di-iodotyrosine isolated from the gland contain ¹³¹I. After 3 hr., 12 and 70% of the added ¹³¹I are present as thyroxine and di-iodotyrosine, respectively. Minced thyroid gland is considerably less effective, whilst homogenised gland is almost completely inactive. J. N. A.

Iron of adrenal gland in guinea-pig and rat. E. Bujard (Arch. Sci. phys. nat., 1941, [v], 23, Suppl., 263—266).—The adrenal cortex (and sometimes other parts of the gland) of the adult guinea-pig almost always contains Fe which is usually, but not always, associated with pigment. Pregnancy does not affect the Fe content. Fe, sometimes associated with pigment, is also frequently found in the adrenals of the adult rat. Administration of Fe found in the adrenals of the adult rat. Administration of Fe saccharate increases the content. W. McC.

Adrenal glands and detoxication. S. Blazsó (Magyar Orv. Arch., 1940, 41, 150-155).—Synthesis of ethylsulphuric acid remained normal in adrenalectomised animals while detoxication by glycuronic acid did not occur. A. W. M.

Adrenal cortex and sex hormones. F. Verzár (Schweiz. med. Wschr., 1941, 71, 1329-1331).—There is insufficient evidence for the assumption that the adrenal cortex is the site of normal sex hormone production. A. S.

Reaction of adrenal cortex to low atmospheric pressure. L. L. Langley and R. W. Clarke (Yale J. Biol. Med., 1942, 14, 529-546). -Rats which were kept continuously in decompression chambers at a pressure equiv. to an altitude of 20,000 ft. showed adrenal hypertrophy reaching a max. within 2 days. After acclimatisation adrenal activity returned to normal. Adrenalectomised rats thus exposed required greatly increased quantities of cortical extract for maintenance during acclimatisation. After acclimatisation normal sea-level doses sufficed for maintenance. Normal dogs exposed to the same low pressure showed increases in Na, Cl, and K excretion. Following adrenalectomy the increase in K excretion continued, but the increases in Na and Cl excretion ceased. F. S.

Tumour of adrenal medulla in castrated male rat.-See A., 1942, III, 824.

Diuresis in adrenalectomised rats. E. Margitay-Becht and G. Petrányi (Magyar Orv. Arch., 1939, 40, 398-401).—Diuresis of adrenalectomised rats, which is much less than normal, is correlated with the adrenal insufficiency. After large water intake, NaCl and cortin together, but not singly, cause increased diuresis. Cortin appears to influence fluid exchange in the tissues by raising the [Na] of the extracellular fluid and not to affect permeability A. W. M. to any extent.

Disturbance of phosphorylation following adrenalectomy. F. Verzár and C. Montigel (Schweiz. med. Wschr., 1941, 71, 1382–1383).-0.5-1.0 g. of fresh ground rat's muscle is added to a buffer containing NaHCO₃, NaF, and glycogen. The phosphorylation of glycogen by the muscle is markedly diminished from the 5th day following double adrenalectomy. On the 8th day 5.9 mg. of P. was lost by 100 g. of muscle compared with 500 mg in normal P were lost by 100 g. of muscle, compared with 50 mg. in normal animals. A. S.

Determination of adrenaline in blood during allergic reactions.-See A., 1942, III, 858.

Effect of deoxycorticosterone acetate in postoperative shock. H. Koster and L. P. Kasman (*Arch. Surg., Chicago*, 1942, 45, 272– 285).—200 patients were treated alternately with and without deoxycorticosterone acetate and parenteral solution of NaCl. There was no evidence that the therapy prevented or favourably influenced shock influenced shock. F. S.

Sublingual deoxycorticosterone acetate in Addison's disease. A. Wilson (*Lancet*, 1942, 242, 762—763).—4 patients with Addison's disease were treated satisfactorily with intramuscular injections of deoxycorticosterone acetate, 10—20 mg. per week. Daily sublingual administration of 10 mg. of the substance in propylene glycol failed to maintain health and was very expensive. C. A. K.

Experiences with depot treatment of adrenal cortex insufficiency. S. Thaddea (*Schweiz. med. Wschr.*, 1941, 71, 1202—1206).—100— 200 mg. of deoxycorticosterone acetate was subcutaneously im-planted in 7 patients suffering from adrenal cortex insufficiency; there were no local reactions. The therapeutic effects lasted from The were no local reactions. The therapetitic effects fasted from 3 to 6 months; in that period all metabolic and other signs of cortical deficiency disappeared. The average daily absorption of deoxy corticosterone was 0.6-1.6 mg. The depot treatment saved 90% of the amount of active substance required in subcutaneous injections. Depot treatment should commence after successful treatment of cortex deficiency crises with corticosterone injections and administration of NaCl. A. S.

Effect of subcutaneous injections of adrenal cortical hormone on Effect of subcutaneous injections of airenai cortean normal ex-renal excretion of electrolytes by normal rats. G. B. West (Quart. J. Pharm., 1942, 15, 104-110).—Consistent results for the effect of injection of adrenal cortical extract or of deoxycorticosterone acetate on urinary excretion of Na, K, Cl, and inorg. PO₄^{'''} could not be obtained in normal male rats. J. N. A.

Reduction of deoxycorticosterone to pregnanediol in rabbits. U. Westphal (Z. physiol. Chem., 1942, 273, 13-23).—After sub-cutaneous injection of deoxycorticosterone or the acetate in oil into male and female rabbits, 7-20% is isolated from the urine as Na pregnanediol glucuronate. The physiological significance of the reduction of the CH_2 ·OH group to CH_3 in the animal organism is discussed. is discussed. J. N. A.

Constituents of adrenal cortex and related substances. LVI. "Substance V" and determination of configuration in the $C_{21}O_5$ group.-See A., 1942, II, 413.

Ultracentrifuge study of reduced insulin. G. L. Miller and K. J. I. Andersson (*J. Biol. Chem.*, 1942, **144**, 465–473).—Insulin in which the SS· linkings are reduced by thioglycollate at $p_{\rm H}$ 7–7.5 gives an aggregation of the reduced mols. to form much larger particles. Inactivity of reduced insulin may be due to its denatured and ag-gregated state rather than to its thiol structure. L. L. W.

Ultracentrifuge and diffusion studies on native and reduced insulin in Duponol solution. G. L. Miller and K. J. I. Andersson (J. Biol. Ghem., 1942, 144, 475-486). Duponol (a commercial detergent) exists in solution in micelles, micellar wt. about 12,500. 1% native insulin or reduced insulin with 2% Duponol give insulin-Duponol complexes, micellar wts. about 27,600. Lower concns. of Duponol gave larger complexes, reduced showing greater affinity for Duponol than does native insulin. Small amounts of Duponol cause de-naturation and aggregation, greater concns. cause redispersion and dissociation of the denatured insulin; this effect is proportional to L. L. W. the concn. of Duponol.

Mol. wt. of insulin. G. L. Miller and K. J. I. Andersson (J. Biol. Chem., 1942, 144, 459–464).—The sedimentation const. of insulin, s_{20} , is 3.55×10^{-13} cm. per sec. per unit centrifugal field, the diffusion const. is 7.53×10^{-7} sq. cm. per sec., and the mol. wt. is 46,000.

L. L. W.

Functioning islet cell carcinoma with metastases to liver .--- See A., 1942, III, 826.

Hypophysis and lactation. W. Berblinger (Schweiz. med. Wschr., 1941, 71, 1237—1240).—A woman, suffering from a uterine sarcoma, lactated. An adenoma of the anterior lobe of the pituitary was found consisting of plasma-rich chromophobe cells (" pregnancy cells"). One ovary contained a corpus luteum, showing regressive changes. A. S.

[Diabetes mellitus following] metrazol shock therapy. I. Green-field (*Psychiat. Quart.*, 1941, 15, 86-92).—A case is reported who developed diabetes mellitus during the course of the treatment. H.L

Effect of hypophysectomy on liver-glycogen and iodine content of thyroid gland. V. S. Hermann (Z. physiol. Chem., 1942, 272, 171— 176).—In dogs, removal of the pituitary gland decreases the wt. of the thyroid gland and greatly increases its I content but does not affect the proportion of glycogen in the liver after a 24-hr. fast. W. McC.

Oxytocic hormone (pituitary) and urine secretion. A. M. Fraser (J. Physiol., 1942, 101, 236-251).—The oxytocic hormone is more active than the pressor hormone in increasing Cl' and water excretion in non-hydrated rats. The pressor hormone antagonises the diuretic action of the oxytocic hormone in hydrated and nonhydrated rats. The latter hormone is very active in decreasing PO,"" excretion. These reactions of the oxytocic hormone are not due to the pressor hormone and the diuretic action of the pressor hormone is not due to the oxytocic hormone. J. A. C.

Effect of pitressin on renal circulation and urine secretion. K. G. Wakim, J. F. Herrick, E. J. Baldes, and F. C. Mann (*J. Lab. clin. Med.*, 1942, **27**, 1013–1022).—Direct observation was made by transillumination on the effect of pitressin on the vessels in the frog kidney. Various dilutions of pitressin were applied directly to the illuminated area of the kidney, or were injected into the lymph sac or abdominal vein of the frog (urethane). Depending on the dose pitressin stopped the circulation in the domentiant tott for a fraction pitressin stopped the circulation in the glomerular tuft for a fraction of a min. to several min.; it slowed the circulation in other vessels markedly. Simultaneous records of urine and renal blood flows and optical records of blood pressure were made on dogs (pento-barbital Na or chloralosan). Subcutaneous pitressin did not change urine flow, renal blood flow, or blood pressure. Intramuscular injections produced variable slight changes. Intravenous pitressin produced transient anuria followed by oliguria for several min. and a marked decrease in renal blood flow; recovery was not complete in 1-1 hr.; there was a sudden transient rise in blood pressure followed occasionally by a transient fall and then by a gradual prolonged but moderate rise which lasted for $\frac{1}{2}$ hr. C. J. C. B.

Relation of pituitary, thyroid, and adrenal glands to maintenance of normal serum-albumin and -globulin levels. L. Levin and J. H. Leathem (Amer. J. Physiol., 1942, 136, 306—313).—Hypophysectomy in rats produces a fall in serum-albumin and an increase in -globulin, with a slight resultant decrease in total -protein. Thyroidectomy simulates hypophysectomy by increasing -globulin, but has little effect on -albumin. Conversely, treatment of hypophys-ectomised rats with thyroxine prevents the increase in -globulin, but does not inhibit the decrease of -albumin, whereas adrenal cortical extract or deoxycorticosterone prevents the decrease in -albumin with no effect on -globulin level. It is concluded that in the rat the -albumin level is maintained under adreno-cortical influence, while the -globulin level is associated with activity of the thyroid. After hypophysectomy a change in both -albumin and -globulin occurs because of the decrease in both adreno-cortical and thyroid activity. T. F. D.

Effect of thyroxine and anterior pituitary growth hormone on endochondral ossification. H. Becks, R. D. Ray, M. E. Simpson, and H. M. Evans (Arch. Path., 1942, 34, 334-357).—Daily sub-cutaneous injections of 0.005 mg. of thyroxine in normal female rats over 251 days caused no increase in the rate of endochrondral ossification (tibia, rib). Thyroparathyroidectomy resulted after 330 days in marked dwarfing of the animals; histologically the endochondral appearance at autopsy resembled that following hypophysectomy (although less severe): decrease in the size of the chondroevtes deposition of hone along the zone of erosion light chondrocytes, deposition of bone along the zone of erosion, light formation of cancellous bone, and marked increase in fat content of the marrow. Injections of thyroxine in thyroparathyroidectomised rats caused the bones to return to normal. Injections of thyroxine in the thyroparathyroidectomised-hypophysectomised female rats did not repair the growth defect. Injections of growth hormone into normal female rats for 251 days resulted in a marked increase in body wt, and length; endochondral ossification was extremely active, the resultant picture resembling that of a young animal. In thyroparathyroidectomised rats, similar injections also increased the rate of endochondral ossification. The balance between cartilage and bone formation that was finally established favoured the former. Injections of growth hormone + thyroxine in normal female rats over 251 days resulted in a greater response in body wt. and length than that obtained by the former alone;

endochondral ossification, although active, was more mature in type. In thyroparathyroidectomised-hypophysectomised animals, growth hormone and thyroxine treatments repaired the growth defect. C. J. C. B. (30 photomicrographs.)

Influence of pituitary on synthesis of ascorbic acid in the dog .--See A., 1942, III, 833.

Case of diabetes insipidus in pregnancy. H. McLaren and M. McLeod (J. Obstet. Gynaec., 1942, 49, 51-58).-A case is described in which the onset of diabetes insipidus occurred in the 34th week of pregnancy and was completely resolved following premature delivery 2 weeks later. Œdema, jaundice, and a secondary post-partum hæmorrhage occurred in the puerperium. P. C. W.

Effect of removal of posterior lobe of pituitary on inhibition of water diuresis by emotional stress. W. J. O'Connor and E. B. Verney (*Quart. J. Exp. Physiol.*, 1942, **31**, 393–408).—The inhibition of water diuresis by emotional stress in the dog (acoustic or faradic stimulation) is reduced after removal of the posterior lobe of the stress in the following following the posterior lobe of the start of the pituitary. Only 5% of the anti-dinetic function of the neuro-hypophysis remains after removal of the posterior lobe (expressed in the inhibition by emotional stress). This is adequate to constrain urinary output within normal limits. The quantity of hormone liberated in response to short-lived emotional stress is a few milli-A. S. units.

XII.—REPRODUCTION.

Effect of incubation on vitamin content of eggs. E. E. Snell and E. Quarles (J. Nutrition, 1941, 22, 483–489).—During incubation of hen eggs the total contents of pantothenic acid and riboflavin were unchanged, biotin content remained const. or decreased slightly, nicotinic acid and inositol increased considerably.

A. G. P.

Structure and significance of myometrial gland. G. Kiszely (Magyar Orv. Arch., 1940, 41, 108—112).—In the pregnant uterus of rodents the myometrial gland is an integral part of the placenta. A. W. M.

Effect of seasons, castration, and crystalline sex hormones on urogenital system and sexual behaviour of lizard Anolis carolinensis. Adult female. G. K. Noble and B. Greenberg (*J. exp. Zool.*, 1, 88, 451-479). J. D. B. 1941, 88, 451-479).

Percutaneous application of female sex hormones in rats and rabbits. K. Miescher and P. Gasche (Schweiz. med. Wschr., 1941, 71, 1301-1303).—Œstradiol and œstradiol dipropionate in oily and alcoholic solution were percutaneously applied to ovariectomised rats and rabbits for 10 days (50 μ g, per day). The changes in uterine wt. and, in the rat, the duration of œstrus were determined. Both substances act identically on the rat, the alcoholic preps. being more potent; percutaneous administration was more effective than subcutaneous in the case of œstradiol but less potent in the case of the ester. In rabbits the oily prep. was more effective than the alcoholic prep. Percutaneous absorption of female sex hormones is similar to that of male hormones. A. S.

Effect of subcutaneously implanted cestradiol tablets on guinea-pig's fur. H. von Wattenwyl (Schweiz. med. Wschr., 1941, 71, 1331– 1334).—Guinea-pigs developed marked alopecia 100–150 days following subcutaneous implantation of cestradiol tablets. The daily hormone absorption varied from 26 to 185 μ g. Growth of hair begins 14 days, and is complete 30–40 days, after removal of the tablets. There was marked loss of lipins in the zona fasciculata and reticularis of the adrenal cortex and hypertrophy of the eosinophil cells of the anterior lobe of the pituitary. A. S. Effect of subcutaneously implanted œstradiol tablets on guinea-pig's

Use of stilbœstrol in treatment of abortion and premature labour. K. J. Karnaky (Sth. Med. J., 1942, 35, 838-844).—A review and E. M. J. report of cases.

Treatment of gonorrheal vulvovaginitis with estrogens. W. E. Brown (Amer. J. Dis. Child., 1942, 64, 221–228).—5 cases of gonorrheal vaginitis treated successfully are described.

C. J. C. B. Therapeutic value of implanted œstrogens. S. H. Geist (*J. Mt.* Sinai Hosp., 1941, 7, 353-360). E. M. J.

Toxicology of diethylstilbæstrol and related compounds. R. S. Teague (J. Pharm. Exp. Ther., 1942, 75, 145-153).—Diethylstilbæstrol, diethylhexæstrol, 4 of their esters, and æstradiol were cestrol, diethylhexcestrol, 4 of their esters, and cestradiol were tested by daily oral administration in rats. Doses were 0-001— 100 mg, per kg, per day for 10—80 days. None of the rats died. Diethylstilbœstrol produced slight decreases in red cells, white cells, and hæmoglobin in the circulating blood, in wt. of ovaries, testes, seminal vesicles, and prostate, and increases in wt. of pituitary, adrenals, liver, and uterus. There were no changes in ridner wt. All contenents total produced decreasing of body kidney wt. All æstrogens tested produced depression of body growth, and vacuolisation of the hepatic cells due to accumulation of glycogen. No differences were found in the actions of the various æstrogens on the other organs. P. C. W.

Use of stilbœstrol [after ovariectomy]. K. C. Sharretts (Ohio Sta. Med. J., 1942, 38, 227-230).-2-3 mg. of stilbœstrol by mouth

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were given daily in 44 cases up to a total of 20—40 mg.; relief from menopausal symptoms was obtained in 35 cases. E. M. J.

Treatment of gonococcal vaginitis in children with diethylstilbœstrol. J. D. Woodruff and R. W. Tchinde (*Sth. Med. J.*, 1942, 35, 389—393).—Vaginal suppositories of 0·1 mg. of diethylstilbœstrol daily in 34 cases were superior to daily oral administration of 1 mg. and accompanied by fewer cases of vomiting. E. M. J.

Estrogenic hormones in genesis of tumours and cancers. Effect of foster nursing in induction of tumours in mice injected with stilbcestrol.—See A., 1942, III, 823.

Mono- and di-alkyl ethers of stilbœstrol.-See A., 1942, II, 402.

Latent period of follicle and corpus luteum hormone actions on human uterus. J. Daels (Schweiz. mcd. Wschw., 1941, 71, 1249— 1251).—Posterior pituitary hormone (0.01 Voegtlin unit) was intravenously injected in women 2—5 days after parturition. Intramuscular injection of follicle hormone (progynon B) in doses of 100,000—120,000 units increased the pituitary hormone effect 48 hr. after the injection. After intravenous injection, 70,000— 100,000 units were effective 5—6 hr. later. The sensitivity of the uterus to posterior pituitary hormone was not affected by corpus luteum hormone, given intramuscularly (10 mg. of proluton).

Antagonism and synergism of male and female sex hormones. W. Jadassohn and H. E. Fierz (*Schweiz. med. Wschr.*, 1941, 71, 1554—1555).—Androsterone and testosterone propionate in aq. solution, applied to the nipple, increase its size in male guinea-pigs, but less markedly than female sex hormones. Local application and subcutaneous injection of androsterone and testosterone propionate in oily solution had no effect on nipple size. Castration potentiates, injections of testosterone propionate inhibit, the effect of percutaneous administration of æstrone on the nipple. A. S.

Treatment of diabetes mellitus with sex hormones. A. Saurer (Schweiz. med. Wschr., 1941, 71, 1577—1585).—17 patients between 47 and 75 years suffering from diabetes mellitus were treated with testosterone propionate or ovocyclin. There was marked improvement of glucose tolerance with lowering of all blood-sugar vals. and decrease in urinary glucose excretion. The insulin blood-sugar curve (10 units) was below that of the pre-medication period. The intravenous glucose tolerance curve approximated to normal. Sex hormones had no effect on carbohydrate metabolism of normal subjects. There were no untoward effects; the increased basal metabolic rate was lowered in 2 cases. There was no effect on blood pressure. A. S.

Inhibition of growth by steroid compounds and hormone specific effects. W. von Möllendorff (Schweiz. med. Wschr., 1941, 71, 1573—1574).—There is no correlation between hormonal efficacy (seminal vesicle and cock's comb tests) and effects on cell division in tissue cultures. Methyltestosterone > testosterone > dehydroandrosterone > androstenediol > androstenedione in inhibiting mitosis. Methyl-dihydrotestosterone, dihydrotestosterone, androsterone, androstane-diol, and androstanedione were ineffective, *i.e.*, unsaturated compounds were effective, saturated were not. A. S.

Conversion of progesterone into pregnanediol in the rabbit. U. Westphal (Z. physiol. Chem., 1942, 273, 1–12).—After injection of progesterone into male and female rabbits 7—10% is isolated from the urine as Na pregnanediol glucuronate. Conversion of progesterone into pregnanediol is not connected with presence of the uterus, for it still occurs after hysterectomy. J. N. A.

Difference in response of certain strains of rats to augmentative gonadotropic effect. J. D. Hauschildt and J. S. Evans (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 353-355).-Of 3 strains tested, all gave similar responses to follicle-stimulating hormone, pregnant mare serum, and pregnancy urine when given separately, but one strain (Sherman) failed to show any augmentative response when folliclestimulating hormone is given with either of the others, whereas the other 2 did so. V. J. W.

Augmentation of pregnant mare serum gonadotropic effect. H. Jensen, J. D. Hauschildt, and J. S. Evans (*Proc. Soc. Exp. Biol.* -*Med.*, 1942, **50**, 356—358).—Ovarian wt. effect of pregnant mare serum in 21-day-old rats was augmented by simultaneous administration of follicle-stimulating hormone from sheep pituitary, but not by pregnancy urine extract. V. J. W.

Forced ovulation of normal ovarian follicles in fowl. R. M. Fraps, M. W. Olsen, and B. H. Neher (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 308—312).—Premature ovulation can be induced by a luteinising prep. from horse pituitary, by "prephysin" (mainly folliclestimulating hormone), and by pregnant mare serum extract.

V. J. W. Time required for induction of ovulation following intravenous injection of hormones in fowl. R. M. Fraps, G. M. Riley, and M. W. Olsen (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 313–317).—In hens pretreated for 8 days with pregnant mare serum the interval between ovulatory injection (see preceding abstract) and ovulation was $6\cdot1-7\cdot2$ hr. In normal hens it was $6\cdot5-8\cdot5$ hr. V. J. W.

Pregnant mare serum and human ovulation. J. I. Brewer, H. O. Jones, and J. H. Skiles (*J. Amer. Med. Assoc.*, 1942, 118, 278—283).—Intramuscular injections of very potent pregnant mare's serum failed to induce ovulation in 22 of 24 patients, the remaining 2 cases being doubtful. The time of ovulation was estimated at operation (for uterine fibroids) by examination of the corpus luteum, and no evidence of multiple or superimposed ovulations was found after injection of the serum. C. A. K.

Familial occurrence of intersexuality and adrenal cortex hyperplasia. A. Werthemann (Schweiz. med. Wschr., 1941, 71, 1335-1340).-2 children had male gonads (testes not descended), hypospady, and malformation of the scrotum; 2 children had ovaries but hyperplasia of the clitoris, absence of vulva and vaginal orifice in the urethra (canalis urogenitalis). The adrenal cortex showed marked hyperplasia. A. S.

Effect of certain hormones and drugs on perfused mammary gland. W. E. Petersen (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 298-300).—On injection into the mammary artery of the cow pitocin and acetylcholine caused complete evacuation of the gland. Adrenaline, histamine, and mecholyl had a partial effect and doryl and ergometrine none. Atropine prevented the acetylcholine and mecholyl effects but not that of pitocin. V. J. W.

Lactation and reproduction on highly purified diets. S. J. Folley, K. M. Henry, and S. K. Kon (*Nature*, 1942, 150, 318).—3 generations of rats were reared on a purified diet. The lactational performance was lower than on a stock diet, and this was improved by inclusion of cystine in the purified diet. E. R. S.

Mechanism of menstruation. B. Zondek (Schweiz. med. Wschr., 1941, 71, 1351-1354).—Exposition of a new theory. A. S.

Thecal gland in guinea-pig ovary. W. T. Stafford, R. F. Collins, and W. H. Mossman (*Anat. Rec.*, 1942, 83, 193—207).—The thecal gland can be recognised from the stage of the mature follicle, and during rupture and early corpus luteum formation. The structure of the gland is described at various stages. The gland begins to disappear shortly after cestrus. It is assumed that the gland is the most probable source of the cestrogenic hormone. W. F. H.

Effectiveness of contraceptive measures. R. K. Stix (J. Amer. Med. Assoc., 1942, **118**, 283–290).—The effectiveness of various contraceptive techniques is discussed with reference to the results obtained at 3 birth-control clinics dealing with subjects of different social status. C. A. K.

Simple pregnancy test. E. A. Zeller (Schweiz. med. Wschr., 1941, 71, 1349—1351).—0.05M-Cadaverine dihydrochloride, 2—4 c.c. of dialysed serum, and indigodisulphonate— $PO_4^{(\prime\prime)}$ buffer are mixed in a test-tube and, after addition of 1 drop of octyl alcohol and oxygenation for 1—2 min., are incubated at 37° for 24 hr. Non-pregnancy serum does not decolorise the dye; the reaction is positive from the 3rd month of pregnancy and is based on the oxidative destructive of the dye in the course of diamine-oxidase decomp. of cadaverine. Photometric serum-diamine-oxidase determinations agree with manometric findings. A. S.

Aschheim-Zondek pregnancy test and its modifications. E. Held (Schweiz. med. Wschr., 1941, 71, 1437-1442).-A review. A. S.

Permeability of placenta for antibodies. R. Doerr (Schweiz. med. Wschr., 1941, 71, 1253-1256).—A review. A. S.

Categories of abortion and abortion-stillbirth sequences. P. Malpas (J. Obstet. Gynaec., 1942, 49, 65-81).—Classification and discussion. P. C. W.

Ectopic pregnancy. W. P. Sadler (Minnesota Med., 1942, 25, 714-719).-102 cases of ectopic pregnancy were seen in 9 years, *i.e.*, 1 for every 25 abortions and I for every 174 intrauterine pregnancies. E. M. J.

Clinical and pathological study of permanently enlarged uterus. J. R. Goodall, G. T. Altimas, and J. E. Ayres (J. Obstet. Gynaec., 1942, 49, 18-35).—A discussion of atiology. P. C. W.

Dysgerminoma: report on case of bilateral dysgerminomata complicating pregnancy with malignant secondary deposits and fatal termination. J. F. Cunningham and J. McGrath (J. Obstet. Gynaec., 1942, 49, 36-40). P. C. W.

Case of arrhenoblastoma. W. K. McIntyre (*J. Obstet. Gynaec.*, 1942, **49**, 41–50). P. C. W.

Effects of ovarian hypofunction on sex organs. A. Labhardt (Schweiz. med. Wschr., 1941, 71, 1381-1382).-A review. A. S.

Gout and male hermaphrodism. E. F. Rosenberg (*Proc. Staff Mayo Clin.*, 1942, 17, 300—304).—A case is reported in which a patient with bisexual genitalia, male configuration of the body, but with a predominantly female personality, suffered from characteristic attacks of acute gouty arthritis and severe hypertension. H. H. K.

New soluble viscous contrast medium for hysterosalpingography. I. C. Rubin (J. Mt. Sinai Hosp., 1941, 7, 479—485).—Use of viscorayopak (3.5% polyvinyl alcohol added to solution of diethanolamine

salt of 3-iodo-2: 4-diketo-6-methyltetrahydropyridineacetic acid) E. M. J. is described.

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Hormonal and surgical treatment of undescended testes. Tauss (I. Mt. Sinai Hosp., 1941, 7, 530-540). E. M. J. Α. Strauss (J. Mt. Sinai Hosp., 1941, 7, 530-540).

Influence of sex hormones on transplanted vasa deferentia. T. Martins, J. R. Valle, and A. Porto (*Rev. Brasil. Biol.*, 1941, 1, 241-247).—In castrated cats one vas deferens was transplanted into the gastric wall; the animals were then treated with testosterone (75—160 mg, during 60—150 days), estradiol benzoate (7—10 mg, during 60—90 days), or diethylstilbæsterol (9—10 mg, during 68—84 days). At the end of the period of treatment the pharmacological properties of the transplanted and left *in situ* vasa deferentia were tested in a function of the period of the set of tested in a Tyrode bath. Testosterone has an inhibitory and cestradiol an excitatory action on the contractility of transplanted and left *in silu* vasa deferentia; estrogenic treatment sensitises the organs to pituitrin and reverses the action of adrenaline. I. C.

Androgen production during pregnancy and lactation in rat. M. W. Burrill and R. R. Greene (Anat. Rec., 1942, 83, 209-227).-M. W. Burrill and R. R. Greene (Anat. Rec., 1942, **30**, 209-221).-Ventral prostates of female rats were removed during pregnancy and lactation and examined microscopically for evidence of andro-genic stimulation. The evidence indicates that at certain times during these periods androgenic substance is present in amounts capable of stimulating prostatic epithelium. The identity and source of the androgen were not determined. W. F. H.

Response of testes to androgens following hypophysectomy. L. J. Wells (*Anat. Rec.*, 1942, **82**, 565–585).—In most hypo-physectomised ground squirrels the testes were small, abdominal, and aspermatic. The cytoplasm of the Leydig cells was greatly reduced. Most of the animals responded to injections of testosterone and testosterone propionate by producing spermatozoa. Androgens induced descent and growth of the testes but had no effect on W. F. H. damaged interstitial cells.

Use of male sex hormone in bad callus formation. E. Hagenbach (Schweiz. med. Wschr., 1941, 71, 1212-1215).-Repeated injections of male sex hormone in old patients suffering from fractures are A. S. recommended if callus fomation is delayed.

Electrophoretic analysis of human semen. S. Gray and C. Huggins (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 351-353).—The non-dialysable proteins of 5 specimens consisted of albumin, a-, β -, and γ -globulin in the same proportions as in serum. V. J. W.

F. T. Day (]. Survival of spermatozoa in genital tract of mare. Agric. Sci., 1942, 32, 108—111).—Pregnancy resulted from insemin-ations (2 billion sperms) up to 6 days prior to ovulation but not earlier or on the day after ovulation. Injection of pregnancy urine extract into one mare induced ovulation although the mare remained anœstrous as judged by vaginal and cervical secretions; insemin-ation 2 days prior to the induced ovulation resulted in pregnancy. A. G. P.

Proteins of human seminal plasma. V. Ross, D. H. Moore, and E. G. Miller, jun. (*J. Biol. Chem.*, 1942, **144**, 667-677).—A non-heat-coagulable protein (proteose) passes through viscose membranes of $2 \cdot 5 \text{ m}\mu$. diameter. This protein, which is pptd. by 100% but not by 50% saturation with $(NH_4)_2SO_4$, has a mobility of -0.9_8 cm.^2 v.⁻¹ sec.⁻¹ × 10⁻⁵ in PO₄^{'''} buffer at $p_{\rm H}$ 7.85 and ionic strength 0.1 when determined in the descending limb of the cell. The electrophoretic pattern shows that there is probably more than one mol. species in this fraction. The plasma also contains an electrophoretic pattern shows that there is probably more than one mol. species in this fraction. The plasma also contains an electro-phoretically homogeneous glycoprotein with mobility -5.6_{5} . This contains 9.3% of N and after hydrolysis with N-HCl at 100° yields 26.8% of reducing sugar (as glucose). It contains 10.8%of hexosamine and no uronic acid. Two water-sol, and two water-insol, proteins are also present. It is concluded from electrophoretic evidence that probably less than 0.02% of albumin, and from chemical evidence that probably less than 0.04% of nucleoprotein, are present in seminal plasma. J. N. A.

Enzyme chemistry of human sex organs. II. Choline-esterase, mono- and di-amine-oxidase in semen and prostate gland. Effect of enzyme inhibitors on motility of sperm cells. E. A. Zeller and C. A. Joël (*Helv. Chim. Acta*, 1941, 24, 968—976; cf. A., 1941, III, 579). —Human seminal fluid contains diamine-oxidase and, compared with other body fluids and tissues, very little choline-esterase, both enzymes occurring almost entirely in the non-cellular portion of the fluid. The choline-esterase content of the prostate gland is greater, the diamine-oxidase content of the prostate gland is greater, the diamine-oxidase content less, than that of the seminal fluid. The gland also contains an appreciable proportion of amine-oxidase. The amine- and diamine-oxidase contents of the semeniferous tubules are approx. equal to those of the prostate gland. The mobility of sperm cells is diminished by low and increased by higher concns. of semicarbazide and dimethylcyclohexanedione. The inhibition pro-duced he is at a the increased her comparison. duced by iodoacetate is increased by semicarbazide. Probably the diamine-oxidase and the glycolytic systems of semen acting independently and usually simultaneously are responsible for the mobility, the systems being affected in different ways by the W. McC. inhibitors.

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XIII.—DIGESTIVE SYSTEM.

Recent advances in gastro-intestinal physiology. J. H. Johnston (New Orleans Med. J., 1942, 94, 538-552).—A review. E. M. J.

War's challenge to gastro-enterology. R. S. Boles (Amer. J. digest. Dis., 1942, 9, 241-244).—An address. N. F. M.

Influence of single and multiple vitamin-B complex deficiencies on the motility of the gastro-intestinal tract. G. J. Martin, M. R. Thompson, and J. de Carvajal-Forero (Amer. J. digest. Dis., 1942, 9, 268-273) .- Radiological examination of young dogs on special diets showed that deficiency of pantothenic acid or of inositol resulted in delayed gastric emptying, intestinal segmentation, hypertonicity and hypomotility, and formation of gas and fluid levels. N. F. M.

Aerocesophography in congenital atresia of cesophagus. M. Fuhr-Aerocesophography in congenital atresia of desophagits, man, D. Dragutsky, G. Rook, and L. Grossman (*Radiology*, 1942, 20, 100-102) — Case report, E. M. J.

Congenital atresia of cosophagus. M. Fuhrman, D. Dragutsky, G. Rook, and L. Grossman (*Radiology*, 1942, **38**, 326-329).—Report of 2 cases with tracheo-cosophageal fistula to the lower segment. Aeroœsophagography is advised as a simple diagnostic measure.

E. M. J

Cardiospasm [and ulcus pepticum œsophagi]. U. Cocchi (Gastro-enterologia, 1940, 65, 341—355).—A review. E. M. J.

Use of modified opaque meal in gastroræntgenography. R. A. Rendich and M. H. Poppel (Radiology, 1942, 38, 602-606).-The opaque meal, consisting of 20 g. of a mixture of 4 parts of BaSO, 1 of gum acacia, 1 of cocoa, and 1 of granulated sugar by vol. added to 7 oz. of water, allowed simultaneous viewing of the rugal pattern and stomach outline as if after complete filling on a single film. A special val. in the differentiation of benign and malignant ulcer is E. M. J. claimed.

Osteomalacia and hypochromic anæmia after gastreetomy. C. Sarasin (Gastroenterologia, 1941, 66, 182-197).-Review and report of 2 cases. E. M. J.

Gastric similarities and differences between tropical sprue and pernicious anæmia. A. R. Olleros (*Amer. J. digest. Dis.*, 1942, 9, 261-263).—In sprue and in pernicious anæmia the stomach is invaded by Gram-negative organisms from the large intestine, but in sprue the gastric mucosal atrophy is less marked and neutral-red is eliminated by the stomach. N. F. M.

Treatment of peptic ulcer with hormonal preparations [particularly follicular hormone]. C. Adams (Gastroenterologia, 1942, 66, 343-349) .- A review. E. M. J.

Treatment of peptic ulcer without alkalis. G. F. Dick and C. W. Eisele (J. Amer. Med. Assoc., 1942, 118, 38-41).—The rate of healing of 41 gastric and duodenal ulcers in patients who were given hourly feeds of milk + cream but no alkalis was as satisfactory as with the Sippy regime, and symptoms were effectively relieved.

C. A. K. **Peptic inhibition.** D. Shoch and S. J. Fogelson (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 304–308).—Al(OH)_a, AlPO₄, Mg trisilicate, and mucin inhibit peptic activity *in vitro* by raising $p_{\rm H}$; Na lauryl sulphate inhibits it without affecting $p_{\rm H}$. V. J. W.

Bleeding peptic ulcer. H. A. Rafsky and M. Weingarten (J. Amer. Med. Assoc., 1942, 118, 5-11).—A review of various methods of treatment in 408 cases, and discussion. C. A. K.

Treatment of severe hæmorrhage from stomach and duodenum. T. I. Bennett, J. Dow, and S. Wright (Lancet, 1942, 242, 551-555).-The results of treatment in 147 cases of severe hæmorrhage from the stomach and duodenum are described; 73 cases were classed as serious and 18 of these died, 5 from avoidable lack of blood. Blood vol. determination is the most accurate method of gauging the severity of the hæmorrhage, and blood transfusion is the most important life-saving factor in severe cases; with slow transfusions there was no evidence that bleeding recurred or was enhanced. The avoidance of dehydration and administration of sufficient food are also important factors. Illustrative case records are given.

Atrophic gastritis and gastric cancer.-See A., 1942, III, 816.

Congenital hypertrophic pyloric stenosis. S. V. Haas (J. Sinai Hosp., 1941, 7, 411-422).—A review. E. M. Mt. E. M.

Sinai Hosp., 1941, 7, 411—422).—A review. E. M. J. Secretin and movement of intestinal villi. G. Ludány and L. Franzi (Magyar Orv. Arch., 1940, 41, 373—375).—Secretin had no effect on the automatism of the villi of dogs. The mol. of villikinin is smaller than that of secretin, and pepsin, trypsin, and erepsin leave it unchanged; it is not pptd. by trichloroacetate, adsorbed by animal C, or destroyed by ultra-violet light. A. W. M.

Manner in which stomach empties. W. T. Gibb, jun. (Ann. int. Med., 1942, 16, 94-103).—The sphincter antri muscle of the greater curvature is just opposite the incisura angularis and extends half way upwards on the anterior and posterior walls. Preceding emptying this muscle contracts, completely dividing the stomach into two compartments; tone in the antrum increases and its contents are forced through the pylorus. The usual peristaltic wave then passes over the antrum and when it reaches the pylorus the latter closes and remains shut for 1 sec. Otherwise, the pylorus is always patent. This account is based on 700 gastroscopic and X-ray examinations. A. S.

Optimal reaction for starch-liquefying activity of duodenal amylase of infants. P. E. Rothman, D. C. Widener, and W. C. Davison (*Amer. J. Dis. Child.*, 1942, **64**, 237—240).—The optimal reaction of the amylase of the duodenal contents of infants is $p_{\rm H}$ 6-9—7.0, when determined viscometrically with starch suspensions in 0.05M-PO₄"" buffer solutions. C. J. C. B.

Chemical excitability of isolated rabbit's small intestine. P. Y. Chang and F. Y. Hsu (*Quart. J. Exp. Physiol.*, 1942, **31**, 299–310). Isolated rabbit's small intestine contracted regularly at bath temp. of $22-45^{\circ}$; an increase in temp. of 10° doubles approx. the rate of contraction. Decrease in $p_{\rm H}$ diminished the rate, particularly in the ileum. The duodenum is most sensitive to acetylcholine, the ileum to adrenaline. The stimulating effects of BaCl₂, eserine, histamine, pilocarpine, and choline and the depressant effects of atropine, KCl, and MgCl₂ are equal on all segments of the small intestine. A. S.

Action of opiates on intestine.—See A., 1942, III, 842.

Relationship between sugar absorption and phosphate metabolism. Secretion of phosphate into intestinal lumen during absorption of monosaccharides. L. Laszt and L. D. Torre (Schweiz. med. Wschr., 1941, 71, 1416—1420).—3 c.c. of 0.6M-glucose, -fructose, -galactose, -mannose, or -xylose were injected into ligatured loops of small intestine in rats. Inorg, P was secreted into the lumen of the gut during the absorption of these monosaccharides. The rate of P secretion in 60 min. follows the rate of absorption of the sugars. The rate of P secretion is decreased in adrenalectomised rats. There is no P secretion into the small intestine following absorption of 1.6%NaCl, 0.6M-glycine, 7—8% sorbitol or dulcitol. There was no absorption from the large intestine of a 10% glucose or 9% xylose solution, and there was no secretion of P into the lumen. A. S.

Physico-chemical constants of the submaxillary saliva obtained by chorda and sympathetic stimulation. L. Kesztyüs and J. Martin (Magyar Orv. Arch., 1939, 40, 346-353).—Sp. gr. of the saliva obtained by chorda stimulation from the submaxillary gland is $1\cdot029$ — $1\cdot041$. The higher $p_{\rm H}$ of $7\cdot60$ — $7\cdot87$ compared with that of saliva obtained by sympathetic stimulation ($7\cdot08$ — $7\cdot37$) is due to a greater concn. of alkaline constituents and a lower buffer capacity. If the gland has been previously subjected to sympathetic stimulation the $p_{\rm H}$ of the saliva after chorda stimulation is much lower, showing that chemical changes occur in the gland. The f.p. of the chordastimulated saliva is $-0\cdot38^{\circ}$ to $-0\cdot48^{\circ}$ and that from sympathetic stimulation $-0\cdot175^{\circ}$ to $-0\cdot50^{\circ}$. The surface tension of the latter is rather higher and the η lower than that of the former.

A. W. M.

Origin and mode of secretion of the calcium of the submaxillary saliva obtained by chorda stimulation. L. Kesztyüs and J. Martin (Magyar Orv. Arch., 1939, 40, 354-362).—[Ca] of the saliva is equal to that of the blood plasma and intermediate between those of arterial and venous blood. It does not alter with increased saliva secretion, is not affected by the intensity of stimulation of the chorda tympani, but follows changes in the [Ca] in the blood. Unlike other constituents of the submaxillary saliva, Ca is a product of filtration and not of active glandular function. A. W. M.

Serum and urine diastase [relation to extrapancreatic abdominal disease]. A. Mekler (*Gastroenterologia*, 1941, **66**, 12–27).—Serum and urinary diastase were examined daily for a week in 24 persons receiving a diet containing 80 g, of carbohydrates, 60 g, of protein, and 80 g, of fat with an extra 250 g, of carbohydrate on the 4th day. 2 groups resulted: one with normal urinary and serum-diastase showing no abdominal disease and one with raised vals, in both media with extrapancreatic abdominal disease. E. M. J.

Hyperfunction of Langerhans' islets in chronic pancreatitis. J. W. Grott (*Gastroenterologia*, 1941, **66**, 72–89).—Report of 42 cases.

E. M. J. Intussusception in adults. P. G. Rowe (*Canad. Med. Assoc. J.*, 1942, 47, 219–225).—Report of 10 cases. C. J. C. B.

Nature of abdominal meteorism. R. M. Tecoz (Gastroenterologia, 1941, 66, 130-140). E. M. J.

Abdominal meteorism [and surgery]. A. Charbonnier (Gastroenterologia, 1941, 66, 141-161). E. M. J.

Rœntgenological appearances in meteorism. O. Walther (Gastroenterologia, 1941, 66, 162—173). E. M. J.

Diseases of anorectum and colon. R. Turell (Amer. J. digest. Dis., 1942, 9, 248-259).—A review with 170 references.

N. F. M.

Peptic ulcer and irritable colon in army. D. T. Chamberlin (Amer. J. digest. Dis., 1942, 9, 245–248).—31% of 316 patients admitted to a special gastro-intestinal clinic had proven peptic ulcer. Men with peptic ulcer are unfit for military service. N. F. M.

Enzymic activity of transplanted adenocarcinoma of glandular stomach of mouse.—See A., 1942, III, 824.

Megacolon due to incomplete atresia recti [in 70-year-old]. N. Peterson and G. Tunevall (*Gastroenterologia*, 1941, 66, 28-37).--Case report. E. M. J.

XIV.—LIVER AND BILE.

Hepatic function and the formation of hippuric acid : response to administration of aminoacetic acid and sodium benzoate in patients with subnormal capacity for synthesis. J. G. Probstein and S. Londe (Arch. Swrg., Chicago, 1942, 45, 253—260).—Normal adults taking 5 g. of glycine and 4 g. of Na benzoate eliminated more than 39% of the Na benzoate during the first hr., whereas after taking 4 g. of Na benzoate without glycine, only 23—28% was eliminated in the first hr. The total amount excreted in 4 hr., however, was greater when Na benzoate alone was taken. Six of 30 patients with impaired ability to synthesise hippuric acid showed no increase in the rate of synthesis when given glycine + Na benzoate and thus showed impairment of the conjugation process. The other 24 patients showed an increase and therefore their disability was due to a diminished power of the liver to furnish glycine. F. S.

Prothrombin test [for liver efficiency]. W. E. Abbott and W. D. Holden (*Arch. Surg., Chicago*, 1942, 45, 261–271).—From a study of 120 cases it is concluded that patients with relatively severe liver damage do not respond to vitamin-*K* therapy and that patients with common duct obstruction practically always respond to adequate therapy. F. S.

Acetylation of sulphanilamide as test of liver function. H. M. Carryer and V. F. Swanson (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 339-340).—There was no correlation between degree of acetylation and hepatic efficiency. V. J. W.

Composition of continuously collected fractions of liver bile on starvation and after high carbohydrate feeding. M. Jacobi, B. Kogut, C. Zuckerman, L. Weil, and B. Klein (*Amer. J. digest. Dis.*, 1942, 9, 264—268).—A patient with a biliary fistula showed no difference in bile vol. or composition as a result of fasting or after taking a high-carbohydrate diet. N. F. M.

Extraction of lipins of human liver. P. Favarger (*Helv. Chim. Acta*, 1941, **24**, 1106—1112).—Apparatus is described for the extraction of lipins from liver in the complete absence of air. Extraction with alcohol and mixed extraction with acetone, ether, and methyl alcohol give concordant results. Phosphatides are partly non-extractable with ether, but the proportion is variable and their composition is identical with that of the extractable phosphatides. Results of the treatment of 5 livers are tabulated. H. W.

Glycogen infiltration of liver-cell nuclei.—See A., 1942, III, 792.

Factors controlling glucose formation in liver.—See A., 1942, III, 836.

Formation of cysteine from homocysteine and serine by liver tissue of rats.—See A., 1942, III, 835.

Relation of chemical analysis of liver to its vitamin-A potency.— See A., 1942, III, 829.

Metabolic studies in patients with cancer of gastrointestinal tract. Hepatic dysfunction. J. C. Abels, P. E. Rekers, G. E. Binkley, G. T. Pack, and C. P. Rhoads (Ann. int. Med., 1942, 16, 221–240; cf. A., 1942, III, 465).—5 patients suffered from carcinoma of the esophagus, 39 of the stomach, and 18 of the large intestine; a further 19 patients had their gastric (12) or large intestine; a further 19 patients had their gastric (12) or large intestina (9) neoplasm removed; a further 8 patients had atrophic gastritis. A group of 21 patients had leucoplakia of the oral mucous membrane, without cancer or syphilis. The following determinations were made: plasma-prothrombin, serum-bilirubin, -albumin, -globulin, -vitamin-A, -cholesterol, and -cholesterol esters, urinary excretion of glycuronates, mean corpuscular vol. of red cells, urinary and fæcal urobilinogen excretion. There is a very high incidence of hepatic dysfunction in patients with cancer of the gastrointestinal tract; it is less in patients who had their gastrointestinal neoplasms surgically removed or in those suffering from atrophic gastritis or leucoplakia of the oral mucous membranes. Delayed woud healing, refractory anæmia, hæmolytic reactions to transfusion, low plasmaprotein and -prothrombin levels are associated with and, possibly, due to insufficiency of the liver. A. S.

Laënnec's liver cirrhosis. F. Wuhrmann (Schweiz. med. Wschr., 1941, 71, 1169—1173).—91% of 150 patients suffering from Laënnec's cirrhosis were alcoholics. The correct clinical diagnosis was made in 40%. 50% also had goitre and more than 50% splenomegaly. 2 patients suffered from pernicious anæmia. 50% of the patients

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showed monocytosis, 30% thrombopenia. Histamine-resistant gastric achylia and leucopenia were frequently found. The Takata-Ara reaction was positive in 50%. Blood sedimentation rate was accelerated in all cases. 23 patients died of hepatic coma or cesophageal varicose veins. The main cause of death was circulatory failure. 5 primary carcinomata of the liver and 2 of the hepatic duct, 10 tumours of the gastro-intestinal tract, and 23 cases of gallbladder stones were observed. A. S.

Cirrhosis of liver. Results of treatment with parenterally administered amino-acids. I. D. Fagin and F. T. Zinn (*J. Lab. clin. Med.*, 1942, 27, 1400—1409).—1 patient showed great improvement, 3 moderate improvement, and 1 remained unchanged. There was shrinkage in the size of the liver and spleen, improvement in glucose tolerance and hippuric acid synthesis in all patients, and in bromsulphalein excretion in 1 patient. C. J. C. B.

Effects of yeast and food intake on carbon tetrachloride cirrhosis of liver in rat. J. Post, D. P. Earle, jun., A. J. Patek, jun., and J. Victor (*Amer. J. Path.*, 1942, **18**, 661—671).—Development of and recovery from cirrhosis of the liver were unaffected by the yeast intake. Addition of large amounts of brewer's yeast to the basal diet decreased the lipoidosis of the liver caused by CCl_4 injections. Rats fed 8—11 g. of food daily had more severe liver lesions than those fed 14 g. (3 photomicrographs.) C. J. C. B.

Infantile cirrhosis of liver. P. K. Rao (Proc. Indian Acad. Sci., 1941, B, 14, 310–338).—Infantile cirrhosis is commoner among children of vegetarians. M. K.

Prevention by cystine or methionine of hæmorrhage and necrosis of liver in rats. F. S. Daft, W. H. Sebrall, and R. D. Lillie (*Proc.* Soc. Exp. Biol. Med., 1942, 50, 1-5).—In rats kept on the diet previously described (A., 1941, III, 458) addition of choline prevents development of cirrhosis, and addition of cystine prevents hepatic hæmorrhage and necrosis. V. J. W.

Lipoid granulomatosis in liver [of rat]. F. de Senarclens (Schweiz. Z. Path. Baht., 1942, 5, 150—177).—Rats kept on a diet rich in cholesterol were given subcutaneous injections of CCl_4 to a total of 0·125 to over 2 c.c. over 14—280 days. The liver at death showed granulomatous lesions composed of vacuolated reticulum cells and containing lecithin. During life blood-cholesterol and -lipins were increased. E. M. J.

Liver in acute phosphorus and chloroform poisoning [in guineapig]. P. Ladewig and E. Bueding (*Schweiz. Z. Path. Bakt.*, 1942, 5, 178-215).—P poisoning caused a mainly passive behaviour of liver tissue, CHCl₃ poisoning an activation of hepatic parenchyma as shown by hyperplasia, regeneration, and increased formation of glucuronic acid. Differences in the distribution curves of nuclear size were also demonstrated. E. M. J.

Treatment of liver parenchyma. W. Nonnenbruch (Schweiz. med. Wschr., 1941, 71, 1193-1196).—A review, with emphasis on use of choleretics and "parenchyma protection treatment" with_insulin and glucose. A. S.

Toxic hepatitis following sulphathiazole therapy.—See A., 1942, III, 840.

Qualitative studies of bilirubin in body fluids. Comparison of direct diazo-reaction by photo-electric colorimeter. G. Lepehne (J. Lab. clin. Med., 1942, 27, 1447—1457).—The direct diazo-reaction was compared with the photo-electric colorimetric method, the 3-test-tube method, and a qual.oxidation test. A prompt, a delayed, and a biphasic type of the direct diazo-reaction can be distinguished. The oxidation test can be prompt, negative, or diminished-delayed in various types of jaundice. All these methods are of diagnostic val., the most important being the photo-electric colorimetric method. C. J. C. B.

Excretion of cestrogen in bile.—See A., 1942, III, 811.

Influence of bile on susceptibility to convulsions in rats.—See A., 1942, III, 806.

XV.-KIDNEY AND URINE.

Sodium sulphathiazole clearance as measure of renal function in children. K. Kato (J. Pediat, 1942, 20, 576–583).—Normal children aged 5—14 years excrete 20—30% of intravenously injected Na sulphathiazole (0.1 g.) during the first 2 hr. The results agree with urea clearance tests. C. J. C. B.

Effect of low-potassium diet and of deoxycorticocosterone acetate on renal size. S. H. Durlacher, D. C. Darrow, and M. C. Winternitz (*Amer. J. Physiol.*, 1942, 136, 346—349).—Kidney hypertrophy, confined to the loops of Henle and collecting tubules and consisting of dilatation, hypertrophy, and hyperplasia, occurs in the rat after 4 weeks of a low-K diet. Similar, although less marked, renal changes, prevented by the addition of KCl to the drinking water, follow the administration of deoxycorticosterone acetate to rats on a normal diet. T. F. D. Circulation in infarcts of kidney. D. Loomis and C. E. Jett-Jackson (Arch. Path., 1942, 33, 735-769).—The circulation of experimentally infarcted kidneys of rats was studied by injection methods. The findings in human infarcts were similar. Following occlusion of a renal artery the anastomotic channels consist of the pre-existing capillary connexions between efferent arterioles. The glomeruli nearest an unobstructed blood supply receive blood from it from the first and persist as part of the circulation for at least a year after infarction. These glomeruli do not re-enter the circulation as a result of revascularisation nor are they cut off from it by fibrosis but are in continuity with it from the outset. The remainder of the glomeruli of the infarct either become partly necrotic and later show fibrosis, or, more frequently, become completely necrotic and dwindle to minute cellular spheres detached from the vessels. There is early fibroblastic proliferation in and around the arteries. especially evident about those larger ones in which earlier there were ædema and infiltration of erythrocytes into the vascular walls. These exudative changes are followed by hæmosiderin and fat deposition and proliferative changes. The scar of the infarct instead of being poorly vascularised consists almost entirely of very densely crowded vessels, which are not ordinarily seen in histological section, probably because they readily collapse. (37 photomicrographs.) C. I. C. B.

Homeostatic rôle of renal humoral mechanism in hæmorrhage and shock. A. S. Hamilton and D. A. Collins (Amer. J. Physiol., 1942, 136, 275—284).—Pressor activity of arterial and renal vein blood was studied by determining the change in blood pressure resulting from injection into a nephrectomised recipient. After hæmorrhage pressor responses consistently appeared in blood from normal dogs, adrenalectomised dogs, and in one animal in the denervated kidney. Pressor activity also occurred in blood after histamine injection. The kidney was responsible for the development of pressor activity. Absence of renal circulation impaired the ability of the dogs to maintain arterial blood pressure after hæmorrhage. Intact dogs with blood pressure kept down by hæmorrhage at shock levels for 1[‡] hr. reacted poorly or not at all to injected renin. Nephrectomised dogs under similar conditions gave a response to renin which was slightly greater than the response before hæmorrhage. M. W. G.

Kidney lesions in stillborn and newborn infants. H. H. Friedman, D. M. Grayzel, and M. Lederer (*Amer. J. Path.*, 1942, **18**, 699— 706).—The lesions involve the arterioles and their glomeruli and are associated with hyaline changes in the tufts and capsules; they are bilateral and focal in distribution, congenital, and may be of vascular origin. The condition may be called congenital glomerulosclerosis. (8 photomicrographs.) C. J. C. B.

Renal thrombosis in infancy. M. F. Campbell and W. F. Matthews (J. Pediat., 1942, 20, 604-615).—Report of 2 cases in male infants urologically examined and cured by nephrectomy at 13 and 33 days of age. C. J. C. B.

Acute renal failure after gastric hæmorrhage. D. C. Campbell and J. M. Stickney (*Proc. Staff Mayo Clin.*, 1942, **17**, 145—150).— A 42-year-old man developed renal retention with a blood-urea concn. of 650 mg.-% and -creatine of 24 mg.-% after gastric hæmorrhage. The patient recovered. H. H. K.

Experimental nephritis. M. Gukelberger (Schweiz. med, Wschr., 1941, 71, 1445-1448).—A lecture. A. S.

Renal damage following sulphathiazole therapy.—See A., 1942, III, 840.

Effect of high-protein diets on experimental renal hypertension.— See A., 1942, III, 802.

Acute porphyria. P. I. Hoagland (Proc. Staff Mayo Clin., 1942, 17, 273—280).—Report of two cases with neurologic manifestations. H. H. K.

Tidal irrigation and cystometry of neurogenic bladder. O. W. Stewart (*Lancet*, 1942, 242, 287–289).—A simple apparatus for continuous tidal irrigation and cystometry is described for use in cases of neurogenic bladder. C. A. K.

Secretion of urine by dehydrated and normal infants. W. F. Young and R. A. McCance (Arch. Dis. Childh., 1942, 17, 65-81; cf. A., 1941, III, 447).—Infants aged 1—8 months had kidneys intermediate in functional capacity between those of adults and newborns. Glomerular filtration rates and urea clearances are less than in adults, expressed on the basis of surface area; both vary with the urine min. vols. at normal rates of urine flow. Mineral clearance is lower than in later life. Concn. of urinary solids does not rise as in adults when the urine min. vols. fall. Consequently, infants fail to maintain a const. internal milieu when they pass small vols. of urine. Children dehydrated from diarrhœa or vomiting have no sp. renal lesion; their kidneys function in the normal infantile manner, the abnormalities in their serum chemistry being due to the small amount of water available for excretion.

Urine dilution and concentration tests in adrenalectomised dogs. F. J. Kottke, C. F. Code, and E. H. Wood (Amer. J. Physiol., 1942, 136, 229-243).—Adrenalectomised dogs maintained in good condition on a high-Na-low-K diet without cortical hormone produced as dil. a urine as that from normal animals on the same diet, but were unable during hot weather to produce as conc. a urine as intact T. F. D. animals.

Specific substances in urine of leukæmia patients. F. R. Miller, 50, 115—116).—The CHCl₃ extract previously described (A., 1942, 111, 7; 1941, III, 553) is further purified by washing out inert substances from the dried extract with ether, extracting with NaOH, then with CHCl₃, and finally with light petroleum. V. J. W.

Splitting of combined ascorbic acid of urine. A. B. Sen-Gupta (Ann. Biochem. Exp. Med., 1941, 1, 219-224).—Ascorbic acid in urine acidified with 1% acetic acid is increased by heating on a water-bath for 15 min. in H_2S but not if heated for 1 hr. in CO_2 . If the urine is acidified to $p_{\rm H}$ 1.6 heating in CO₂ produces the same increase as with H₂S. With increasing $p_{\rm H}$ the splitting of combined hickes a source and H_2S . With increasing p_4 cut splitting of combined ascorbic acid decreases more rapidly in an atm. of CO₂ than in one of H₂S. When urine containing 5% H₂SO₄ by vol. is kept for 24 hr. at 33—34° the free and dehydro-ascorbic acids increase while the combined and total ascorbic acid diminish, showing that part of the ascorbic acid is irreversibly oxidised. P. C. W.

Excretion rate of hippuric acid in man. G. P. Schwei and A. J. Quick (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 319-320).—If 2·26 g. of Na hippurate is given intravenously to normal adults, 44% is excreted in 15 min. Excretion is delayed in renal disorders. I.W V

Green pigment-producing compound in urine of pyridoxine-deficient dogs. P. J. Fouts and S. Lepkovsky (Proc. Soc. Exp. Biol. Mcd., 1942, 50, 221-222).-Pyridoxine-deficient dogs secrete the same compound as pyridoxine-deficient rats (A., 1942, III, 76 and develop a more severe anæmia. V. J. W. 762)

Acetonuria. C. A. Sagastume and C. Inda (*Rev. Fac. Cienc. Quim., 1 a Plata*, 1941, 16, 83-85).—In Castiglioni's test (*Z. anal. Chem.*, 1940, 120, 166). 2 drops of 1% furfuraldehyde in 95% alcohol with 1 drop of 10% NaOH is absorbed in starch and placed in the mouth of a test-tube containing 2 ml. of urine, which is boiled for 5 with a the three back is transformed to arother tube containing 2 ml. min., when the starch is transferred to another tube containing 2 ml. of HCl, which is heated until the vapour passes through the starch, giving a persistent red colour with 0.0001% of acetone in urine. The authors obtain colours which are more fugitive, and find positive results after 48 hr. with sterile urines, which when fresh give a negative F.R.G. response.

Determination of urinary coproporphrin I using commercial haematoporphyrin as standard. P. L. Ewing and T. Cornbleet (J. invest. Dermat., 1942, 5, 127–133).—A commercial solution of haematoporphyrin hydrochloride (Photodyne) can be used as a standard for photelometer colour comparisons in urinary copro-C. J. C. B. porphyrin determinations.

Determination of bromide in urine.-See A., 1942, III, 864.

Morphology of crystals in urine during administration of sulphonamides.-See A., 1942, III, 840.

Excretion of specific fluorescent substances in urine in experimental nicotinic acid deficiency.-See A., 1942, III, 832.

Antigenic behaviour of urinary extracts.-See A., 1942, III, 857.

XVI.—OTHER ORGANS, TISSUES, AND BODY-FLUIDS.

Physiological handicaps of premature infant. S. Z. Levine and H. H. Gordon (Amer. J. Dis. Child., 1942, 64, 274-312).—A lecture. C. J. C. B.

Activity of the lizard Cnemidophorus sexlineatus. A. Barden (Ecology, 1942, 23, 336-344).—C. sexlineatus exhibits rhythmic diurnal activity, associated with natural light and temp. fluctuations. The rhythmic activity persists when the lizards are kept at const. temp. in const. darkness and the lizards are not continually active in const. light. In const. light the lizards become active earlier conditions as the days lengthen. The tendency for daytime activity is a species characteristic which may be slightly modified by external factors. L. G. G. W.

than 75% of the time and the animals are active and feed when water than 10 0 of the way of the second sec

L. G. G. W Effect of various humidities at various temperature on early development of four saturnid moths and on weight and water con-

tents of their larve. D. Ludwig and J. M. Anderson (Ecology, 1942, 23, 259-274).-With the four moths Platysamia cecropea (Linnaeus), Telia polyphemus (Cramer), Samia walkeri (Felder and (Linnaeus), Telia polyphemus (Cramer), Samia walkeri (Felder and Felder), and Callosamia promethea (Drury), optimum R.H. for egg hatching varies with temp. With Samia the optimum is 76% at higher temp. $(32 \cdot 5^{\circ})$ but rises to 100% at lower temp. $(15-20^{\circ})$. Low R.H. generally prolonged the egg stage. High R.H. induced water absorption by the eggs whilst at high and low R.H. many larvæ developed but failed to hatch. At low R.H. the eggs de-hydrated, the smaller ones with a greater amount of surface per unit wt. drying most rapidly. At low temp. egg development and water loss from the eggs are retarded. Larvæ developed at high R.H. contained more water and wære largær than those hatched at low contained more water and were larger than those hatched at low R.H. L. G. G. W.

Origin of castes in ants with special reference to Pheidole morrisi, Forel. R. E. Gregg (Ecology, 1942, 23, 295-308).—When P. morrisi is reared from egg to adult in colonies consisting of workers only, soldiers only, or soldiers and workers, a greater proportion of soldiers develop in the worker colonies than in either of the other types. Workers develop equally well in all colonies. Soldier development is inhibited in the presence of soldiers, due, it is sug-gested, to a substance exuded by the "nurses." Soldiers are therefore determined by external factors. L. G. G. W.

Field studies on oxygen requirements of certain fresh-water fishes. W. G. Moore (*Ecology*, 1942, **23**, 319-329).-O₂ tensions of less than 3.5 p.p.m. are in general toxic to *Esox lucius*, *Huro salmoides*, 3.5 p.p.m. are in general toxic to *Esox lucius*, Huro saimoiaes, Popomix sparoides, Perca flavescens, Aplodinotus grunniens, Eupo-motis gibbosus, Ameiurus melas, and Helioperca macrochira at temp. between 15° and 26° whilst tensions of 5 p.p.m. are never toxic. At winter temp. $(0-4^{\circ})$ tensions less than 1.0 p.p.m. are fatal to all the species and tensions of 3.0 p.p.m. or over are non-toxic. Small fish are less tolerant of O₂ deficiency than larger ones of the same species at both low and high temp. At low temp. especially, the effect of low O₂ tension may be delayed so that 48 hr. exposure the effect of low O2 tension may be delayed so that 48 hr. exposure is necessary to demonstrate any effect. L. G. G. W.

Changes in electrical potential of insect pupe prior to emergence. P. V. Rogers (*Yale J. Biol. Med.*, 1942, **14**, 489–492).—The electrical potential readings of 53 pupe of *Samia cecropea* showed a great increase in the potential one day prior to emergence. 21 of these showed a sharp decrease from this peak a few hr. before emergence. F.S.

Incidence of mottled teeth. L. Spira (Lancet, 1942, 242, 649-650).---Mottled teeth, one of the first signs of fluorosis, were found in nearly 22% of 5019 men and women in various parts of this country. C. A. K.

Comparative Rœntgen-ray diffraction study of several natural comparative Renight ray diffraction study of several natural apatites and the apatite-like constituent of bone and teeth substance. W. F. Bale (Amer. J. Roentgenol., 1940, 43, 735–747).—Powder diffraction data are given, confirming Náray-Szabó's structure for fluorapatite. The dimensions of the unit cells of bone, tooth enamel, dentine, hydroxylapatite, and $Ca_3(PO_4)_2$ were identical; they give similar apatite-like patterns which differ from fluorapatite. The portion of bone and tooth substance responsible for its characteristic diffraction patterns. its characteristic diffraction pattern resembles hydroxylapatite. The present X-ray diffraction evidence is consistent with considerable lack of homogeneity in the nature of tooth and bone substance. The carbonate of bone and tooth does not form an integral part of the apatite lattice but is present mainly at boundary and transition regions in the lattice where the apatite structure is imperfectly developed. H. L.

Sphingomyelin in tissues of cat. F. E. Hunter (J. Biol. Chem., 1942, 144, 439-445).—Concns. of sphingomyelin in tissues from cats vary from 0.075 in skeletal muscle to 1.25% in brain. The ratio of sphingomyelin to total phospholipin is 7.5-33.2%. L. L. W.

Nucleotide, nucleoside, and free purine contents of organs. H. K. Barrenscheen and A. Peham (Z. physiol. Chem., 1941, 272, 87-110; cf. Edlbacher and Jucker, A., 1936, 883).—The proportion of the total purine of tissues present as nucleic acid is less than the val. so far accepted and is lower (10%) in the muscle of warm- and cold-blooded vertebrates and invertebrates than in other tissues, the remainder occurring as sol. purines, nucleotides, and nucleosides. Mammalian blood contains only very small amounts of purine in the form of nucleic acid. Kidney and muscle contain approx. 75 and 74%, respectively, of their purine in sol. form, the vals. for brain, liver, spleen, pancreas, and thymus being lower. The sol. portion of the purine of hen's blood constitutes 33% of the total. The ratio of sol. to total purine is highest in those tissues in which glycolysis plays an important part. In human carcinoma, the ratio is relatively high : it is lower in mouse, rat, and fowl sarcoma. The ratio of nucleoside to nucleotide varies greatly from tissue to tissue, the proportion of nucleotide usually increasing in tissue where phosphorylation most occurs. Vals, for the male reproductive organs and sperm of fish are given. The isolation of adenosine triphosphate from rabbit's liver is described. W. McC.

W. McC.

Isolation of carbonyl compounds produced during hydrolysis of tissue. K. Zeile and H. Meyer (Z. physiol. Chem., 1941, 272, 111— 120).—Lævulic acid, acetaldehyde, acetone, and a 3:2 compound, m.p. 146—148°, of propaldehyde with acetaldehyde are produced and isolated as 2:4-dinitrophenylhydrazones when tissues (ox heart, calf lung, Walker carcinoma, Brown-Pearce tumour) are hydrolysed with conc. HCl, 2:4-dinitrophenylhydrazine being added before and after hydrolysis. The val. of $[a]_p$ of glutamic acid, in presence and absence of glycine in amount sufficient to yield as much N as is present in tissues, is not altered by heating at 120° for 8 hr.in 20% HCl with concns. of lævulic acid, acetaldehyde, and propaldehyde equal to those obtained by protein hydrolysis. and propaldehyde equal to those obtained by protein hydrolysis. W. McC.

eggshells from various species of birds are treated with dil. HCl and Na acetate and the acid is extracted with ether shows that, in all cases, the markings contain protoporphyrin which is stable and probably not free. It is liberated by alkali. Some shells which have no markings also contain protoporphyrin which is

contain coproporphyrin. Determination of cystine, tyrosine, and tryptophan in common edible fishes of Bengal. A. Roy and P. B. Sen (Ann. Biochem. Exp. Med., 1941, 1, 321-324).—9 varieties of fish were analysed.

free and rapidly destroyed by light. The feathers of some species

P. C. W. Changes in mineral substances in tissues and organs of fishes. D. P. Kladienko (J. Méd. Ukraine, 1940, 10, 1573-1586).

M. K. M. K. Nutritional investigations on fish. K. C. Saha and N. C. Ghosh (Ann. Biochem. Exp. Med., 1941, 1, 159–164; cf. A., 1940, III, 817).—The % of water, body-fat, protein, ash, total and ionisable Fe, Ca, P, and Cu were determined in 11 further varieties of fish, including 4 sea fish from the Bay of Bengal. The highest fat content (5%) was found in Mugil parsia, the highest protein con-tent (25%) in Barbus (Tor) tor, the highest Ca content (0.8%) in Labeo bata, the highest P content (0.36%) in Colisa fasciata. Chela bacaila contained 0.51 mg.-% of Cu. P. C. W.

Nature of iron in fish tissue. K. C. Saha (Ann. Biochem. Exp. Med., 1941, 1, 195-202; cf. A., 1940, III, 817).—The amounts of Fe liberated from fish tissue by $Na_2S_4O_4$, thiolacetic acid, or $Na_4P_2O_7$ are different and in all cases lower than that obtained after ashing. This is not the case with duck egg yolk. Fe''' forms complexes with fish and eggs but Fe'' does not. Enzymic hydrolysis of fish or egg does not liberate any Fe extractable by trichloroacetic acid. Fe added to fish can be recovered by enzymic hydrolysis that added Fe added to fish can be recovered by enzymic hydrolysis, that added to egg yolk can not. 30-40% of the available Fe in fish meal is present in a stable form which resists the action of pepsin at $p_{\rm H} 2$. P. C. W.

Nature of non-hæmin iron in fish, K. C. Saha (Ann. Biochem. Exp. Med., 1941, 1, 225-234).—Peptic hydrolysis of fish muscle (Labeo rohita) and subsequent washing of the residue with alcohol-ether mixture does not extract 30-40% of the total ionisable Fe of the tissue. The complex contains C, H, N, P, Fe, and Cu. Deter-mination of the N: P: Fe ratio after differing treatments shows these elements present in a fairly const. and stoicheiometric relation in the Fe complex. Fe is combined with a nucleoprotein and the in the Fe complex. Fe is combined with a nucleoprotein and the nucleic acid has been separated from it. Fe in the substance may be liberated by dissolution in dil. alkali or hydrolysis with mineral acids. All the Fe is present in ionisable form and may be determined. Cu can be quantitatively liberated by treatment with 20% trichloroacetic acid. Fe may be liberated by $Na_4P_2O_7$ owing to formation of NaOH during the conversion of the pyro- into orthophosphate. Other chemical properties are described. P. C. W.

Trace elements, especially uranium, in ox liver and spleen. J. Hoffmann (Z. physiol. Chem., 1942, 273, 115-117), --Fluorescence measurements show that these organs contain 8×10^{-6} and 8.95×10^{-6} of U, respectively. Vals. of the same or lower order are given for the U content of drinking water, grass, fruit, seeds, and human and animal organs and body fluids. Ox spleen and liver contain also 10^{-100} C B_{20} W. McC. contain also 10-10% of Ra.

Distribution of arsenic in the body of the American [cock]roach. R. W. Fay (*J. Econ. Entom.*, 1942, **35**, 45-47).--0.0963 mg. of As was fed to each cockroach as aq. Na metarsenite and the quantity was led to each cockroach as aq. Na metarsente and the quantity of As determined in body samples at $\frac{1}{2}$ -hr intervals. The crop wall of the living insect is not readily permeable to sol. As as none appeared in the thorax before $3\frac{1}{2}$ hr. As was detected in the pro-ventriculus, ventriculus, intestines, blood, thorax, abdomen, and rectum 1, $1\frac{1}{2}$, $3\frac{1}{4}$, $3\frac{1}{2}$, $3\frac{1}{2}$ and 6 hr. respectively after feeding. At the time of death from a dose of 0.0963 mg. of As only 11% was absorbed from the gut to effect the kill. A. W. M.

Percentage of water in jelly-fish. A. G. Lowndes (Nature, 1942, 150, 234-235).—Aurelia aurita contains about 96% of water, 3% of salts, a trace of fat, and 4% of protoplasm. A. A. E. of salts, a trace of fat, and 4% of protoplasm.

Sinus gland extirpation in crayfish without eyestalk removal. F. A. Brown, jun. (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 295—297). —Operative details, with diagram, are given for removal of the gland in through the cornea. V. J. W.

Relation between colour and fluorescence of cobra venom. I. Flavin in venom of Bothrops jararaca. A. R. Taborda and L. C. Taborda (Anais Assoc. Quím. Brasil, 1942, 1, 3-10).—The colouring matters isolated from the venom of twelve species of cobra exhibit either a blue or yellow fluorescence; that from B. jararaca is a flavin, F. R. G. probably riboflavin.

Phosphopeptones of caseinogen (lactotyrins). T. Posternak and H. Pollaczek (*Helv. Chim. Acta*, 1941, 24, 1190-1210).—Relatively short pancreatic digestion of caseinogen gives phosphorylated peptides (phosphopeptones I) formed from 10-11 amino-acids peptides (phosphopeptones 1) formed from 10—11 amino-acids and esterified by $3 H_3PO_4$ residues; these are degraded very slowly by the pancreatic enzymes, much more rapidly after enzymic dephosphorylation. Much more prolonged pancreatic digestion leads to more degraded peptides (phosphopeptones II). The simplest compound obtained has the composition of a heptapeptide esterfied by $3 H_3PO_4$ groups. Contrary to Schmidt (A., 1934, 100, esterned by 3 H_3PO_4 groups. Contrary to Schmidt (A., 1934, 540), a dipeptidephosphoric acid is not formed. Hydrolysis of the phosphopeptone II gives serine, glutamic acid, and *iso*leucine, whilst phosphopeptone I yields also aspartic acid; the three H_3PO_4 residues are attached to serine. Phosphopeptones deaminated by HNO₂ give glyceric acid after hydrolysis; after dephosphorylation, they are attacked by IO_4' with formation of formaldehyde and NH₃. A serinephosphoric acid residue is therefore attached to the extremity of the chain carrying the free amino-group. Kidneythe extremity of the chain carrying the free amino-group. Kidneyphosphatase completely dephosphorylates phosphopeptone II under conditions that cause the loss of only two phosphorylated residues from phosphopeptone I. Intact phosphopphopeptones are unaffected by aminopeptidase, but are degraded after enzymic dephosphoryl-ation. It is considered that in phosphopeptone I two consecutive phosphoserine residues are at the extremity of the chain carrying the free amino-group; the third phosphorylated residue is attached to the central portion of the chain. In the phosphopeptone II, his third phosphosering is near the other extremity of the particle this third phosphoserine is near the other extremity of the peptide chain. The formation of phosphopeptones is due essentially to obstruction of the action of the pancreatic enzymes by the phos-phorylated residues. H. W. phorylated residues.

Carbohydrate residue in ovomucoid. II.-See A., 1942, II, 397.

XVII.—TUMOURS.

Quantitativê studies on tumour production in mice by benzpyrene, R. G. Gottschalk (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 369-373), -4 μ g. in 0.5 c.c. of olive oil caused tumour formation in 1 mouse out of 9. 400 μ g. in 0.125—1 c.c. of oil caused tumours in 40– 55%, and in 0.0625—0.015 c.c. in 10—25%. V. J. W.

Osteosis cutis in methylcholanthrene epidermal carcinogenesis in mice. R. E. Stowell and W. Cramer (*Arch. Dermat. Syphilol.*, 1942, 46, 276–282).—4 cases are reported of osteosis of the skin adjacent to anaplastic carcinomas in Swiss mice painted on the back with 0.6% solution of 20-methylcholanthrene in benzene. C. J. C. B.

Effect of certain split products of carcinogenic azo-dyes on melanin formation. A. K. Baker, B. E. Kline, and H. P. Rusch (*Proc. Soc. Exp. Biol. Med.*, 1942, 59, 361-363).—Formation of melanin by tyrosinase was interfered with by p-aminoacetanilide, β -naphthylamine, p-aminobenzoic acid, and sulphanilamide, but not by paminodimethylaniline, p-phenylenediamine, methyl-p-phenylenedi-amine, or p-aminophenol. V. J. W.

Failure of yellow O.B. to produce neoplasms. K. Sugiura (Proc. Soc. Exp. Biol. Med., 1942, 50, 214-215).-1-o-Tolylazo-2-naphthyl-amine produced no cirrhosis or neoplasms in livers of rats which ingested 7-12 mg. daily for 78-250 days. V. J. W.

Chemical aspects of cancer. C. P. Rhoads (J. Mt. Sinai Hosp., E. M. J. 1942, 9, 1-10).-A lecture.

Glucose injections and local cancer production. A. Meier (Schweiz. Z. Path. Bakt., 1942, 5, 226-237).—Nishiyawa's results (cf. A., 1938, III, 671) could not be confirmed. No malignant growths 1938, 111, 671) could not be confirmed. No malignant growths were seen in 106 rats given several monthly courses of daily sub-cutaneous injections into the same site of 1-2 c.c. of 5 or 50% glucose solution. 6 of 20 rats injected similarly with glucose and 1 c.c. of a 3% emulsion of methylcholanthrene in olive oil developed a sarcoma at the site of the methylcholanthrene deposit. E. M. J.

Carcinomatous transformation in a transplantable rat fibroadenoma. F. R. Selbie (Brit. J. Exp. Path., 1942, 22, 61-68).—Transplants of the fibroadenoma have become carcinomatous and transplants of carcinomata so obtained have produced fibroadenomata on transplantation, (14 microphotographs.) E. B.

Transplantation of an adenocarcinoma of preputial gland in mice of the A strain. L. C. Strong (Cancer Res., 1942, 2, 332-334).--An adenocarcinoma of the preputial gland occurred sporadically in a mouse of the Strong A strain. The tumour was successfully grafted into 56 male mice of the A strain through 5 transfer generations with 100% takes. F. L. W.

Transplantation of kidney carcinoma from adult frogs to tadpoles. R. Briggs (*Cancer Res.*, 1942, **2**, 309—323).—Kidney adenocarcinoma of the adult frog (*Rana pipiens*) was transplanted in 163 tadpoles. Implantation was successful at the following sites : (1) subcutaneous tissue of trunk (7 cases); (2) mesenchyme of dorsal tail fin (27 cases); (3) adjacent to the kidney (2 cases); (4) liver (1 case); and (5) body cavity (1 case). 180 control tadpoles implanted with normal kidney tissue developed no tumours. Tumours in the trunk subcutaneous tissue grew well and in 2 cases survived metamorphosis unaltered. Tumours in the tail ceased growth and regressed during later stages in the development of the host tadpoles. F. L. W.

Fluorescent porphyrins in Harderian glands and susceptibility to spontaneous mammary carcinoma in mice. F. H. J. Figge, L. C. Strong, L. C. Strong, jun., and A. Shanbrom (*Cancer Res.*, 1942, 2, 335—342).—Mice of strains with high susceptibility to mammary cancer show more intense red porphyrin fluorescence of the Harderian glands than do mice belonging to strains with low susceptibility. The close parallelism between the degree of red fluorescence and the degree of cancer susceptibility in over 750 mice of 16 different strains supports the hypothesis that there is a direct or indirect relationship between porphyrin metabolism and the factors that determine cancer susceptibility. F. L. W.

Sex hormones in mammary cancer. J. H. Farrow and H. Q. Woodard (*J. Amer. Med. Assoc.*, 1942, **118**, 339–343).—In 3 cases of mammary cancer with secondaries in bone, injections of testo-sterone propionate raised serum-Ca and urinary excretion of Ca; cestrone acted similarly in 2 cases and with both hormones there were clinical and X-ray signs of increased metastatic activity. In 2 cases of mammary cancer without bone involvement testosterone and cestrone had no effect on serum-Ca. Secondaries in bone with other sites of primary tumours also showed spontaneous disturbances of serum-Ca levels. C. A. K.

Reciprocal infection of ducks and chickens with tumour-inducing viruses. F. Duran-Reynals (*Cancer Res.*, 1942, 2, 343-369).--Ducks could be infected with extract of the Rous sarcoma provided that the animals were injected within 24 hr. after hatching with large doses of virus, preferably intravenously. Of 109 ducklings 22% developed lesions. Immediate lesions developed within 30 days, late lesions were found after several months. Extracts from immediate tumours reproduced in chickens the disease usually induced by Rous virus, but these extracts were ineffective in ducks. Extracts from the late tumours induced no sarcomas in chickens but brought about a generalised disease in other ducks. 4 more strains of duck tumours were obtained by repeated passages of tumour cells through young ducks starting with a cell suspension of the Rous tumour. F. L. W.

Electrophoretic analysis of anti-papilloma rabbit serum. D. G. Sharp, A. R. Taylor, D. Beard, and J. W. Beard (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 358–360).—Electrophoretic pattern is unchanged by inoculation with virus or growth, but where growths are present on the skin the pattern shows an abnormal β component which is ether-sol, and not related to papilloma antibodies.

Study of papilloma virus protein with electron microscope. D. G. Sharp, A. R. Taylor, D. Beard, and J. W. Beard (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 205–207).—Photomicrographs suggest that the virus particles are spherical and have a diameter of 44 m μ .

V. J. W.

Cytoplasmic nucleotide in tumour cells. T. Caspersson, C. Nyström, and L. Santesson (*Naturwiss.*, 1941, **29**, 29–30).—The ultra-violet absorption spectra of the cytoplasm of active cells from colon, stomach, and breast carcinomata show the presence of nucleotides (probably as ribonucleotides) in amounts greater than those occurring in the corresponding healthy cells (cf. A., 1940, III, 853). F. O. H.

Nucleoprotein-phosphorus content of benzpyrene sarcoma tissue in rats. P. Rondoni (Schweiz. med. Wschr., 1941, 71, 1364—1365). —The nucleoprotein-P content (method of Javillier and Allaire) of benzpyrene sarcoma in rats is 5 times that of normal tissue; that of liver in sarcomatous rats is slightly increased. A. S.

Cholesterol content of normal and enlarged prostates. G. I. M. Swyer (*Cancer Res.*, 1942, 2, 372—375).—Adenomatous zones of enlarged prostates contain a high concn. of cholesterol and the cholesterol concn. of enlarged prostates is higher than that of normal prostates. The adenomas of enlarged prostates contain twice as high a concn. of cholesterol as the remainder of the prostate. F. L. W.

Abnormalities in distribution of biotin in certain tumours and embryo tissues. P. M. West and W. H. Woglom (*Cancer Res.*, 1942, 2, 324-331).—Malignant tumours differ widely in their biotin content from the corresponding normal tissues. Biotin levels of embryo tissues diverge widely from those of normal adult tissues, the major shift from embryonic to adult vals. occurring in the rat within 3 days after birth. Biotin contents of both tumour and embryo tissues deviate in the same direction from the corresponding normal adult levels. Attempts to raise the general biotin content of animals by injection of biotin concentrate were unsuccessful because of rapid excretion of the excess of vitamin. F. L. W.

Polarographic investigations of proteins. V. Serum ultrafiltrates and the Prager cancer test. C. Tropp and F. Geiger (Z. physiol. Chem., 1942, 272, 134—143).—Although the polarographs of $CoCl_2$ — NH₄Cl-aq. NH₃ buffer solution containing protein-free ultrafiltrate from the serum and plasma of cancer patients are usually lower than those of healthy persons, the difference is not sufficiently great to render Brdička's test (A., 1937, III, 205, 342) sp., especially as polarographs similar to those obtained in cancer are also obtained in other diseases. The polarographs of the ultrafiltrates, which closely resemble that of cysteine, are compared with those of *iso*cysteine, glutathione, diglycyldi-*l*-leucyl- and dileucyldiglycyl-*l*cystine, and p-iodophenylmercapturic acid; the active substance of the ultrafiltrates is probably glutathione. The increase in the height of the polarographs in kidney disease corresponds with the increase in residual N. W. McC.

Effect of potassium on growth of normal and malignant cells in tissue culture. R. Tennant and A. A. Liebow (Yale J. Biol. Med., 1942, 14, 553-560).—When K is substituted for Na in equimol. amounts to the extent of 40 m-equiv. per l., colonies of normal embryonic mesenchyme and of heart tissue of new-born mice increased more slowly in surface area than controls. With similar concns. of K two mouse mammary carcinomas increased more rapidly. The response of two mouse sarcomas was intermediate. F. S.

Respiration of human keratoses and epitheliomas. J. C. Amersbach, E. M. Walter, and E. S. Cook (*Arch. Dermat. Syphilol.*, 1942, 46, 269–275).—In most cases there was a depression in the respiration of the precancerous lesions and of the epitheliomas.

C. J. C. B. Boeck's sarcoid with nodular iritis in a child. P. S. Thornhill and E. H. Thornhill (*Amer. J. Dis. Child.*, 1942, 64, 262–269).—A case report. C. J. C. B.

Primary liver-cell carcinoma in infancy. W. J. Tomlinson and E. Wolff (*Amer. J. clin. Path.*, 1942, 12, 321-327).—Report of 2 cases, 1 showing calcification. (5 photomicrographs.)

C. J. C. B. Leukæmoid reaction (hyperleukocytosis) in malignancy. L. M. Meyer and S. D. Rotter (*Amer. J. clin. Path.*, 1942, 12, 218—222).— In the 2 cases reported almost all the cells were polymorphs with few myelocytes. C. J. C. B.

 Kaposi's sarcoma.
 E. E. Aegerter and A. R. Peale (Arch. Path., 1942, 34, 413-422).

 A.crit. survey.
 C. J. C. B.

Radiation cancer. S. M. Silverstone (J. Mt. Sinai Hosp., 1942, 9, 74-83).—A review. E. M. J.

Sarcoma of skin of neck following Roentgen therapy in Graves' disease. E. E. Arnheim (J. Mt. Sinai Hosp., 1942, 9, 84-86).--Case report. E. M. J.

Recent trends in cancer research. H. B. Andervont (Minnesota Med., 1942, 25, 697-703).—A review. E. M. J.

Changes in retention of copper and iron in liver and spleen in chronic diseases accompanied by secondary anæmia.—See A., 1942, III, 796.

XVIII.—NUTRITION AND VITAMINS.

Influence of plane of nutrition on relationship between basal metabolism and endogenous nitrogen metabolism. Influence of previous regimes of protein feeding on endogenous nitrogen metabolism of rats.—See A., 1942, III, 835.

Nutrition in carcinogenesis.-See A., 1942, III, 823.

Social aspects of infant feeding. I. Gordon (Arch. Dis. Childh., 1942, 17, 139—146). C. J. C. B.

Influence of prenatal diet on mother and child. J. H. Ebbs, F. F. Tisdall, and W. A. Scott (*J. Nutrition*, 1941, 22, 515-526).— Poor prenatal diets are associated with increased proportions of miscarriages, still-births, and premature births. The health of the child up to 6 months is directly affected by the maternal prenatal diet. A. G. P.

Dietary requirements for fertility and lactation. XXVIII. Lactation-promoting properties of cystine when added to case in diets. XXIX. Existence of a new dietary factor essential for lactation. B. Sure (J. Nutrition, 1941, 22, 491–498, 499–514).—XXVIII. Rations containing starch, salt mixture, purified case in, and yeastprotein as source of vitamin-B, together with various oils and fats under examination, failed to meet the requirements for lactation in rats. Supplementary feeding of cystine (0.2% of the ration or 20-40 mg. daily) induced satisfactory lactation.

XXIX. Good growth of rats was obtained with diets in which the -B complex was supplied as pure thiamin, riboflavin, pyroxidine, pantothenic and nicotinic acids, and the W factor from liver extracts. Such diets even with enhanced proportions of -B constituents were inadequate for reproduction or lactation. Modification of the salt mixture used improved reproduction but not lactation. Rice bran and liver extracts contained a factor $-B_x$ which ensured normal lactation in 90% of cases examined. Components of " $-B_x$ " include p-aminobenzoic acid or a related compound and, probably, inositol. A. G. P.

Utilisation by calves of energy contained in balanced rations composed of combinations of different feeds. H. H. Mitchell and T. S. Hamilton [with W. T. Haines] (J. Nutrition, 1941, 22, 541-522).--Metabolism and respiration trials with 4 mixed rations of the same proximate chemical analysis but containing different ingredients showed these rations to be equally well utilised by calves. Supporting evidence is obtained for the hypothesis that the extent to which the metabolisable energy of foods is used for maintenance or tissue synthesis is not a function of the constituent feeding stuffs but depends immediately or eventually on the adequacy of the combination of the digestible nutrients in covering the requirement of tissues for nutriment. A. G. P.

(A) Digestibility and biological value of whole wheat bread as compared with white bread. J. R. Murlin, M. E. Marshall, and C. D. Kochakian. (B) Apparent digestibility of carbohydrates, fats, and "indigestible" residue in whole wheat and white breads. R. R. Sealock, D. H. Basinski, and J. R. Murlin (*J. Nutrition*, 1941, 22, 573-588, 589-596).-(A) Whole wheat breads in general showed lower digestibility but a higher biological val. than white breads. The biological val. of the latter was improved by use of highvitamin yeast.

(B) When used for human consumption the higher indigestible residue of whole wheat than of white bread has no influence on the digestion or absorption of carbohydrates and fats in the diet.

A. G. P

Digestibility of national wheatmeal. H. A. Krebs and K. Mellanby (*Lancet*, 1942, 242, 319—321).—6 adult male volunteers were given 480—700 g. of national wheatmeal or white flour of 75% extraction daily, and dry wt. and N content of the faces were determined. With the former flour 94% of dry matter and 89% were digested, with the latter the figures were 97% and 91% respectively, the differences being smaller than those assumed by Wright (B., 1941, III, 333). C. A. K.

Biological value of proteins in wheat flours. H. Chick (Lancet, 1942, 242, 405-407).—The biological val. of various flours—wholemeal (100% extraction), National wheatmeal (85% extraction), and white flour (75% extraction)—was determined by measuring the wt. increase of young rats whose protein intake was provided by the flour alone. The wt. increases in g. per g. of protein ingested over a 5-week period were $1\cdot6$ — $1\cdot77$ for wholemeal, $1\cdot54$ — $1\cdot67$ for wheatmeal, and $1\cdot21$ — $1\cdot48$ for white flour. From N loss in the faces it was calc. that the digestibility of wholemeal and wheatmeal was 6% and 3% respectively less than for white flour, but these losses were more than compensated by greater nutritive val.

C. A. K.

Nutritive value of proteins in pea nut (Arachis hypogæa, L.; occurrence of d-threonine (a-amino- β -hydroxy-n-butyric acid) in the protein. M. Macheboeuf and F. Tayeau (Compt. rend., 1942, 214, 37—39).—Pressed pea-nut cake contains the proteins arachin and conarachin, which contain 2.9 and approx. 12% respectively of threonine. Arachin is poor in tryptophan, methionine, threonine, and perhaps isoleucine, but conarachin contains sufficient of all the indispensable amino-acids, and the mixture of the two proteins, as it occurs in the pressed cake, supports growth of rats. The meal prepared from the cake is non-toxic and can supplement a human diet deficient in meat. J. N. A.

Increase of P.P.-vitamin in human milk after ingestion of nicotinamide. A. Lvov, L. Digonnet, and H. Dusi (*Compt. rend.*, 1942, 214, 39-40).—After ingestion of 600 mg. of nicotinamide during 48 hr., the content of vitamin in the milk is increased over 200%. I. N. A.

Action of amino-acids on growth. O. C. Oehme (*Naturwiss.*, 1941, 29, 725).—Glycine, *l*-leucine, or *l*-tyrosine in daily doses of 10 mg. per 100 g. body-wt. lowers the metabolic rate and increases the R.Q.; tryptophan, *l*-histidine, or *l*-valine increases the metabolic rate and lowers R.Q. in adult guinea-pigs, rats, cats, and dogs; pairs of substances with opposed effects, given simultaneously, annul one another. In the growing animal, amino-acids which lower metabolic rate promote growth. This effect is abolished by simultaneous administration of an antagonistic amino-acid (rats and rabbits). A. S.

Replaceability of *dl*-methionine in diet of rats with its *a*-keto-acid analogue. W. M. Cahill and G. G. Rudolph (*J. Biol. Chem.*, 1942, 145, 201-205).—Oral administration of Na *a*-keto-y-methylthiolbutyrate effectively promotes growth of young rats. The prep. of the acid from *a-bromopropionylmethionine*, m.p. $111\cdot5-112\cdot5^{\circ}$ (corr.), by a method involving chemical oxidative deamination is described. J. N. A.

Effect of certain organic compounds and other dietary supplements on perosis. T. H. Jukes (J. Nutrition, 1941, 22, 315–326).—Acute choline deficiency induced by a special diet of glucose, casein, dried yeast, gelatin, soya-bean and fish oils, and minerals resulted in slow growth and perosis in white Leghorn chicks. Perosis did not develop when gelatin or creatine was omitted from the diet or when casein was replaced by meat scrap. Inclusion of casein and meat induced perosis. Addition of 0.1% of choline to the basal diet prevented perosis but methionine (0.5%) was without effect. The antiperotic activity of soya-bean oil and meat scrap was removed by extraction with alcohol. (Cf. A., 1942, III, 827.) A. G. P.

Choline and prevention of hæmorrhagic kidneys in rats. J. M. Patterson and E. W. McHenry (*J. Biol. Chem.*, 1942, **145**, 207– 211).—When rats are maintained on a basal low-choline diet, they show loss of wt., paralysis of hind limbs, loss of hair, and hunched posture. The kidneys are much enlarged and hæmorrhagic, whilst the livers are slightly larger than those of animals receiving choline and show typical fatty infiltration. The kidneys contain a decreased concn. of phospholipins. Renal hæmorrhages can be prevented by administration of triethylcholine or choline. Hence the hæmorrhages may be due to failure of formation of phospholipin in the liver and consequent deficiency in the kidney. J. N. A.

Choline deficiency in rats of various ages. R. W. Engel (Proc. Soc. Exp. Biol. Med., 1942, 50, 193-196).—Rats weaned at 23 days and placed on a choline-deficient diet required 5 mg. of choline daily to prevent death from renal hæmorrhage. The need for choline continued throughout the period of rapid growth.

V. J. W. Effect of protein intake on absorption of calcium and magnesium. R. A. McCance, E. M. Widdowson, and H. Lehmann (*Biochem. J.*, 1942, **36**, 686—691).—A high level of protein in the diet increases the absorption of Ca and Mg, and probably also slightly facilitates absorption of P. There is no corresponding effect on Fe absorption. These findings provide an additional reason for high-protein diets during pregnancy and lactation. Nevertheless, a high-protein diet cannot replace a satisfactory amount of Ca. P. G. M.

Pathological effects produced by deficiency of single metallic and non-metallic elements. R. H. Follis, jun. (Arch. Path., 1942, 34, 451-468).—The elements reviewed shortly were K, S, Zn, Cu, Mg, Na, I, Co, Mn, Ca, Cl, and P. C. J. C. B.

Calcium in adult diet. T. Moran and J. B. Hutchinson (*Chem. and Ind.*, 1942, 416—417).—Calculations of Ca contents of milk, cheese, other foodstuffs, and drinking water gave a "national average" intake of 645 mg. of Ca per head per day. Most recent recommendations are for a daily intake of 800 mg. of Ca by the adult. By the Ministry of Food decision the difference between the figures is to be made up by addition to flour of 62 mg. of CaCO₃ (Creta præparata B.P.) per 100 g., an amount which increases the total daily intake of Ca to 825 mg. This form of CaCO₃ has no effect on bread quality, does not increase $p_{\rm H}$ which would tend to cause bread to rope, and does not interfere with normal destruction of phytic acid during baking. Difficulties in assessing both actual and optimum intakes of Ca are discussed. R. H. H.

Utilisation of the calcium of cauliflower and broccoli. M. L. Fincke (J. Nutrition, 1941, 22, 477–482).—With a diet in which nearly all the Ca was supplied as dried milk the Ca utilisation factor for rats was 0.87 ± 0.017 . When half the milk-Ca was replaced by that from dried broccoli or cauliflower the factors were 0.79 ± 0.018 and 0.69 ± 0.020 , respectively. A. G. P.

Deficiency disease of bones [in chicken]. H. Barbey (Schweiz. Z. Path. Baht., 1941, 4, 121-166).—Addition of Ca to the diet of chickens which had developed "osteomalacia" while deprived of minerals in diet or soil produced changes characteristic of generalised osteitis fibrosa. E. M. J.

Calcium nutrition of foetus .- See A., 1942, III, 814.

Magnesium studies in calves. II. Effect of magnesium salts and various natural feeds on magnesium content of blood-plasma. C. F. Huffman, C. L. Conley, C. C. Lightfoot, and C. W. Duncan (J. Nutrition, 1941, 22, 609-620).—Basal rations consisting of whole milk, supplemented with Fe, Cu, and Mn, with or without starch or carbohydrate-rich cereal products, caused hypomagnesæmia in calves. An intake of 12-15 mg. of Mg per kg. body-wt. maintained plasma-Mg levels when small amounts of maize, lucerne, or maize-gluten meal were included in the ration. When Mg salts were added to the basal ration as Mg source the requirement was 39-40 mg. of Mg per kg. body-wt. The Mg in lucerne ash was less effectively utilised than that in lucerne hay. A. G. P.

Iron exchanges on white and brown bread diets. E. M. Widdowson and R. A. McCance (*Lancet*, 1942, 242, 588-591).—Fe balances of 4 men and 4 women were studied for 9-12 months. The Fe

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losses with menstruation in 3 women ranged from 3.6 to 28 mg. (average). Fe was absorbed when white flour constituted 40-50% of the total calories, but was not absorbed from similar diets when white flour was replaced by one of 92% extraction. This may be due to the presence in brown bread of phytic acid and inorg. PO_4''' which ppt. insol. Fe compounds. C. A. K.

Potassium requirement of growing pigs. E. H. Hughes and N. R. Ittner (J. Agric. Res., 1942, 64, 189–192).—K is necessary for normal growth of young pigs. The min. daily requirement lies between 1.18 and 2.25 g. per 100 lb. live-wt. A. G. P.

Cobalt deficiency in Michigan cattle.—See B., 1942, III, 235.

Dietary chloride deficiency and alkalosis in rats. D. M. Greenberg and E. M. Cuthbertson (J. Biol. Chem., 1942, 145, 179–187).—Rats maintained on a diet extremely low in Cl' (0.012% or less) for 15 weeks show no marked signs of deficiency. There is no evidence of tetany, but they gain less in wt. and eat more food than do controls. The whole blood-Cl' in the deficient rats is significantly less than that in controls, being 252 and 295 mg.-% respectively, whilst the total CO₄ content is significantly higher, the vals. being 72:3 and 57:8 vol.-%, respectively. No difference exists between the $p_{\rm H}$ of whole blood of deficient and control animals, but there is a tendency for a higher $p_{\rm H}$ in the former. On a Cl'-deficient diet, rats conserve their Cl' by reducing the urinary output a few hr. after being given the diet, and they excrete only 0.5–1.2 mg, of Cl' per day, compared with 110–170 mg. for the controls.

Assimilation of fluorine by rats from natural and synthetic cryolite and from cryolite-sprayed fruits. M. Lawrenz and H. H. Mitchell (J. Nutrition, 1941, 22, 451-462).—Retention by rats of F from ingested synthetic cryolite was greater than that from the natural mineral, probably because of its greater solubility. Assimilation of natural cryolite on sprayed fruit was not appreciably affected by weathering; that of synthetic cryolite diminished, possibly through leaching out of the more sol. constituents. The waxy coating developing on sprayed apples may decrease the assimilability of cryolite. A relation between fineness of grinding of cryolite and the availability of its constituent F is indicated. A. G. P.

Relative assimilation of fluorine from fluorine-bearing minerals and food (tea) and from water and food. M. Lawrenz and H. H. Mitchell (J. Nutrition, 1941, 22, 621-631).—At low levels of intake (9-12 p.p.m.) of F in drinking water NaF was not more assimilable by or toxic to rats than was CaF_2 , but was more easily assimilated than F in green tea or rock phosphate. NaF administrated in water was 21% more completely assimilated than when given in food.

A. G. P.

The nation's food. V. Meat as food. 4. The mineral and vitamin content of meat. A. L. Bacharach (*Chem. and Ind.*, 1942, 404—406, 474).—Tables, adapted from "The Vitamin Content of Meat," by Waisman and Elvehjem, showing figures for the fat-sol. and water-sol. vitamins of meat and meat offals are given. The mineral and vitamin contents of meat are discussed with reference to human requirements. R. G. W.

Rôle of vitamins in physiology and pathology of metabolism. M. Guggenheim and R. Silberschmidt (Schweiz. med. Wschr., 1941, 71, 1261-1265).—A review. A. S.

Action of vitamins on nervous centres. P. Chauchard (Compt. rend., 1942, 214, 130-133).—After intra-peritoneal injection of vitamins, measurements of chronaxie in adequately fed rats, rabbits, and guinea-pigs show that correct functioning of various nervous centres directly depends on the provision of appropriate amounts (equal to those required to prevent deficiency) of vitamins and that excess or deficiency of these produces characteristic changes (stimulation and/or depression) in nervous excitability. In some cases antagonism or synergism amongst vitamins is observed. The extent and duration of the changes usually depend on the dose of vitamin. W. McC.

Vitamin therapy of muscular dystrophy.—See A., 1942, III, 804. Effect of experimental avitaminoses on osseous labyrinth.—See A., 1942, III, 807.

Causation of hypovitaminoses in pregnancy. H. Guggisberg (Schweiz. med. Wschr., 1941, 71, 1265-1267).--A review. A. S.

Red hair (erythrotrichia), a deficiency symptom in the black rat. K. Schwarz (*Naturwiss.*, 1942, **30**, 264—265).—Black rats fed on a diet deficient in vitamin-A, -C, -D, and -E develop reddish hair after 8—9 weeks. This can be prevented by substitution of butter for maize oil in the diet, and abolished by a weekly dose of 50 µg. of β -carotene, 1 µg. of $-D_2$, 50 µg. of a-tocopheryl acctate, and 20 µg. of 2-methylnaphthaquinone in 0-025 c.c. of ethyl laurate. Apart from the colour, this deficiency syndrome differs from achromotrichia in its localisation in the tail, leg, and bridge of the nose, and from the rustiness which develops in albino rats by the microscopic appearance of greasiness in the fur of the head, neck, and fore paws.

P. G. M. Vitaminised oil. U. P. Basu (Ann. Biochem. Exp. Med., 1941, 1, 165-168).—Aëration reduces the vitamin-A content of cod-liver oil and vitaminised olive oil more rapidly than that of vitaminised arachis oil. Addition of quinol (0.2%) to the arachis oil confers stability under these conditions so that there is only 10% loss of potency during 120 hr. aëration. P. C. W.

Distribution of vitamin-A in experimental liver damage. H. Popper, F. Steigmann, and H. A. Dyniewicz (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 266—268).—In CCl₁ poisoning, vitamin-A can be seen by fluorescence in the damaged but not the undamaged parts of the rat's liver. The damaged areas take it up faster and release it more slowly when it is administered. V. J. W.

Cutaneous lesions due to vitamin-A deficiency and their response to treatment. J. V. Straumfjord (Northw. Med., 1942, 41, 229-233).—A review. E. M. J.

Interrelationships of vitamins-A and -E. K. C. D. Hickman, P. L. Harris, and M. R. Woodside (*Nature*, 1942, 150, 91-92).— The effect of vitamin-E, over a wide range of dosage, on the growth of young rats, depleted of -A but receiving a fixed dosage, was studied. There is an optimal supplement of tocopherols, 0.1 mg. per day for -A and 0.5 mg. per day for carotene; the mutual effect persists with high levels of -A intake and is most apparent when the vitamins are fed simultaneously. The anti-sterility test for -E was influenced by carotene administration. E. R. S.

Dark adaptometer and blood vitamin-A measurements in a North Carolina nutrition survey. M. E. Yarbrough and W. J. Dann (J. Nutrition, 1941, 22, 597-607).—In single tests mild avitaminosis-A is best detected by means of the blood-A level: a single test of dark adaptation is inadequate. Blood-A and -carotene levels are somewhat lower in rural populations than in other groups of normal individuals. A. G. P.

Influence of components of vitamin-B complex on recovery from fatigue. E. E. Foltz, A. C. Ivy, and C. J. Barborka (J. Lab. clin. Med., 1942, 27, 1396—1399).—Thiamin, cocarboxylase, riboflavin, and parenteral vitamin-B complex given intravenouslase influence on recovery from voluntary muscular fatigue in 5 subjects receiving "adequate" nutrition. C. J. C. B.

Glucose administration and vitamins-B. J. L. Bollman (Proc. Soc. Exp. Biol. Med., 1942, 50, 18-22).—Young rats after 2-3 weeks on a vitamin-B-free diet lived 7-16 days when fed exclusively on glucose. Daily injections of 0.1 mg. of thiamin hydrochloride increased this survival time 2-4 times. Other B-vitamins had no effect. V. J. W.

Influence of vitamin-B complex deficiency and partial starvation on wound healing. J. C. Holden and G. Crile (Arch. Surg., Chicago, 1942, 44, 1106—1110),—Rats maintained on a diet deficient in vitamin-B complex lost 33% of their wt.; on the 8th postoperative day experimental wounds were not as well healed as those of controls. On the 10th day the wounds were as well healed as those of controls. Rats on a low-caloric diet lost 35% of their wt. and on both the 8th and 10th postoperative days their wounds had failed to heal as well as those of controls. Wound healing in the rat is more closely related to changes in body wt. than to deficiencies of -B complex. F. S.

Differences in behaviour of rats and mice towards deficiencies of certain members of the vitamin-B complex. J. R. Foy and L. R. Cerecedo (J. Nutrition, 1941, 22, 439-450).—A vitamin-B-deficient diet supplemented with thiamin and riboflavin did not produce in mice a sp. dermatitis comparable with that in rats nor did mice show a growth response to supplementary feeding of pyridoxine. Mice developed a non-sp. dermatitis on a diet containing all known factors of the -B complex except pantothenic acid. A -B-free diet supplemented with thiamin, riboflavin, pyridoxine, and filtrate factor produced 60% of normal growth in mice; the latter showed no deficiency lesions during an experimental period of 100 days.

A. G. P. Effect of vitamin-B complex deficiency on gastric emptying and small intestinal motility.—See A., 1942, III, 816.

Influence of vitamin-B deficiency on experimental liver necrosis. -See A., 1942, III, 819.

Vitamin assay methods. I. Vitamins of the B complex group. II. The C, A, D, E, and K groups. E. E. Wood (Canad. Chem., 1942, 26, 489-494, 553-556).—A review.

Aneurin and carbohydrate metabolism in diabetics. E. Kodicek (Lancet, 1942, 242, 501-502).—Statistical studies in 32 diabetics showed that aneurin does not affect fasting blood-sugar vals. or increase the response to insulin. C. A. K.

Non-specificity of aneurin in fat synthesis. F. W. Quackenbush, H. Steenbock, and B. R. Platz (*J. Biol. Chem.*, 1942, **145**, 163— 167).—Aneurin does not prevent rapid loss of total fat in rats on a diet deficient in other *B*-vitamins, and it is no more effective than the others in increasing the total fat content of rats. On a highcarbohydrate-low-fat diet, a normal deposition of fat is prevented by a deficiency of pyridoxine or pantothenic acid as well as by a deficiency of aneurin. The effectiveness of a supplement in restoring normal fat synthesis in deficient rats is apparently determined by the completeness with which it supplies essentials lacking in the tissues as well as in the basal diet. Production of fat in the animal body cannot be considered as a function of any single dietary essential unless it is proved to the exclusion of others. J. N. A.

Vitamin-B₁-deficiency and oxygen consumption in rats. V. S. Hermann (Z. physiol. Chem., 1941, 272, 23–28).—In young rats during vitamin-B₁ deficiency, O₂ consumption decreases, at first slowly and then, shortly before death ensues, rapidly, the final vals. being often less than half of the initial val. In the early and late stages of the deficiency, slight increases in the val. are observed but the initial val. is never re-attained. The rapid final decrease is due W. McC. to inanition.

Antineuritic activity of homologues and analogues of vitamin- B_1 . II. F. Schultz (Z. physiol. Chem., 1941, 272, 29—51; cf. A., 1942, III, 154).—Repetition, with 3 of the compounds previously tested, of curative tests with pigeons on a rice diet or a synthetic diet deficient in vitamin- B_1 shows that genuine $-B_1$ effects (not mere mobilisation of $-B_1$ reserves) are produced by these compounds, which effect two or more successive curves in the same pigeon and which effect two or more successive cures in the same pigeon and render $-B_1$ -deficient diets capable of maintaining normal life and health. The compounds act in the organism without previous conversion into $-B_1$, their power to maintain life being proportional to the ratio of their activity to that of $-B_1$. Tests with two compounds, differing considerably from $-B_1$ in structure but having non-sp. effects resembling that of $-B_1$, show that successive cures in the same pigeon and maintenance of normal life and health in pigeons on $-B_1$ -deficient diets are not effected by such compounds which, accordingly, have W. McC. no genuine $-B_1$ action.

Thiamin hydrochloride, an obligate wheal-producing agent. F. Kalz (J. invest. Dermat., 1942, 5, 135-146).—Thiamin hydro-chloride injected intradermally in 30 patients gave a histamine-like reaction in all cases. Thus a positive intradermal test with this drug is not conclusive proof of individual sensitivity.

C. J. C. B. Effect of thiamin deficiency in diabetic and non-diabetic rats. C. W. Styron, H. St. G. Tucker, jun, A. F. Rhodes, T. C. Smith, and A. Marble (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 242-245).— Deficiency symptoms developed at the same rate in depancreatised and normal rats. 3 out of 5 diabetic thiamin-deficient rats showed improved glucose tolerance after administration of 0.2 mg, of thiamin daily. V. J. W. daily.

Subarachnoid injection of thiamin in cats; unmasking of brain lesions by induced thiamin deficiency. G. Odom and D. McEachern (Proc. Soc. Exp. Biol. Med., 1942, 50, 28-31).—Injection of thiamin, whether subarachnoid, intravenous, or intramuscular, causes equally rapid recovery in thiamin-deficient cats. Subarachnoid injections may cause meningeal irritation. Spasticity and convulsions occurred in cats where they were made thiamin-deficient after surgical brain brains lesions and symptoms disappeared on thiamin administration. V. J. W.

[Bowel in] B_1 -avitaminosis. J. Gershon-Cohen, H. Shay, and S. S. Fels (*Amer. J. Roentgenol.*, 1941, 46, 876–881).—Rats on vitamin- B_1 -deficient diets showed radiologically gastrointestinal hypotonicity, dilatation, and stasis, not accounted for by associated H. L. loss of body-wt.

Use of biotin for stimulating growth of nerve tissue and other cells in vitro.—See A., 1942, III, 804.

Phosphorylation and absorption of aneurin by yeast.-See A., 1942, III, 849.

Tests with vitamin- B_1 on established plants and on cuttings.—See A., 1942, III, 861.

Nutritional glossitis and vitamin- B_2 therapy. F. M. Purcell (*Trans. Roy. Soc. trop. Med. Hyg.*, 1942, 35, 323–326).—The successful treatment of 6 cases of superficial glossitis with synthetic ribed extension in the flow of the fl riboflavin is described. C. J. C. B.

Riboflavin absorption in pernicious anæmia. C. E. Meyer, I. F. Burton, and C. C. Sturgis (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 251-252).—In 12 patients with pernicious anæmia, urinary excre-251—252).—In 12 patients with perincipus antenna, tion of 5 mg., was tion of riboflavin, before and after oral administration of 5 mg., was the same as in normal subjects. V. J. W. the same as in normal subjects.

Dermatitis and loss of hair in lactoflavin-deficient and fat-free diets. B. von Euler, H. von Euler, and I. Säberg (*Naturwiss.*, 1942, 30, 266).—Margarine, the fatty acids of which contain 8—10% of linoleic and linolenic acids, in doses of 1 g. per day causes full growth of hair after 5 weeks but does not affect the dermatitis that occurs in rats fed on an otherwise adequate diet lacking vitamin- B_2 . This fat factor, which aggravates a lack of $-B_2$, also has the character of a vitamin. P. G. M.

Riboflavin content of tumour tissues.-See A., 1942, III, 824.

Effect of light on riboflavin solutions. Effect of sunlight on re-duced and unreduced solutions. C. M. O'Malley and C. W. Sievert (Ind. Eng. Chem., 1942, 34, 1117-1118).—Destruction by sunlight

of riboflavin in 2 extracts of naturally occurring product and one of synthetic material is diminished to small limits in the cold, if the riboflavin is kept in the reduced state by Na2S2O4; reoxidation is effected by air. A. T. P.

Factors affecting micro-biological riboflavin determination. M. I. Wegner, A. R. Kemmerer, and G. S. Fraps (*J. Biol. Chem.*, 1942, 144, 731-735; cf. A., 1942, III, 831).—When acid extracts of whole wheat flour are made alkaline and irradiated with electric light, a factor (or factors) which stimulates acid production by *Lactobacillus* casei in Snell and Strong's method of riboflavin determination (A., 1939, III, 736) is produced. Addition of such extracts to the basal medium does not remedy the difficulties encountered in obtaining trustworthy riboflavin vals. for cereal products. Another factor which greatly increases the max, acid production previously attained by L. casei occurs in rice bran, wheat bran, and whole wheat flour but this factor also cannot be employed to remedy the difficulties since response cannot be standardised when it is added to the medium. response cannot be standardised when it is added papain. The factors are not destroyed by taka-diastase and papain. W. McC.

Growth stimulants in the microbiological assay for riboflavin and pantothenic acid. J. C. Bauernfeind, A. L. Sotier, and C. S. Boruff (*Ind. Eng. Chem.* [Anal.], 1942, 14, 666-671).—Stimulants exist in certain foodstiffs for the growth of L. casei used in the micro-biological assays for riboflavin and pantothenic acid when suboptimum amounts of the vitamin are present in the assay medium. These stimulants are discussed, together with methods of avoiding their effects, such as the use of clarified aq. extracts, extraction of the dried sample with lipin solvent, or the inclusion of photolysed or alkali- or acid-treated extract of the product to be assayed in the riboflavin or pantothenic acid assay medium respectively.

J. D. R. Alcoholic beriberi heart. J. C. Bowe (Lancet, 1942, 242, 586-587).-2 cases are recorded. C. A. K.

Infantile beriberi and beriberi heart. H. S. Stannus (Lancet, 1942, 242, 756-759).-A review. C. A. K.

Pellagra [and adrenal cortex]. C. A. Hellwig and L. H. Forman (Amer. J. clin. Path., 1942, 12, 210-217).—A 38-year-old woman died of pellagra associated with signs suggesting Addison's disease. There was marked atrophy of the adrenal cortex with loss of lipin. C. J. C. B. (8 photomicrographs.)

Minimal requirements of nicotinic acid. E. Kodicek (Lancet, 1942, 242, 380-381).-Studies of the literature suggest that the min. requirement of nicotinic acid to prevent pellagra in man is 8-10 mg. daily. An average diet with white bread contains about 9 mg.; if wholemeal or 85% wheatmeal is substituted the nicotinic acid intake increases to over 12 mg. daily. C. A. K.

Nicotinic acid deficiency in dogs. A. E. Schaefer, J. M. McKibbin, and C. A. Elvehjem (*J. Biol. Chem.*, 1942, **144**, 679-685).—A highly purified casein-sucrose diet for dogs supplemented with thiamin, riboflavin, pantothenic acid, and choline produces an uncomplicated nicotinic acid deficiency and is suitable for assay of the latter in food materials. The daily requirement of nicotinic acid, calc. by single dose feedings, is 200-225 and $250-365 \mu g$. per kg. for adult dogs and young growing puppies, respectively. The response of the nicotinic acid-deficient dog to nicotinic acid, nicotinamide, dried liver, and liver extract powder is inhibited by sulphapyridine feeding but is overcome by fresh liver. H. G. R.

Stability of nicotinic acid and its urinary excretion. N. C. Ghosh (Ann. Biochem. Exp. Med., 1941, 1, 235-238).-Dil. aq. solutions are quickly contaminated at room temp. with bacteria, and nicotinic acid disappears. The rate of disappearance is max. at $p_{\rm H}$ 3—5; it is stable at $p_{\rm H}$ 8.5. 8 adult Bengali males (non-smokers) excreted $3-5\cdot3$ mg, of nicotinic acid in the urine per day whilst 2 boys of 5 excreted $2\cdot7$ and $1\cdot4$ mg. These vals. are the same as those for P. C. W. British individuals.

Urinary excretion of nicotinic acid in various dermatoses. S. I. Greenberg (J. invest. Dermat., 1942, 5, 139–141).—In 16 dermato-logical patients, the urinary excretion of nicotinic acid was within normal limits. C. J. C. B.

Test for nicotinic acid deficiency in man. W. A. Perlzweig, H. P. Sarett, L. H. Margolis, M. Stenhouse, and F. Spilman (*J. Amer. Med. Assoc.*, 1942, **118**, 28-30).—In normal subjects after oral or intravenous administration of 500 mg. of nicotinamide there was a large increase of nicotinic acid and trigonelline excretion in 12-hr. urine. The increase was much less in hospital patients and this was attributed to a smaller degree of nicotinic acid saturation. C. A. K.

Nicotinamide in human milk.—See A., 1942, III, 815.

Effects of pyridoxine on persistent adolescent acne. N. Jolliffe, L. A. Rosenblum, and J. Sawhill (*J. invest. Dermat.*, 1942, 5, 143— 147).—Oral administration of pyridoxine, 50—250 mg. daily, was effective in improving the skin of 27 of 37 patients with perisistent post-adolescent acne vulgaris. In many of the subjects so treated a marked reduction in the silicone of the slip. a marked reduction in the oiliness of the skin, even in some cases to the point of actual dryness and scaling, was noted. C. J. C. B.

Effect of biotin on reproduction in fowl. W. W. Cravens, E. E. Sebesta, J. G. Halpin, and E. B. Hart (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 101-104).--Maintenance on a diet deficient in biotin diminished by 80% the hatching % of pullets' eggs. Egg production was not affected. V. J. W.

X-Ray diffraction measurements on biotin.-See A., 1942, I, 390.

Pantothenic acid in nutrition of pig. E. H. Hughes (J. Agric. Res., 1942, 64, 185—187).—Pantothenic acid is essential for normal growth of young pigs. Deficiency symptoms include sub-normal appetite, slow growth, emaciation, lack of normal co-ordination ("goose-stepping"), loss of hair in some cases, gastritis, and involvement of the large intestine. A. G. P.

Pantothenic acid and utilisation of glucose by living and cell-free systems.—See A., 1942, III, 836.

Pantothenic acid in metabolism of Proteus morganii.—See A., 1942, III, 854.

Relation of pantothenic acid and succinic acid to growth of microorganisms.—See A., 1942, III, 851.

(A) Nutritional achromotrichia in rats. K. Unna, G. V. Richards, and W. L. Sampson. (B) Inefficacy of hormones in nutritional achromotrichia in rats. C. W. Mushett amd K. Unna (J. Nutrition, 1941, 22, 553—563, 565—571).—(A) Black and piebald rats on a vitamin-B (complex)-free diet supplemented with thiamin, ribo-flavin, nicotinic acid, pyridoxine, and choline show greying of fur, retardation of growth, nasal inflammation, "blood-caked" whiskers, and adrenal hæmorrhages in 3-7 weeks. Supplementary feeding of $100 \, \mu$ g, of Ca pantothenate prevents these symptoms or effects a cure in 4-6 weeks. The curative effects of liver and rice-bran are parallelled by their pantothenic acid content.

In 4--0 weeks. The curative effects of liver and rice-bran are parallelled by their pantothenic acid content.
(B) A vitamin-B-free diet supplemented by thiamin, riboflavin, nicotinamide, pyridoxine, and choline, and by daily administration of adrenal cortical extract (0.25 and 0.5 c.c.), deoxycorticosterone acetate (2.5 mg.), thyroid (1, 5, and 10 mg.), and anterior pituitary extract (0.25 and 0.5 c.c.) from the beginning of the dietary regime did not prevent greying of the fur and other symptoms of deficiency of pantothenic acid. Similarly supplemented diets failed to restore the colour to hair rendered grey by a deficient diet. A. G. P.

Biochemical changes in experimental scurvy. K. R. Nair (Ann. Biochem. Exp. Med., 1941, 1, 179–186).—Urinary excretion of total N, NH₃, and uric acid is unchanged during scurvy. There is decreased output of creatinine and increased creatine excretion. The glucose tolerance is lowered and the glycogen content of the liver increased. P. C. W.

State of vitamin-C nutrition in pulmonary tuberculosis. S. K. Roy and M. N. Rudra (Ann. Biochem. Exp. Med., 1941, 1, 307— 310).—Saturation tests were performed on 60 tubercular patients. One group of 30 received 3 daily doses of 70 mg. of ascorbic acid per stone body-wt., the remaining 30 receiving the equiv. dose of ascorbic acid contained in the dried pulp of Indian gooseberries (Emblica officinalis). Approx. 1500 mg. of the acid were ingested before there was any significant rise in urinary output in 45% of cases. Ascorbic acid contained in the gooseberry pulp appeared to be more effective than the synthetic product. P. C. W.

Effect of orange juice on assimilation of calcium and histological structure of developing teeth. D. N. Mullick and B. Ahmad (Ann. Biochem. Exp. Med., 1941, 1, 147—150).—Rats fed on a vitamin-C-deficient diet showed sub-normal Ca utilisation as shown by the width of the pre-dentine in the teeth. Addition of 1 mg. of ascorbic acid per day slightly improved Ca utilisation; addition of 2 ml. of orange juice daily resulted in normal Ca utilisation. P. C. W.

Vitamin-C content of blood and periodontal disturbances. C. H. Blockley and P. E. Baenziger (*Brit. Dent. J.*, 1942, **73**, 57–62).— Certain periodontal disturbances with gum inflammation show low blood-ascorbic acid levels and cannot be cleared up without ascorbic acid therapy (200–300 mg. daily). C. J. C. B.

Action of *l*-ascorbic acid on uterus and heart. E. Rothlin (*Schweiz.* med. Wschr., 1941, 71, 1308—1313).—Intravenous injection of 5— 200 mg. per kg. body-wt. of ascorbic acid in guinea-pigs, rabbits, and cats has no effect on uterus or blood pressure. The contractility of the guinea-pig's and rat's uterus and of the small and large intestine in rats, guinea-pigs, and rabbits *in vitro* is increased. Rate and force of contraction of the isolated frog's heart are increased by doses of 1: 20,000-50,000. If blood or serum is used instead of Ringer's solution the *in vitro* effects of ascorbic acid on uterus and frog's heart disappear. The *in vitro* action in Ringer's solution was observed only in well oxygenated preps.; pitocin or histamine acts in the absence of O₂. A. S.

Effect of ascorbic acid, calcium ascorbate, and calcium gluconate on regeneration of bone in rats. G. Bourne (*Quart. J. Exp. Physiol.*, 1942, **31**, 319—331).—The formation of temporary membrane bone after drilling a hole 1 mm. diameter into the femur was studied in rats. The regenerated trabeculæ were excised in a standard area and weighed. Groups of animals received 50 mg. of Ca ascorbate, 45 mg. of ascorbic acid, 5 mg. of Ca gluconogalactogluconate, or 45 mg. of ascorbic acid plus 5 mg. of Ca gluconate. Only subcutaneous injection of Ca ascorbate increased the amount of bone regenerated in 7 dogs. A. S.

Ascorbic acid content of human Fallopian tube during menstrual cycle and pregnancy. C. A. Joël (Schweiz. med. Wschr., 1941, 71, 1286—1287).—The Giroud-Leblond technique was used for histochemical ascorbic acid tests. Little was found in the proliferative phase; in the secretory phase (18th—26th day of cycle) the ascorbic acid content increases; the ascorbic acid content of the Fallopian tube is also increased during pregnancy. Chemical analysis showed 18:3-48:4 mg. per 100 g. in the proliferative, 56:7-76:0 in the secretory phase; during pregnancy the vals. were 63:5-68:1. The ascorbic acid content of blood varied between 0.82 and 2.20 mg.-%, without correlation to menstrual cycle or pregnancy.

Vitamin-C in infection : effect of administration of ascorbic acid on urinary excretion of combined ascorbic acid by normal and tubercular subjects and guinea-pigs. S. Banerjee and B. C. Guha (Ann. Biochem. Exp. Med., 1941, 1, 239-256).—Urinary excretion of combined ascorbic acid in tuberculous patients is unaffected by the administration of 700 mg. of ascorbic acid as a single dose. Combined ascorbic acid disappears from the urine of normal subjects I-3 days after daily ingestion or injection of 700 mg. of ascorbic acid per stone body-wt, the excretion of free ascorbic acid being quickly increased. The same treatment produces slower effects in tubercular patients. Combined ascorbic acid is absent from the urine of normal or scorbutic guinea-pigs receiving large injections of ascorbic acid (100 mg. per day). The ratio of combined to free ascorbic acid in the urine of guinea-pigs is increased in scurvy. P. C. W.

Vitamin-C survey of medical students. G. E. C. Francis and A. Wormall (*Lancet*, 1942, **242**, 647—648).—Saturation tests for vitamin-C were done in 52 medical students in summer 1939 and again in 1941, when the degree of unsaturation had increased on an average by about 1.5 g. of the vitamin. C. A. K.

Vitamin-C levels of school-children and students in wartime. L. J. Harris (Lancet, 1942, 242, 642—644).—The saturation test showed that children at a poor-class elementary school and at a well-conducted residential institution had lower levels of vitamin-C reserves in 1941 than in 1938—39, although the latter children were still higher than the former. The lowest levels occurred after the winter. Supplements of synthetic -C increased the levels. The -C reserves of middle-class university students and scientific workers were less affected than those of the poorer children. C. A. K.

Saturation method for determining vitamin-C levels. L. J. Harris (Lancet, 1942, 242, 644—646).—The reliability of the saturation test for vitamin-C levels is discussed and many objections are answered. C. A. K.

Ascorbic acid content of aorta. G. Berencsi and G. Sipos (Magyar Orv. Arch., 1940, 41, 376–377).—The ascorbic acid content of all tissues or regions of the aorta is the same. A. W. M.

Rôle of vitamin-C and phosphatase in bone formation.—See A., 1942, III, 821.

Absorption of ascorbic acid in human small intestine.—See A., 1942, III, 816.

Vitamin-C in central nervous system of rat and guinea-pig.—See A., 1942, III, 805.

Oxidising effects of acidified oxyhæmoglobin solutions on vitamin-C.—See A., 1942, III, 893.

Influence of ascorbic acid on oxidation of tyrosine by ultra-violet irradiation.—See A., 1942, III, 845.

Influence of vitamin-C produced by bacteria on growth of tetanus bacilli.—See A., 1942, III, 854.

Vitamin-C from green tomatoes. F. Wokes and J. G. Organ (*Nature*, 1942, **150**, 523—524).—When tomatoes are pulped, 92% of the vitamin-C may be destroyed in 7 min. in green tomatoes, but only 27% in ripe red tomatoes. The enzymes responsible are conc. in the skin and flesh. The -C content does not increase appreciably during ripening, and is the same for small as for large fruit. A. A. E.

Vitamin-C in rose hips. M. Pyke and H. R. Melville (*Biochem. J.*, 1942, **36**, 336—339).—A survey of the vitamin-C content of the flesh of the ripe hips of a no. of roses grown in Great Britain (including foreign varieties) shows that many common species contain over 1% of -C, and that species indigenuous to Scotland and northerm England contain more -C than roses commonly found in southerm England. J. H. B.

Comparison of chemical and biological methods for determining vitamin-C in cabbage juice. A. B. Sen-Gupta, B. B. Sarker, and B. C. Guha (Ann. Biochem. Exp. Med., 1941, 1, 187-194).-Different vols. of cabbage juice estimated to contain 0.25 mg. of ascorbic acid by 3 different chemical methods were fed daily to 3 groups of guinea-pigs on a scorbutic diet; a 4th group was given 0.25 mg. of pure ascorbic acid. The tooth method showed that the results with the cabbage juice determined by the hot-H₂S method (Sen-Gupta and Guha, A., 1940, III, 236) were closest to those obtained with the pure ascorbic acid. The results obtained by the trichloro-acetic acid extraction method were significantly different.

P. C. W.

Histochemical vitamin-C test in uterine mucous membrane. G. Wolf-Heidegger (Schweiz. med. Wschr., 1941, 71, 1345—1348).— Using the Giroud-Leblond technique, ascorbic acid was found intracellularly in the epithelium and connective tissue cells of the tunica propria of the uterus in rats and guinea-pigs. The granules were found in close relationship to the Golgi apparatus. In the resting phase and in metœstrus the ascorbic acid content was low. Much vitamin-C was found in pro-œstrus and œstrus. Chorionepithelium in pregnant animals, cells of the amniotic sac, and histiocytes of the uterus wall were rich, uterine mucous membrane epithelium poor, in ascorbic acid. A. S.

Vitamin-P in blackcurrants. A. Pollard (*Nature*, 1942, 150, 490-491).—Besides providing a rich source of ascorbic acid, blackcurrants contain considerable quantities of vitamin-P. The concentrate (separation described) has an activity 100 times that of recryst. hesperidin and 10 times that of water-sol. "citrin" from oranges. Wild rose hips afford a material of similar chemical behaviour. A. A. E.

Biological determination of vitamin-P activity. A. L. Bacharach and M. E. Coates (Analyst, 1942, 67, 313-317).--Measurement of crit. petechial pressures of guinea-pigs (A., 1942, III, 765) is used as the basis of a "4-point assay" of vitamin-P preps. A citrus concentrate is taken as laboratory standard with a conc. of 1000 units per g. Recryst. hesperidin (93% pure by ultra-violet absorption) gave 95 units per g. and a blackcurrant concentrate gave 10,600 units per g. Probable limits of error are given for these assays. A simplification of the method using only 12 animals in 3 groups is described and its limitations are indicated. The variance ratios for observers, animals, and positions on the animals indicate that the difference between observers is small but that readings should be taken in comparable positions on each animal. S. B.

Effect of low-calcium and vitamin-D-deficient diet on bones and teeth of mature rats. A. P. Lund and W. D. Armstrong (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 363-365).—In the Ca-deficient rats the composition of the teeth did not differ from that in controls, but the Ca and P of the humerus in terms of unit vol. of bone was decreased by 10%. V. J. W.

Experimental production of congenital skeletal abnormalities in offspring of rats fed a deficient diet. J. Warkany and R. C. Nelson (*Amer. J. Roentgenol.*, 1942, 47, 889—893).—Developmental arrest and malformation of bones were found in one third of the offspring of rats fed on Steenbock and Black's rachitogenic diet supplemented every 10th day by 60 i.u. of vitamin-D; they were prevented by adding 2% of pig liver to the diet. H. L.

Vitamin-D in treatment of infectious arthritis. C. H. Slocumb (Ann. int. Med., 1942, 16, 241–245).—Large doses of vitamin-D were beneficial in 7 of 14 patients suffering from infectious arthritis. A return of symptoms usually occurred after discontinuing the treatment. There was no correlation between clinical improvement and toxic renal manifestations. In 11 patients who benefited from the treatment, blood-Ca increased. The most frequent toxic sign was gastrointestinal disturbance. A. S.

Absence of hypervitaminosis-D in mice subjected to ultra-violet radiation.—See A., 1942, III, 845.

Meeting the vitamin-D requirement of pigs with lucerne hay and winter sunshine. D. W. Johnson and L. S. Palmer (J. Agric. Res., 1941, 63, 639-648).—Rachitic pigs were cured by exposure during Jan. and Feb. to sunshine for an average of 45 min. per day for 2 weeks. Pigs fed indoors and allowed access to outdoor runs did not receive sufficient solar radiation during Dec.—Jan. Rachitogenic rations supplemented with 5% of a lucerne hay containing 0.39 i.u. of vitamin-D per g. caused rickets. Cures were effected by substituting a lucerne hay containing 1.46 i.u. of -D per g. A similar ration in which the lucerne hay contained 0.85 i.u. of -D per g. did not cause rickets or cure rachitic pigs. The -D requirement of pigs was inversely proportional to the Ca and P contents of the ration. A. G. P.

a-Tocopherol requirement of rat for reproduction in the female and prevention of muscular dystrophy in young. M. Goettsch and A. M. Pappenheimer (J. Nutrition, 1941, 22, 463—476).—Female rats receiving a vitamin-E-deficient diet +2.5 mg. of a-tocopherol at the beginning of gestation produced litters of normal size but 90% of the surviving progeny developed muscular dystrophy at the end of lactation. 0.5 mg. of a-tocopherol fed at the 15—17th day of lactation largely prevented muscular dystrophy in the surviving young. The anti-sterility and anti-dystrophic potencies of natural and synthetic tocopherol and of the synthetic acetate were similar. Parenterally administered a-tocopherol is less active than that given orally. A. G. P.

Effect of a-tocopherol on specific dynamic action of glycine. A. Hottinger (Schweiz. med. Wschr., 1941, 71, 1276—1281),—The sp. dynamic effect of orally administered glycine (0-25 g. per kg. body-wt.) in subjects kept for 3 days on a pure carbohydrate diet was 23.6% (10—49%); the R.Q. is lowered, sometimes to 0.7. 90 mg. of a-tocopherol per day was added to the carbohydrate diet. In most cases the metabolic rate was lowered and the sp. dynamic action of glycine depressed or abolished. The creatinuria, seen after ingestion of glycine, disappeared. A. S.

Curative effect of tocopherol acetate on degenerative uterine changes in *E*-avitaminotic rats. V. Demole (*Schweiz. med. Wschr.*, 1941, 71, 1251—1253).—*E*-avitaminosis in rats produces characteristic changes in the sarcoplasm of the uterus with accumulation of pigmented granules. These changes can be abolished by daily administration of 2 mg. of tocopherol acetate over 80 days. Anterior pituitary extracts were ineffective. A. S.

Influence of lack of vitamin-E on the activity of choline-esterase. H. Bloch (*Helv. Chim. Acta*, 1942, **25**, 793-797).—The cholineesterase content of the brain, serum, and liver of E-avitaminotic female rats is below the normal; this can be nearly rectified by addition of dl-a-tocopherol acetate to the -E-free diet. H. W.

Tocopherol and stability of carotene. F. W. Quackenbush, R. P. Cox, and H. Steenbock (J. Biol. Chem., 1942, 145, 169–177).— Daily supplements of 5 μ g. of carotene in ethyl linoleate do not produce growth in young rats deficient in vitamin-A, but growth occurs when a distillate from soya-bean oil is administered simultaneously. The protective factor is probably a tocopherol, and a-tocopherol is effective in a concn. of 0.01 to 0.03%. Vitamin-K, pyrogallol, pyrocatechol, and quinol are inactive at 0.02%, but quinol is quite active at 1.0%. a-Tocopherol and quinol are equally effective antioxidants for carotene in linoleate *in vitro*, and the low protective action of quinol *in vivo* is probably due to its extraction from the gastro-intestinal tract. It is suggested that the instability of carotene in oily solution in presence of O₂ may be overcome by use of lipophilic antioxidants, *e.g.*, tocopherols. J. N. A.

Photometric determination of tocopherol. G. G. Villela (*Rev. Brasil. Biol.*, 1941, 1, 285-291).—The technique of determining the tocopherol content of oils and pharmaceutical preps. by a photometric method is described. I. C.

Tocopherol content of milling products from wheat, rye, and barley and influence of bleaching.—See B., 1942, III, 239.

Reactions of 2-methyl-1: 4-naphthaquinone with whole blood and plasma studied by means of a rapid colorimetric method. J. V. Scudi and R. P. Buhs (J. Biol. Chem., 1942, 144, 599-606).—A colorimetric method for the determination of 2-methyl-1: 4-naphthaquinone, which is directly applicable to the determination of Na 2-methyl-1: 4-naphthaquinone-3-sulphonate, has been devised on the basis of the reaction with cysteine in alkaline solution; the accuracy of the method is $\pm 3\cdot6\%$. Both the free and conjugated forms of the naphthaquinone are irreversibly oxidised in air. With plasma, addition reactions with the plasma-proteins take place; with whole blood, methæmoglobin formation occurs, 70-90% of the naphthaquinone being converted into a water-sol. product, which is devoid of antihæmorrhagic activity, within 5 min. after admixture with the blood. J. L. E.

Purpura due to vitamin-K deficiency in anorexia nervosa.—See A., 1942, III, 798.

Yeast extracts to overcome depressant effects of germicide on skin respiration. E. S. Cook, C. W. Kreke, M. R. Eilert, and M. A. Sawyer (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 210–214).—1% aq.alcoholic yeast extract protects rat skin against injurious effects of 1:10⁵ phenylmercuric nitrate determined by *in-vitro* O₂ consumption. Germicidal activity against *Staph. aureus* is not impaired. V. J. W.

XIX.—METABOLISM, GENERAL AND SPECIAL.

Temperature characteristics for respiration in newt under chloretone and nembutal anæsthesia. L. E. Gordon and M. Pomerat (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 202—205).—In newts anæsthetised with chloretone, temp. characteristic was 17,200 throughout the range examined. In anæsthesia with nembutal it was 22,080 from 6.5° to 16.5°, and 10,100 from 17° to 21°. V. J. W.

Calorimeter for measuring heat loss of premature infants. R. Day and J. D. Hardy (Amer. J. Dis. Child., 1942, 63, 1086-1095).

 Party and J. D. Hardy (Hme). J. Dist. Comm., 1942, 65, 1050–1050.

 C. J. C. B.

 Post-shock metabolic response.

 D. P. Cuthbertson (Lancet, 1942, 242, 433–436).—A lecture.

 C. A. K.

Interaction of blood-proteins of rat with dietary nitrogen. R. Schoenheimer, S. Ratner, D. Rittenberg, and M. Heidelberger (J. Biol. Chem., 1942, 144, 541-544).--When the isotopic amino-acids

dl-tyrosine, *d*- and *l*-leucine, and glycine are administered orally to rats, they react continuously with the body- and serum-proteins. The reactions occur rapidly and presumably while the serum-proteins are in contact with organ cells. The rate of this process of " regeneration" of plasma-proteins is approx. the same as that for the proteins in kidney, liver, and intestinal tract, and all fractions of the plasma-protein, viz., fibrinogen, euglobulin, pseudoglobulin, and albumin, react to approx. the same extent. Under the same conditions, the protein and porphyrin of hæmoglobin react only slightly with dietary amino-acids. J. N. A.

Effect of amino-acids on phosphate transfer in muscle extract. H. Lehmann and L. Pollak (*Biochem. J.*, 1942, **36**, 672—685).— That the activating and accelerating effect of amino-acids on $PO_4^{\prime\prime\prime}$ transfer in muscle is due to the NH₂-group is shown by the fact that primary amines are also effective, whilst compounds with a substituted NH₂-group (*e.g.*, ornithine, choline) are inactive. Compounds containing a SH-group, *e.g.*, thiolacetic acid, show a similar activity, and compounds, like cysteine, which contain both SH and NH₂ groups are active in lower concn. Although the rate of phosphagen formation by adenyl pyrophosphate in rabbit muscle extract is increased by arginine etc., the final equilibrium is unaltered. Keto-acids and acetamide are inactive. Undialysed extracts are more active at alkaline $p_{\rm H}$ than dialysed extracts, but the latter may be activated by addition of boiled extracts. The effect of active amino-acids is inhibited by cystine. P. G. M.

Significance of sulphur-containing amino-acids in metabolism. H. B. Lewis (*Harvey Lectures*, 1940-41, Ser. 36, 159-187).—A review. E. M. J.

Chemical processes, especially metabolism of ammonia, of developing eggs of sea-urchin.—See A., 1942, 111, 810.

Arsenic analogue of choline as component of lecithin in rats fed arsenocholine chloride. A. D. Welch and R. L. Landau (J. Biol. Chem., 1942, 144, 581—588).—Analysis of the reineckate and Au salt fractions obtained from rats fed with arsenocholine chloride shows that, in the biosynthesis of lecithin, arsenocholine can replace choline, the As being present in the lecithin in the form of the As analogue of choline. The significance of this finding is discussed, it being suggested that the intact mol. of choline, and not its labile methyl groups, is responsible for its lipotropic, and possibly its antihæmorrhagic and antiperotic, properties. J. L. E.

Sterols. CXLVII. Sapogenins. LXI. Bio-reduction of steroids. R. E. Marker, R. B. Wagner, and P. R. Ulshafer (J. Amer. Chem. Soc., 1942, 64, 1653-1655).—When fed to dogs on a biscuit diet, diosgenin, sarsasapogenone, and tigogenone are excreted as smilagenin, sarsasapogenin, tigogenin, and their *epi*-isomerides. This confirms the hypothesis of Schoenheimer (cf. A., 1942, II, 265).

R. S. C. -Fat metabolism in rat acrodynia.—See A., 1942, III, 834.

Vitamin-B complex and fat metabolism .- See A., 1942, III, 829.

Carbohydrate combustion in man after administration of glucose. H. F. Root and T. M. Carpenter (*Arch. intern. Med.*, 1942, **69**, 997– 1004).—50 g. of glucose was given by mouth or intravenously to 4 normal men. The R.Q. was raised equally by both methods of administration; oral administration gave an insignificantly higher carbohydrate combustion and increase in heat production, but intravenous injection produced greater sugar excretion in the urine. C. A. K.

Effect of added glucose in diabetes. J. A. Greene and L. W. Swanson (J. Amer. Med. Assoc., 1942, 118, 364—368).—Addition of glucose to the diet of 56 patients with controlled diabetes showed increased utilisation of carbohydrate, with reduced insulin requirements in 18. Similar results were noted in 36 uncontrolled diabetics. Studies of patients in the metabolism chamber showed that the utilisation of added carbohydrate was not explained by oxidation of the sugar or by increased insulin secretion. C. A. K.

Hereditary diabetes insipidus. M. Ellermann (Acta Psychiat., Kbn., 1939, 14, 233—241).—Report of a family with numerous cases in 4 generations (simple dominant transmission). H. L.

Biochemical factors in inflammation and diabetes mellitus.—See A., 1942, III, 797.

Rôle of pyruvate in metabolism of ethyl alcohol. W. W. Westerfeld, F. Stotz, and R. L. Berg (*J. Biol. Chem.*, 1942, **144**, 657–665). —Oral administration of Na pyruvate to dogs that have received alcohol 4—6 hr. earlier increases the rate of metabolism of alcohol by 200%. *dl*-Alanine has a similar effect and this is correlated with its metabolic conversion into pyruvate. Determination of bloodpyruvate shows that there is more rapid utilisation of pyruvate during metabolism of alcohol and simultaneous disappearance of alcohol and pyruvate. It is suggested that alcohol is oxidised to acetaldehyde which condenses with pyruvate to form acetoin. This mechanism of alcohol metabolism explains the high incidence of polyneuritis and pellagra in chronic alcoholism, because the oxidation requires the nicotinamide co-enzyme whilst the condense ation requires diphosphoaneurin, and so the demand for these two vitamins is considerably greater than normal. J. N. A.

Practical aspects of water balance. E. Hull (New Orleans Med. J., 1942, 94, 521-527). E. M. J.

Electrolyte and water exchange between skeletal muscle and plasma in dog following acute and prolonged extracellular electrolyte loss. R. C. Mellors, E. Muntwyler, and F. R. Mautz (J. Biol. Chem., 1942, 144, 773-784).-In adult male dogs, acute loss of extracellular electrolyte accompanied by only small change in total water content of the body results in transfer of water from the extra- to the intra-cellular compartment of muscle and in decrease in the " excess " Na of the intracellular contents. The intracellular K content undergoes little or no change. If replacement of the lost extracellular electrolyte is prevented, the intracellular hydration and extracellular dehydration resulting from the loss persist for 5-6 days and, during this period, the Na content of the blood plasma and the "excess" Na concn. in the intracellular contents tend to become normal whilst the intracellular K concn. remains unchanged. When loss of water accompanies loss of extracellular electrolyte, the direction of fluid exchange in muscle is usually predictable from the water and Na contents of the blood plasma. The Na content of the extracellular fluid controls the water exchange between the extra- and intra-cellular compartments of muscle, this exchange being the chief factor in the maintenance of uniform osmotic pressure. W. McC.

Plasma volume changes and "available (thiocyanate) fluid" in experimental dehydration. R. C. Mellors, E. Muntwyler, F. R. Mautz, and W. E. Abbott (*J. Biol. Chem.*, 1942, **144**, 785—793).— During dehydration in dogs, extracellular fluid lost is derived mainly from the interstitial fluid and to a slight extent only from the plasma so that plasma vol. is sustained by interstitial fluid. In the early stages of dehydration there is usually a deficit in plasma vol. but sometimes the vol. is maintained at the expense of interstitial fluid. The deficit is sometimes detected by determining the plasma-protein concn. and the hæmatocrit val. but frequently, especially after prolonged dehydration and consequent malnutrition, such detection is not possible. W. McC.

Absorption and excretion of zinc. R. A. McCance and E. M. Widdowson (*Biochem. J.*, 1942, **36**, 692-696).—The normal urinary excretion of Zn is approx. 0.3 mg. per day, irrespective of oral intake or intravenous injection, and almost all the Zn in the diet is excreted in the faces. The urinary excretion of Zn in patients with albuminuria is approx. 7 times the normal. P. G. M.

Pigment formation and diamine metabolism. P. Robert and E. A. Zeller (Schweiz. med. Wschr., 1941, 71, 1605-1607).—A review. A. S.

XX.—PHARMACOLOGY AND TOXICOLOGY.

In-vitro tests of penicillin potency. A. Fleming (Lancet, 1942, 242, 732-733).—Methods of testing bacteriostatic power of mould cultures are described.

Activity of penicillin in vitro. G. L. Hobby, K. Meyer, and E. Chaffee (Proc. Soc. Exp. Biol. Med., 1942, 50, 277–280).—Cryst. preps. were obtained of which 0.03 μ g. inhibited growth of 2–4 million streptococci. V. J. W.

Mechanism of action of penicillin. G. L. Hobby, K. Meyer, and E. Chaffee (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 281–285).—When penicillin is added to a susceptible culture, log of no. of surviving organisms has a straight-line relation to time, until 99% are destroyed, after which there may be complete sterilisation or new growth. There is no lysis of hæmolytic streptococci and no penicillin is destroyed or absorbed by the organisms. It is only effective when multiplication is taking place and thus action is absent at 4°, and slight at 18°. V. J. W.

Chemotherapeutic activity of penicillin. G. L. Hobby, K. Meyer, and E. Chaffee (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 285–288).— Penicillin was administered to mice subcutaneously, intraperitoneally, or intravenously, or subcutaneously in oily solution or pellets. 1.5 mg. protected mice against 10⁶ lethal doses of haemolytic streptococcus culture; the 50% lethal dose was 12 mg. V. J. W.

Analysis of sulphanilamides.-See A., 1942, II, 388.

Mode of action of sulphanilamide derivatives. G. A. Moosbrugger (Schweiz. med. Wschr., 1941, 71, 1556-1558). A. S.

Sterilisation and thermostability of sulphonamides. H. Berry (*Pharm. J.*, 1942, 149, 139).—Sulphanilamide, sulphapyridine, sulphathiazole, and sulphadiazine will withstand prolonged dry heat at 150° or autoclaving at 115° followed by drying at 40° without detectable change in m.p. or colour. Dressings containing these substances are efficiently sterilised by the former method. P. G. M.

Determination of Cibazol [sulphathiazole] and other sulphonamides. J. Druey and G. Oesterheld (*Helv. Chim. Acta*, 1942, 25, 753-760). -Sulphonamides are determined by diazotisation, destruction of excess of HNO_2 by sulphamic acid, coupling with 1-sulphomethylaminonaphthalene-8-sulphonic acid, and colorimetry. Application of the method to sulphathiazole in blood, urine, and milk is described. N⁴-acetyl derivatives are determined after alkaline hydrolysis. R. S. C.

Rapid clinical method for estimating sulphanilamide. A. T. Fuller (*Lancet*, 1942, 242, 760—761).—A simple method for determining sulphanilamide in a drop of blood or urine takes only a few sec. and requires no special apparatus. The proteins are pptd. by p-toluenesulphonic acid + alcohol at $p_{\rm H}$ 1·4 and then test papers soaked in 5% alcoholic solution of p-dimethylaminobenzaldehyde in $p_{\rm H}$ 1·4 buffer are immersed in the exudate. The yellow colour produced is proportional to the concn. of sulphanilamide (cf. Werner, A., 1939, III, 303). C. A. K.

Simplified micro-method for blood-sulphonamide determination. G. M. Jorgensen (J. Lab. clin. Med., 1942, 27, 1355-1357).—A modification of the diazotisation method is described for determination of unconjugated sulphonamides in blood. C. J. C. B.

Error in sulphanilamide determination due to novocaine. C. A. Pons and M. Abel (*Amer. J. clin. Path., Tech. Sect.,* 1942, **6**, 53— 54).—Novocaine, by contaminating blood or c.s.f., causes unexpected fluctuations in sulphanilamide, sulphathiazole, and sulphapyridine determinations. Nupercaine, metycaine, or any local anæsthetic not containing the primary arylamines should be used instead of novocaine. C. J. C. B.

Reaction of dimethylacrylsulphonamide with hæmoglobin. R. Pulver (Schweiz. med. Wschr., 1941, 71, 1608—1611).—The sulphonamide concn. in blood determined by a modification of Marshall's method was 25—30% below the calc. val. Part of the compound combines with hæmoglobin and is lost during the protein pptn., as shown in ultrafiltration experiments. The dimethylacrylsulphonamide-hæmoglobin combination can be split up by washing with NaCl solution. Sulphapyridine-hæmoglobin is more stable. There is no correlation with the formation of red cell "innenkörper." A. S.

Therapeutic range of sulphathiazole and its dependence on size of dose and rate of administration. R. Meier and O. Allemann (Schweiz. med. Wschr., 1941, 71, 1518–1520).—Sulphanilamide, sulphathiazole, and sulphapyridine in doses of 0.5, 1, 2, 4, and 8 g. per kg. were given by mouth daily for 1—6 days to mice suffering from intraperitoneal streptococcal septicaemia. The % of surviving animals was determined on the 10th day, and the results were plotted planimetrically. Sulphathiazole and sulphapyridine have a similar therapeutic range and are of the same toxicity. A, S.

Variations of bactericidal effect of sulphathiazole on different strains of *E. coli.* H. F. Helmholz (*Proc. Staff Mayo Clin.*, 1942, 17, 202-206).—The max. concn. of sulphathiazole at which different strains of *E. coli* resist its bactericidal action varies from 0.1 to more than 200 mg.-%. When the no. of bacilli in the tissue is reduced to 100-1000 per 0.5 c.c., 90% of the strains will be killed off at a concn. of 2 mg.-% of sulphathiazole. H. H. K.

Secretion of ingested sulphanilamide in human milk and urine of nursing infant. J. S. Hepburn, N. F. Paxson, and A. N. Rogers (Arch. Pediat., 1942, 59, 413—417).—When sulphanilamide is given to a lactating woman with a nursing infant, the drug appears in the mother's milk and the infant's urine, in the free and conjugated forms and for several days after its administration has ceased. With a dose of 25 grains per day the max. concn. of total sulphanilamide in the breast milk was 9.4 mg.-%. C. J. C. B.

Diffusion of sulphanilamide, acriflavine, and gentian-violet. E. A. Lum (*.ancet*, 1942, **242**, 585—586).—The rate of diffusion of sulphanilamide in agar was greater than that of acriflavine or gentian-violet; the rate is proportional to the concn. of the solution. Dead subcutaneous tissue of the mouse fixes the dyes so that penetration is poor, but dye that has become fixed in agar retains its antiseptic powers. C. A. K.

Sulphamethazine. D. W. Macartney, R. W. Luxton, G. S. Smith, W. A. Ramsay, and J. Goldman (*Lancet*, 1942, 242, 639-641).— Sulphamethazine [2-(p-aminobenzenesulphonamido)-4:6-dimethylpyrimidine] and its acetyl derivative are more sol. in water than sulphapyridine, sulphathiazole, or sulphadiazine. Blood levels after oral administration, and urinary excretion, were similar to those for sulphadiazine (Reinhold *et al.* A., 1941, III, 459); total recovery in the urine was less than 50%. The drug was given to 73 cases of lobar pneumonia and to a few cases of meningococcal meningits and gonorrhea. 5 of the pneumonia cases died and 2 developed complications; the course of clinical improvement was similar to that seen with sulphapyridine, but the severe mental and physical depression, nausea, and vomiting associated with the latter were not seen, nor was there any cyanosis. There was no evidence of renal damage and no crystals were found in the urine. There were no toxic actions on the blood. C. A. K. Rate of absorption of sulphonamides in vitro and in vivo after local application. A. T. Fuller, F. Hawking, and M. W. Partridge (Quart. J. Pharm., 1942, 15, 127-135).—An in-vitro method for determining the absorption of sulphonamides from a compact mass of the prep. into a moving stream of water is described. Sulphanilamide is absorbed quickly at first, but more slowly after 30 hr., sulphapyridine and sulphadiazine are absorbed at low const. rates, whilst sulphathiazole occupies an intermediate position. Absorption in vivo is examined by application to a surface wound in rabbits and determination of the amount excreted in the urine. With sulphapyridine and sulphadiazine, excretion continues at approx. const. rate for at least 5 days, whilst sulphathiazole again occupies an intermediate position. Since the therapeutic action of these sulphonamides is bacteriostatic rather than bactericidal, it is suggested that the duration of sulphanilamide in a wound in rabbits may be too brief to secure the optimum effect and that a mixture of sulphanilamide and sulphathiazole might be better. J. N. A.

Effect of various media on rate of absorption of sulphanilamide. A. T. Fuller, F. Hawking, and M. W. Partridge (Quart. J. Pharm., 1942, 15, 136—147).—Absorption of sulphanilamide in vitro is considerably delayed by incorporation of the drug in an oily base or water-in-oil emulsion; it is only slightly affected by incorporation in a glycerol-gelatin base, in an oil-in-water emulsion, by preferential wetting of the drug with oil or water, or by the particle size of the drug. Delay in absorption due to an oily base is less marked if absorption occurs only from the surface of the prep.; it is more marked if it takes place from deeper layers. When the prep. is spread as a thin film over a surface wound, absorption rapidly occurs from various types of prep., but when the prep. is embedded in the tissue as a compact mass, absorption of sulphanilamide is considerably delayed by incorporation in an oily medium and somewhat delayed by oil-in-water emulsion. Sulphanilamide is rapidly absorbed *in vivo* from a glycerol-gelatin prep. and from impregnated gauze. J. N. A.

Growth of fibroblasts in serum containing sulphathiazole. G. B. Reed, J. H. Orr, and R. Anderson (*War Med.*, 1942, **2**, 635–638). —Guinea-pig fibroblasts grow normally in serum containing nearly 100 mg.-% of sulphathiazole. In higher concns. growth is inhibited. If after several days' exposure to a saturated solution of sulphathiazole in serum the cells are transferred to normal serum, characteristic growth occurs. H. H. K.

Effect of sulphathiazole on febrile reactions after operations. G. W. Strom and G. J. Thompson (*Proc. Staff Mayo Clin.*, 1942, 17, 248—250).—Sulphathiazole administered as a prophylactic agent in cases of prostatic resection lessens the postoperative febrile reaction. H. H. K.

Phagocytosis by leucocytes in concentrated solutions of sulphanilamide and four derivatives. G. B. Reed and J. H. Orr (*War Med.*, 1942, 2, 639-645).—Leucocytes in guinea-pig's blood ingest staphylococci at a normal rate in the presence of sulphanilamide, sulphapyridine, sulphathiazole, sulphadiazine, or sulphanilylguanidine in concns. of 8-80 mg.-% in vitro. Cl. welchii is ingested by leucocytes in the body cavities of mice given large doses of the drugs more rapidly than in the body cavities of untreated mice. More phagocytosis occurs in wounds infected with Cl. welchii or Cl. sordellii and treated locally with sulphathiazole than occurs in untreated wounds. H. H. K.

In-vitro and in-vivo effects of sulphonamides on streptococcal antifibrinolysin test. W. M. M. Kirby and L. A. Rantz (J. clin. Invest., 1942, 21, 295-298).—Sulphonamide administration, both in vitro and in vivo, has no effect on this test. C. J. C. B.

Influence of sulphanilamide on immunity. G. Pacheco and G. A. Costa (*Rev. Brasil. Biol.*, 1941, **1**, 321–324).—Prontosil administration does not affect the agglutination titre of sera of animals immunised against *proteus* or *Brucella abortus*. I. C.

Pneumococcal resistance to sulphonamides. C. L. Sesler and L. H. Schmidt (*J. Pharm. Exp. 1 her.*, 1942, **75**, 356–362).—Strains of pneumococci differed in the ease with which they developed resistance to a given sulphonamide, and this varied inversely with the activity of the drug. Once a strain of pneumococci had acquired resistance to one of these drugs, it was resistant to all the others tested, and thus differs from the gonococci, which, when resistant to sulphanilamide, can still have their growth inhibited by sulphathiazole. H. C. S.

Chemotherapy of pneumococcal meningitis (sulphathiazole). F. B. Cooper, P. Gross, and M. L. Hagan (*J. clin. Invest.*, 1942, 21, 281– 285).—Sulphanilamide, sulphapyridine, sulphathiazole, and sulphamethylthiazole are equally effective in the treatment of experimental type II (Binda) pneumococcal meningitis in rats. The sulphathiazole content of the brains of rats which received 300 mg. of sulphathiazole orally in 24 hr. averaged 1.6 mg.-% when the blood level was 5– 6 mg.-%. C. J. C. B: Sulphathiazole and sulphapyridine in pneumococcal pneumonia. C. F. Garvin (*Ohio Sta. Med. J.*, 1942, 38, 231-233).—The 2 drugs were equally effective in groups of 43 and 42 patients respectively.

E. M. J. Sulphonamides in treatment of common skin diseases. E. W. Abramowitz (Amer. J. Pharm., 1942, 114, 250-256).—A review.

Oral sulphonamides in impetigo. B. E. Schlesinger and N. H. Martin (*Lancet*, 1942, **242**, 527-529).—Sulphonamides were effective when given by mouth to 141 cases of impetigo, sulphathiazole and sulphadiazine being the drugs of choice. C. A. K.

Sulphathiazole in impetigo. L. H. Winer and E. A. Strakosch (J. Amer. Med. Assoc., 1942, 118, 221).—5% sulphathiazole ointment was more rapidly effective in 60 cases of impetigo contagiosa than any other method of treatment. C. A. K.

Exfoliative dermatitis of newborn (Ritter's disease) [treated with sulphapyridine]. D. Bell and A. W. Woods (Arch. Dis. Childh., 1942, 17, 157-161).—Recovery followed treatment.

C. J. C. B. **Sulphonamides and heparin in treatment of subacute bacterial endocarditis.** L. Waitzkin, R. H. Smith, and W. B. Martin (Ann. int. Med., 1942, 16, 356-360).—A patient suffering from subacute Streptococcus viridans endocarditis was unsuccessfully treated with sulphapyridine, sulphathiazole, and heparin. A. S.

Sulphanilamide in nasal diphtheria carriers. J. M. Boissard and R. M. Fry (*Lancet*, 1942, 242, 610-614).—Sulphanilamide powder was successfully applied intranasally to 26 patients with double infection with *C. diphtheria* and hæmolytic streptococci in the nose. The persistence of *C. diphtheria* seems to depend on the associated streptococcal infection. C. A. K.

Sulphathiazole in osteomyelitis. G. N. Taylor and A. H. Walters (*Lancet*, 1942, 242, 619-620).—Sulphathiazole was successfully used in the treatment in a case of osteomyelitis of the frontal bone.

Treatment of gas gangrene [in guinea-pig with sulphanilamide]. G. A. Caldwell and F. J. Cox (*Sth. Med. J.*, 1942, **35**, 789-796).— Local implantation of sulphathiazole was more effective than that of sulphanilamide in guinea-pigs infected with a culture of *Cl. welchi* at the site of a compound fracture. The effectiveness decreased as treatment was delayed. ZnO₂ as a dressing had an inhibitory effect on the progress of gas gangrene. Debridement was most effective in conjunction with local sulphonamide therapy. E. M. J.

Sulphanilamide in treatment of erysipelas. L. S. Siegel, L. Rosove, and A. G. Bower (Ann. int. Med., 1942, 16, 262—268).—303 patients suffering from erysipelas (51% in the face, 30% in the lower extremities, 19% elsewhere) were treated with sulphanilamide. The average period of hospitalisation was 8 days; the average time for the body-temp, to return to normal was 48 hr. for all groups of patients, except between 20 and 24 years of age (74 hr.) and 30 and 34 years (71 hr.); the average time required for the lesions to regress was 50 hr. The no. of complications was 0.3% (8 abscess formation, 1 pneumonia with hæmolytic staphylococcal septicamia and lung abscess, 1 nephritis with uramia). Toxic drug reactions were noted : marked cyanosis (11 cases), marked nausea and vomiting (9), rashes (5), temporary psychoses (5), severe secondary anamia (2), hæmolytic anæmia (2), toxic hepatitis and nephritis (1). The mortality was 1.3%. The average blood concn. of the drug was 5.8 mg.-%. A. S.

Chemotherapy in experimental tuberculosis. W. H. Feldman (*Minnesota Med.*, 1942, **25**, 339-352).—Promin given to guinea-pigs infected with *B. tuberculosus* in their feed as a 1% mixture had a deterrent effect on the disease. Most of the treated animals survived longer than the controls; in many no visible signs of tuberculosis were present when killed. 9 of 17 macro- and microscopically healthy spleens, however, caused tuberculosis when re-inoculated into other guinea-pigs. Continuous treatment was more effective than an intermittent course. E. M. J.

Treatment of cerebrospinal fever by sulphapyridine. A. Joe (Edinb. Med. J., 1942, 49, 628-642).—In 500 consecutive cases in the 1940-41 epidemic (including 116 group I, 1 group II, and 11 unclassifiable) the total fatality was 18%. Fatality at all age groups was much lower than with serum and there were no deaths in 100 cases between 10 and 19. Treatment, complications, and toxic effects are described. H. S.

Sulphaguanidine in treatment of brucellosis. E. S. Sarois (Northw. Med., 1942, 41, 208-209).—Cure is reported in 3 cases given 9 g. of sulphaguanidine daily for up to 6 days. E. M. J.

Sulphaguanidine in diarrhœas of infants and children. I. A. Sivon, S. Wise, and E. H. Baxter (*Ohio Sta. Med. J.*, 1942, 38, 336—337). —Sulphaguanidine was of val. in the treatment of 21 cases of bacillary dysentery in children. The average duration of fever, diarrhœa, and hospital stay was shortened by more than half. E. M. J.

Excretion of sulphaguanidine in fæces. F. Hawking (Lancet, 1942, 242, 704).—Experiments in cats showed that absorbed sulpha-

guanidine is excreted almost entirely in the urine, negligible amounts being excreted into the intestine. C. A. K.

Sulphaguanidine in treatment of infectious enteritis in swine. H. C. H. Kernkamp and M. H. Roepke (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 268—269).—Good results were obtained by daily doses of 0.16—0.33 g. per kg. V. J. W.

Use of sulphaguanidine in non-specific ulcerative colitis and other infections of bowel. J. B. Kirsner, E. C. Rodaniche, and W. L. Palmer (Amer. J. digest. Dis., 1942, 9, 229–233).—Doses of 10–15 g. daily were used; blood levels up to 10 mg.-% were reached. The bacterial content of the faces was lowered and only Grampositive organisms remained in the stool. Sulphaguanidine was of little or no val. in the treatment of paratyphoid B or in ulcerative colitis, and had no advantage over other sulphonamides in lymphogranuloma venereum. N. F. M.

Salazopyrin [in treatment of ulcerative colitis]. N. Svartz (Gastroenterologia, 1942, 66, 312—322).—Salazopyrin (salicylazosulphapyridine) was useful in the treatment of ulcerative colitis and rheumatic polyarthritis. Toxic effects were limited to fever and skin rashes. Hypersensitive persons with these rashes gave a positive intracutaneous reaction with aminopyridine, but not with salazopyrin or sulphapyridine. E. M. J.

Sulphanilylguanidine and sulphanilamide in treatment of lymphogranuloma venereum infections of mice. E. C. Rodaniche (*J. infect.* Dis., 1942, 70, 58-61).—Feeding 1-2% sulphanilamide or sulphanilylguanidine greatly reduced the mortality in mice infected intracerebrally with lymphogranuloma venereum. In the concus. used sulphanilylguanidine was the more effective and less toxic. F S

Local sulphanilamide in peritoneal infections. R. S. Mueller and J. E. Thompson (*J. Amer. Med. Assoc.*, 1942, **118**, 189–193).— Sulphanilamide was used intraperitoneally in 133 of 400 patients with acute appendicitis with no deaths. The dose should not exceed 15 g., $\frac{3}{5}$ being applied to the peritoneum and $\frac{1}{3}$ to the wound. No local or general toxic effects were noted. C. A. K.

Intraperitoneal sulphanilamide. H. C. Jackson and F. A. Coller (J. Amer. Med. Assoc., 1942, 118, 194—200).—Intraperitoneal application of sulphanilamide in dogs in doses of 0.5 g. per kg. raised the blood levels much more rapidly than oral administration and higher levels were reached. There was no evidence of local irritation in dogs or in patients with contaminated peritoneum, and adhesion formation may be reduced. The dose in man should not exceed 5 g. No toxic reactions were seen in 33 patients who received intraperitoneal sulphanilamide alone but in 29 cases who had oral or intravenous administration as well, obstructive jaundice occurred in 9. C. A. K.

Intraperitoneal sulphapyridine in acute appendicitis. J. Gottesman and H. Goldberg (J. Amer. Med. Assoc., 1942, **118**, 297).— A patient with acute appendicitis and generalised peritonitis was successfully treated by intravenous sulphathiazole and intraperitoneal sulphapyridine, without operation. A pelvic abscess subsequently discharged through the rectum. C. A. K.

Sulphadiazine. L. T. Hall (Nebraska Sta. Med. J., 1942, 27, 309-310).—A review. E. M. J.

Streptococcal infections in Addison's disease. G. W. Thorn and R. A. Lewis (J. Amer. Med. Assoc., 1942, **118**, 214—216).—Sulphadiazine + large doses of adrenal cortical hormone were effective in 2 cases of Addison's disease with acute hæmolytic streptococcal meningitis. C. A. K.

Comparison of clinical and pharmacological values of sulphadiazine and sodium sulphadiazine. C. Wheeler and N. Plummer (Ann.int.Med., 1942, 16, 269–285).—Absorption, excretion, and acetylation of sulphadiazine (given orally) and of Na sulphadiazine (given orally and intravenously) were studied in 218 patients. The 2 drugs (Na sulphadiazine > sulphadiazine) yield higher concus. in the blood and smaller proportions of acetylated drug in blood and urine than any other sulphonamide in use, except sulphanilamide itself. Initial doses of 4 g. were better than 2 g. to establish rapidly high blood concu. Toxic reactions were less frequent and less serious than after administration of other sulphonamide compounds. Both substances diffuse easily into the c.s.f. A. S.

Sulphadiazine in Staph. auteus meningitis. R. H. Peters, S. S. Spector, E. L. Porter, and H. Pleasants, jun. (*Penn. Med. J.*, 1942, **45**, 715—718).—Recovery is reported in one case after two intravenous injections of $4 \cdot 5$ and 5 g. of Na sulphadiazine and daily oral doses of 8 g. in 8 divided doses combined with daily spinal drainage of 10—30 c.c. Blood transfusions were also given. E. M. J.

Chemotherapy of female gonorrhea with sulphathiazole. E. Held (Schweiz. med. Wschr., 1941, **71**, 1270—1271).—6 of 9 women suffering from gonorrhea without adnexitis were cured after oral administration of 18 g. of sulphathiazole over 6 days; 2 more patients were cured after a second dose of 24 g. over 6 days. 9 out of 10 patients with adnexitis were cured after the first treatment; the 10th patient

responded to a repeated dose of 24 g. There was no local treatment. A patient was considered cured when she was free of gonococci after menstruation and following "provocation" with local application of Lugol's solution and intramuscular injection of gonoyatren. A. S.

Inductopyrexia and chemotherapy in resistant gonorrhea. R. C. L. Batchelor, G. M. Thomson, and J. L. Huggan (*Edinb. Med. J.*, 1942, **49**, 584—588).—6 cases out of over 20 in which successful results were obtained are described. A detailed plan of the com-H. S. bined treatment is given.

Fatal renal damage following use of sulphathiazole. G. E. Bur-chand and T. Winsor (*New Orleans Med. J.*, 1942, 94, 474-481).-2 cases are reported in whom renal damage appeared after taking 9 g. of sulphathiazole. In both cases dehydration, congestive cardiac failure, and probable pre-existing renal disease combined to cause intratubular crystal formation which was found at postmortem. E. M. J.

Acute hæmolytic anæmia caused by sulphathiazole. J. J. Bunim and M. Israel (Ann. int. Med., 1942, 16, 333-339).—Acute hæmo-lytic anæmia with jaundice, hæmoglobinæmia, hæmoglobinuria, increased non-protein-N, and impaired renal function followed the administration of 18 g. of sulphathiazole over 8 days. A second case was observed after taking 10 g. in 3 days. Both patients recovered.

Fatal agranulocytosis due to sulphathiazole. L. Thompson (Northw. Med., 1942, 41, 133-135).—After 45 grains of sulpha-thiazole had been given daily for 7 days for an upper respiratory tract infection the white count was reduced to 1650. A severe cellulitis had developed from a small abrasion over the shoulder and hyperpyrexia supervened. Blood transfusion and pentnucleotide injections had no effect and the patient died on the 10th day with 50 white cells per cu. mm.; a sternal puncture showed aplastic anæmia. 160 grains of empirin had also been given. E. M. J.

Toleration of unusually large dose of sulphathiazole. C. E. Conner (Northw. Med., 1942, 41, 204—205).—A case of pneumonia was by mistake given 1 g, of sulphathiazole half-hourly to a total of 72 g, and an additional 3 g, intravenously. No toxic reaction was observed and an uninterrupted recovery ensued. E. M. I.

Toxic polyneuritis produced by sulphamethylthiazole. O. Gsell (Schweiz. med. Wschr., 1941, 71, 1576-1577).-2 cases, after administration of 43 and 19 g. of sulphamethylthiazole, are reported. A. S

Case of urinary suppression due to sulphathiazole. C. G. Bandler and M. Bruger (N.Y. Sta. J. Med., 1942, 42, 1627–1630).—Urinary output fell to 340 c.c. in 7 days after treatment with 16 g. of sulpha-thiazole. Urataral esthetorisation was done on the 4th days and the thiazole. Ureteral catheterisation was done on the 4th day and the catheters left *in situ*. The output rose suddenly to 980 c.c. on the E. M. J. 8th day and the patient recovered.

Leukæmoid reaction to sulphadiazine. W. L. Whittemore and M. H. Stich (N.Y. Sta. J. Med., 1942, 42, 1249-1250).—An attack of lobar pneumonia in a diabetic did not respond to 17 g. of sulphathiazole in 3 days; 37 g. of sulphadiazine given in the next 6 days were followed by a return to normal temp. The white blood count increased during this time from 14,200 with a normal differential count to 40,600 with 33% premature myeloid cells. When a blood transfusion of 500 c.c. was given first the total and then the differential count rapidly returned to normal. E. M. J.

Synthetic curare-like compounds. I. Quinine and quaternary ammonium derivatives. H. F. Chase and A. J. Lehman. II. Quinine and erythroidine derivatives compared. A. J. Lehman, H. F. Chase, and F. F. Yonkman (*J. Pharm. Exp. Ther.*, 1942, 75, 265-269, 270-276.—I. The peripheral paralysant terms that a peripheral paralysant actions of 34 synthetic drugs belonging to a curare-like group of compounds were investigated. These substances were given to frogs and, if effective, further tested on rabbits, pigeons, and occasionally cats. Characteristic muscarine-like action of trimethylammonium compounds was seen in those possessing these methyl groups, and alteration in chemical structure had little effect on curare-like action. β -Erythroidine hydrochloride and dihydro- β -erythroidine hydrobromide are effective neuromuscular paralysants. The latter has a potency 5 times that of the former. These substances caused central respiratory depression, but only after several times the fatal paralytic dose. Monometho-derivatives of quinine were 4 times as potent as the dimethyl derivative, but quinine ethochloride dihydrate has an activity nearly twice that of the monomethyl derivative.

II. Comparisons of quinine ethochloride dihydrate, quinine methochloride dihydrate, β -erythroidine hydrochloride, and dehydro- β -erythroidine hydrobromide were made, after determining the toxicity of these drugs in dogs and rats, as to the effect of giving them orally and their anticonvulsant action. Quinine ethochloride has intense curariform action of short duration, and should be suitable for the control of convulsive seizures induced with metrazol as it has the the control of convulsive seizures induced with meter of toxicity. greatest margin of safety, although second in order of toxicity. H. C. S.

Staphylococcæmia 1931—1940. Review of [treatment of] 500 patients. W. J. MacNeal, F. C. Frisbee, and M. A. McRae (*Amer. J. clin. Path.*, 1942, 12, 281—293).—There were 5 survivors among 30 concurrent control patients who did not receive bacteriophage therapy and 160 of 470 bacteriophage-treated patients. C. J. C. B.

Synthesis and anti-bacterial properties of alkyl and alkenyl deriv-atives of 2:6-dimethoxybenzoquinone.—See A., 1942, II, 410.

Method of determining toxicity of antiseptics as measured by destruction of human leucocytes. H. Welch, G. G. Slocum, and A. C. Hunter (J. Lab. clin. Med., 1942, 27, 1432–1438).—Irreversible loss of phagocytosis following 10 min. contact with the compound tested indicates death of the cell. The toxicity of 20 antiseptics determined by this method compared well with the inhibition of phagocytosis method previously described (A., 1940, III, 541).

Evaluation of germicides with relation to tissue toxicity. M. M. Hirsch and M. V. Novak (Proc. Soc. Exp. Biol. Med., 1942, 50, 376-379) — Toxicity index is the social soc 376-379) .- Toxicity index is the ratio toxicity end-point (concn. inhibiting phagocytosis) to germicidal end-point (concn. killing test organism in presence of 40% of citrated blood). This was determined for 24 germicides with *Staph. albus.* In general, Cl compounds gave the best index, phenols next, and org. Hg compounds worst. V. J. W.

Cetyltrimethylammonium bromide (CTAB), a new disinfectant and cleaning agent. J. M. Barnes (*Lancet*, 1942, 242, 531-532).—This cationic detergent can greatly reduce the no. of bacteria on normal skin and completely sterilises dirty and greasy bowls and baths. It may be useful for cleaning infected burns. C. A. K.

Action of cocaine and sympathomimetic amines on humoral transmission of sympathetic nerve actions. W. S. Lawrence, M. C. Morton, and M. L. Tainter (*J. Pharm. Exp. Ther.*, 1942, **75**, 219-225).— Adrenaline, perfused through the isolated hind limb of the cat, is destroyed more rapidly and pressor responses are greater if cocaine is added to the perfused solution. After degeneration of the sympathetic nerves of the hind leg and perfusion with diluted defibrinated ox blood, in which the vasotonin was destroyed but most of its adrenaline content was preserved, the abs. pressor potency of its adrenatine content was preserved, the abs, pressor potency of adrenatine, cobefrine, and neosynephrine was increased several fold in approx. the same ratio. Their relative activities were thus unaltered as compared with similar ox blood perfusions of unsympathectomised legs. With ephedrine and tyramine, the abs. potency was almost unaltered by sympathetic degeneration. The authors suggest that previous cocalinisation prevents the pressor actions of aphedrine and tyramine by blocking the former pressor actions of ephedrine and tyramine by blocking the ferment through which they normally act, and similarly sensitises the responses to sympathetic nerve stimulation and injection of adren-H. C. S. aline.

Action and toxicity of *l-N*-ethylephedrine hydrochloride. T. J. Becker, M. R. Warren, D. G. Marsh, C. R. Thompson, and R. S. Shelton (*J. Pharm. Exp. Ther.*, 1942, **75**, 289–298).—The toxicological and pharmacological effects of *l-N*-ethylephedrine hydrochloride were compared with those of *l*-ephedrine. Acute tests were made in arbhits the intervenues in institute at a state of 50. chloride were compared with those of *l*-ephedrine. Actite tests were made in rabbits by intravenous injections at a rate of 50 mg. per min. and by giving a 10% solution by stomach tube. 3 groups and controls were studied over a period of four weeks by (1) daily intravenous dose of 25 mg., (2) daily oral dose of 25 mg., (3) daily oral dose of 50 mg. The toxicity of this compound and its effect on the bronchioles was found to be similar to that of *l*-ephedrine, though its action on the cardiovascular system was less. *l*-N-Ethyl-enhedrine produced a min of central stimulation but had a gracier ephedrine produced a min. of central stimulation, but had a greater effect on the muscle of the uterus and intestine than did l-ephedrine. H.C.S.

Bronchodilator action of theophylline derivatives. F. P. Ludueña *J. Pharm. Exp. Ther.*, 1942, **75**, 316–327).—Theophyline derivatives. F. P. Luddena diamine, theophylline Na acetate, and adrenaline were investigated as to their bronchial anti-spasmodic action. For this purpose guinea-pigs' isolated lungs and intact dogs' lungs were used. Both theophylline derivatives dilated the headline were like the set of the theophylline derivatives dilated the bronchi of untreated isolated lungs and prevented or relieved to a variable extent the bronchospasms induced by histamine, pilocarpine, Ba, and anaphylactic shock. Ethylenediamine alone had a weak bronchoconstrictor action and no antagonising action on other bronchoconstrictor drugs. The two theophylline derivatives showed no difference in effect if this was measured relatively to the abs. content of anhyd. theophylline in each. In perfused lungs, adrenaline was 1000 times as effective in antagonising bronchoconstriction. Both in bronchial asthma and in perfused lungs, adrenaline was 3000 times as efficient as theophylline in relieving the bronchospasms of histamine and pilocarpine, but the effect of theophylline was more sustained. The seat of bronchial antispasmodic action of theophylline was peripherally by direct depression of the bronchial muscles. In rabbits autopsy showed slight chronic meningitis and nephritis, and it is suggested that repeated intravenous injections of theophylline ethylenediamine are unwise as these findings were consistent with the subjective manifestations of irritation seen in patients receiving the drug intravenously. H. C. S.

Seasonal activity of digitalis. J. A. Bone (*Amer. J. Pharm.*, 1942, 114, 226-230).—The seasonal influence on digitalis activity in dogs is negligible. P. G. M.

Pharmacodynamic action of folinerin on cardiovascular mechanism of dog. E. C. Baldassarre (*Rev. Fac. Cienc. Qutm., La Plata,* 1941, 16, 15-31).—A weak negative chronotropic action is produced reflexly from the chemo-receptors. Negative dromotropic action arises from medium doses, whilst toxic doses produce disturbance of the intraventricular system. Other actions are described. F. R. G.

Bio-assay of digitalis in man. H. Gold, McK. Cattell, H. L. Otto, N. T. Kwit, and M. L. Kramer (*J. Pharm. Exp. Ther.*, 1942, **75**, 196—206).—An e.c.g. taken 24 hr. after a given dose of digitalis powder (U.S.A. Standard reference) is repeated twice with doses differing by 22%. The *T* waves and *RT* or *ST* segments must be sensitive to this difference in dosage. 4 weeks are allowed to elapse between doses. The potency of the unknown is expressed in terms of the standard, and represents the average of the ratios obtained for each of several subjects. The latter were ambulant cases with regular sinus rhythm, of both sexes, and aged 17—65. Most had normal e.c.g., though with some degree of organic heart disease, but none with heart failure. H. C. S.

Bio-assay of digitalis on embryonic chick heart. R. A. Lehman and G. H. Paff (*J. Pharm. Exp. Ther.*, 1942, **75**, 207–218).—A standard prep. of an embryonic chick's heart, transferred to the well of a slide on a warm-stage microscope, can be used for the assay of digitalis. Assay of lanatoside-*C*, digoxin, and digitaline Nativelle in this manner, compared with their assay by the cat or frog method, gave results which agreed more closely with the oral human dosage. Temp. of $35^{\circ}\pm0.3^{\circ}$ and $40^{\circ}\pm0.3^{\circ}$ were used, but the best results were obtained at 37.5° . In assay of known dilutions of tincture of digitalis, the error was within 7%. H. C. S.

Dimethyl-β-acetoxyethylsulphonium chloride.—See A., 1942, II, 391.

Action of quinidine on cold-blooded heart. A. M. Wedd, H. A. Blair, and R. E. Gosselin (J. Pharm. Exp. Ther., 1942, 75, 251–259).—Using the whole heart excised or in situ, or strips of auricular or ventricular muscle of the turtle *Pseudomys elegans*, the effects of quinidine on the rate of spontaneous beating, threshold for electrical stimuli, conduction rate, refractory period, and duration of electrical stimuli, conduction rate, refractory period, and duration of electrical systole were studied. The drug was applied to the excised tissues in concus. of $1-2 \times 10^{-4}$ in Ringer's solution. Quinidine did not affect significantly the abs. refractory period, which was practically equal to the Q-T interval, both normally and during quinidine action. There is immediate raising of the threshold for electrical stimuli with, in consequence, a slowed conduction in muscle of the same proportion. The heart was slowed both in the pithed turtle and in the isolated frog's heart. The P-R interval of turtle's heart rhythmically stimulated at 18 per min. was not appreciably lengthened, even when the conduction in auricle and ventricle was markedly slowed, and no variation in the Q-T interval with the rate of beating was apparent. Principal effects of the drug were ascribed to a raised threshold for stimulation which in turn slows muscle conduction.

H. C. S.

Value of lanatoside-C in treatment of heart disease. M. Margolin (*Nebraska Sta. Med. J.*, 1942, **27**, 215–217).—Lanatoside-C was used successfully in a case of mitral disease with heart failure intolerant to digitalis.³ 375 cat units were given in $2\frac{1}{2}$ months before nausea developed. E. M. J.

Absorption of lanatoside-C. J. M. Dille and G. B. Whatmore (J. Pharm. Exp. Ther., 1942, 75, 350-355).—Lanatoside-C is absorbed from the intestine at a rate about 3 times that of tincture of digitalis. In 1 hr. approx. 1 lethal dose is absorbed from the small intestine, about 1/3 L.D. from the ligated colon, and less than 1/3 L.D. from the ligated stomach. Differences between the results from analysis of residual glycosides in portions of the gastro-intestinal tract and the determination of the essential absorption indicated partial destruction or inactivation of both lanatoside-C and the glycosides of the tincture in the lumen of the intestine. H. C. S.

Comparative bioassays of posterior pituitary. R. B. Smith, jun. (J. Pharm. Exp. Ther., 1942, **75**, 342—349).—The chicken blood pressure and official uterine methods for oxytocic bioassay were compared. Chief disadvantage of the chicken method is that it gives higher vals. for preps. with high pressor-oxytocic ratios than the official method. This occurred whenever this ratio exceeded $3\cdot5:1$. This discrepancy was shown to be due to the serum-Mg level of the chicken, which is higher than the Mg titre of the official Locke-Ringer solution. When the Mg concn. of this solution is raised to $2\cdot5$ mg.-%(the approx. serum-Mg level of the chicken), both uterine and chicken methods give results which agree, even with those preps. with high pressor-oxytocic ratios. Such preps. for use in man would be more correctly assayed by this method, or by the uterine method using a high-Mg Locke-Ringer solution. H. C. S.

Pharmacology of alimentary tract. F. Rothschild (*Gastroenterologia*, 1941, 66, 213-233).—A review. E. M. J.

"Atabrine" in treatment of Giardia intestinalis infestation. E. P. Maris and S. Bushong (*Penn. Med. J.*, 1942, **45**, 724—726).— Children were given 1:5, 3, or 4:5 grains of " atabrine" in 2—3 divided doses according to age for 3 days. 45 of 68 cases showed disappearance of the *Giardia*, 9 had relapses, and 14 failed to return for adequate check-up. E. M. J.

Treatment of dracontiasis [with phenothiazine]. M. Elliott (*Trans. Roy. Soc. trop. Med. Hyg.*, 1942, **35**, 291–302).—23 cases treated successfully by injections of phenothiazine are reported.

C. J. C. B. Quinine levels in blood and urine of hookworm-infected dogs. J. C. Andrews and B. D. Webb (J. Pharm. Exp. Ther., 1942, 75, 191—195)—Possible intestinal damage from hookworm infection artificially induced in dogs did not decrease the max. blood-quinine concn. or its time of occurrence as compared with results obtained in the same animals prior to infection. In some cases there was evidence of persistence of the blood level attained in the infected animals. Only 4-12% of the dose of quinine sulphate could be recovered from the urine. Malarial cases, refractory to treatment, have been considered clinically to be due to a co-existent hookworm infection. H. C. S.

Synthetic [pharmacologically] active products. I. New synthesis of symmetrical diaryldialkylethylene compounds.—See A., 1942, II, 398.

Anæsthetic activity of new derivatives of barbituric acid. T. C. Butler and M. T. Bush (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 232– 234).—Properties of 7 new dialkylbarbituric acid derivatives are described. Duration of anæsthesia in mice ranged from 1 min. (5-n-butyl-5-isoamyl, 5-n-propyl-5-n-hexyl; equal to evipan) to 25 min. (5-isopropyl-5-isobutyl; equal to pentobarbital). V. J. W.

Bromine distribution in cats after treatment with tribromoethanol, tribromoacetaldehyde, and tribromoacetic acid. G. A. Emerson and J. L. Morrison (*J. Pharm. Exp. Ther.*, 1942, 75, 226–230).—In most tissues, and particularly in the central nervous system, tribromoethanol is present in a concn. greater than in the blood. The reverse is true in the case of tribromoacetaldehyde and tribromoacetic acid. Although for any one agent the absorption may be variable, its distribution afterwards is const. H. C. S.

Changes in plasma-amino-acid-nitrogen concentration following nitrous oxide and ether anæsthesia and surgery. L. E. Farr, D. A. MacFadyen, G. Taylor, A. R. Shands, jun., W. R. Ferguson, E. B. Dunlap, jun., and C. Johnson (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 256–258).—In 9 children amino-acid-N concn. fell 0.38 mg.-% on anæsthesia and a further 0.46 mg.-% during operation, and in 5 of the 9 continued to fall for 2 hr. thereafter. V. J. W.

Cardiac effects of inhalation anæsthetics and sympathomimetic amines. W. J. Meek (Harvey Lectures, 1940—41, Ser. 36, 188— 227).—A review. E. M. J.

Use of aminophyllin for post-anæsthetic coma. S. Hirshfeld (J. Mt. Sinai Hosp., 1941, 7, 423-425).-Case report. E. M. J.

Convulsions of anæsthesia. J. P. Tye (*Sth. Med. J.*, 1942, **35**, 339-343).—5 cases of convulsions during N_2O -ether anæsthesia are reported with 2 deaths attributed to the convulsion. One occurred immediately, the other after 29 days during which the patient lived in a state of decerebrate rigidity. Widespread degeneration of ganglion cells as seen in anoxia was found in this case. E. M. J.

Respiratory derangement during anæsthesia [and its recording by pneumograph]. C. L. Burstein (N.Y. Sta. J. Med., 1942, 42, 1638-1643).—A review. E. M. J.

Easily transportable apparatus for anæsthesia with or without compressed oxygen. H. K. Beecher (*War Med.*, 1942, 2, 602-608).—The apparatus consists in sequence of a foot bellows with air intake well above the floor, an air reservoir bag, an air-reducing valve arrangement which will permit the use of compressed O₂ when it is available, a safety blow-off valve, an ether-vaporising bottle with a string wick to promote rapid volatilisation of the ether, a face mask, and a breathing bag, with a to-and-fro soda-lime filter (Water's type). At the distal end of the soda-lime canister an adjustable vent is provided, for use when room air is employed. H. H. K.

Rebreathing in anæsthesia. J. Adriani (Sth. Med. J., 1942, 35, 798-803).—A review. E. M. J.

Visceral lesions from rectal tribromoethanol. A. H. Maloney (J-Pharm. Exp. Ther., 1942, 75, 247-250).—In comparing the effects of picrotoxin and coramine in narcosis with tribromoethanol, two types of death occurred. Where the antidote failed to protect there was acute death with lethal doses, but with sub-lethal doses the rabbits regained consciousness but died I--7 days later. A const. symptom was acute pain on defacation, the animal often falling over in a painful paroxysm which was shortly followed by death. This delayed death was caused by rectal irritation, inflammation, ulceration, and sometimes perforation. This lesion was associated with degenerative visceral changes in the heart, kidneys, brain, and liver. H. C. S.

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Infiltration treatment of hypogastric neuralgia and pruritus vulvee. G. Cotte (*Schweiz. med. Wschr.*, 1941, **71**, 1248—1249).—Satisfactory results were obtained by infiltration of the parametrium with 30— 50 c.c. of 1% novocain or 0.1% percain. In pruritus cases, subsequent daily injections of 1 mg. cestradiol benzoate were given.

A. S. Effect of morphine on electrocardiogram of man. W. W. Pettus, A. J. Geiger, and S. T. Grzebien (*Yale J. Biol. Med.*, 1942, 14, 493—500).—Morphine (¹/₂ grain) produced no striking bradycardia in 10 normal subjects or in 10 patients with coronary arterial disease. Displacement of the pacemaker and the development of premature beats were each encountered once and were regarded as probable effects of morphine. F. S.

Deacetylation of morphine esters. C. I. Wright (*J. Pharm. Exp. Ther.*, 1942, **75**, 328—337).—The distribution of an enzyme in the tissues of the rabbit, rat, and man, previously detected in rabbit serum (A., 1941, III, 129), was investigated. It is capable of the complete deacetylation of diacetylmorphine (heroin) and mono-acetylmorphine and the partial deacetylation of diacetyldihydro-morphine (dihydroheroin), The yield of CO_2 by the liberated acetic acid in the presence of relatively large quantities of tissue, except muscle, was always greater than the theoretical amount, and this fact, plus the shape of the curves, indicates that both acetyl groups are split off from the heroin, but at different rates. Deacetylation of these substances takes place at both the 3- and 6-C positions. Of the tissues examined the enzyme activity can be expressed in the following order of diminishing concn.: liver > kidney > brain > blood serum > muscle. Some evidence was obtained that the enzyme that catalyses the hydrolysis of atropine also catalyses that of monoacetylmorphine, or that of heroin, at the 6-C atom.

H. C. S.

Tolerance to demerol. H. L. Andrews (*J. Pharm. Exp. Ther.*, 1942, **75**, 338-341).—In morphine addicts, tolerance developed to the pain-threshold-raising effect of demerol, known in Europe as dolantin (ethyl 4-phenyl-1-methylpiperidine-4-carboxylate). Tolerance was maintained for at least 30 days after discontinuance and developed quite rapidly, becoming almost max. in 8 weeks. H. C. S.

Comparative toxicity of morphine. A. Chesler, G. C. LaBelle, and H. E. Himwich (*J. Pharm. Exp. Ther.*, 1942, **75**, 363—366).—Newborn rats in an atm. of N_2 were more resistant to acute respiratory failure after morphine than adult rats, but focuses were about equal in susceptibility to their mothers. H. C. S.

Giant hyperplasia of gums from dilantin sodium. L. Stern and L. Eisenbud (J. Mt. Sinai Hosp., 1942, 9, 100-103).—Case report. E. M. I.

Sedative action of "delvinal" sodium [sodium 5-ethyl-5-(a-methyl- Δ^{a} -butenyl)barbiturate] in disturbed psychiatric patients. E. Davidoff (*Psychiat. Quart.*, 1941, 15, 370–379).—32 mg. produced in normal subjects sedative effect within 1 hr., drowsiness after 4—5 hr.; length of narcosis was 5—7 hr. In the most excited cases 0.75—2.0 g. was necessary to induce narcosis. There were few toxic effects, and only a slight degree of tolerance developed on continued administration. H. L.

Action of barbiturates on isolated intestine. F. H. Shaw (Austral. J. Exp. Biol., 1942, 20, 117—119).—The sites of action of barbiturates on rat intestine are the post-ganglionic fibres and muscle cells, the former being more sensitive. Eserine restores barbiturate-depressed intestine and vice versa. Large doses of a barbiturate inhibit the action of Ba and adrenaline; their effects are not altered by previous administration of ergotoxine. P. G. M.

Action of certain drugs on crustacean muscle.—See A., 1942, III, 880.

Fatal arsenical encephalitis during pregnancy. R. E. Arnell and W. F. Guerriero (*New Orleans Med. J.*, 1942, 94, 482–487).—2 cases are reported in whom 0.75 and 0.9 g. of neoarsphenamine injected for syphilis during pregnancy elicited fatal reactions. E. M. J.

Vitamins in relation to sensitisation of guinea-pigs to old arsphenamine. W. Frei (J. invest. Dermat., 1942, 5, 117–125).—Variations of the vitamin-A content of the fodder within a wide range, excessive amounts of cottonseed oil, rich in linoleic acid, or great quantities of dry oats rich in thiamin and other members of the -B complex and -E, did not influence the sensitisation of guinea-pigs to old arsphenamine. C. J. C. B.

Arsenical chemotherapy of syphilis and sleeping sickness. E. A. Friedheim (Schweiz. med. Wschr., 1941, 71, 1502–1504).—Na 4:4'-dihydroxyarsenobenzene-3:3'-bis(azo- β -naphthol-1-sulphonate) is very stable in dry form and in aq. solution. It diffuses into the aq. humour and into the c.s.f. It proved very effective in 41 cases of tropical sleeping sickness (4 resistant to other arsenicals) and in 40 patients suffering from primary and secondary syphilis (2 resistant to arsenicals). It abolished the c.s.f. changes of 2nd stage trypanosomiasis in 11 cases. The substance contains 13.8% As and can be cryst. The standard dose was 0.5—0.75 g. intravenously, repeated up to 12 times at 2—4 days interval. Untoward effects were :

rashes (3 cases), vomiting and intestinal colics (3 cases), and febrile reactions. A. S.

Toxicity of mapharsen. E. A. Levin and F. Keddie (*J. Amer. Med. Assoc.*, 1942, **118**, 368—370).—A review of the literature shows mapharsen to be less toxic than neoarsphenamine. 6 fatal cases (2 from kidney damage, 2 from aplastic anæmia, 1 from hæmorrhagic encephalitis, and 1 from agranulocytosis) have been reported after 12,000,000 injections. The incidence of gastrointestinal reactions, skin eruptions, and blood dyscrasias was less than with arsphenamines and true nitritoid reactions did not occur. By intravenous drip mapharsen was safer than neoarsphenamine. C. A. K.

Trypanocidal action of subcurative doses of mapharsen. E. A. Swinyard, A. D. Hirschfelder, and H. N. Wright (*J. Pharm. Exp. Ther.*, 1942, **75**, 367–374).—For this purpose the min. curative dose (M.C.D.) is that which causes survival in 80% of animals injected and this was found to be 1.4 mg. per kg. The effects of dosage and of time interval between injections were examined. The efficiency of two doses less than 50% of a M.C.D. declined sharply. Doses in excess of this were uniformly curative in two or more doses at all time intervals, even at intervals of 96 hr. The duration, therefore, of the trypanocidal action of mapharsen is so short that the max. clinical benefit cannot be expected from subcurative doses injected at weekly, or even semi-weekly, time intervals. H. C. S.

Pharmacology of iron in parenteral treatment.—See A., 1942, III, 796.

Treatment of pruritus ani [by tattooing with mercury sulphide]. R. Turell (N.Y. Sta. J. Med., 1942, 42, 1335-1339).—A review. E. M. I.

Action of magnesium bromide on circulation. M. E. Isolabella (*Rev. Fac. Cienc. Quim., La Plata,* 1941, 16, 131-143).—The lowering of carotid blood pressure in dogs by MgBr₂ is due to vasodilation. F. R. G.

F. R. G. Chemotherapy of chronic progressive arthritis in mice. I. Rôle of sulphur in gold-containing compounds. W. S. Preston, W. D. Block, and R. H. Freyberg (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 253—256):—Chronic arthritis was produced by infection with 2 strains of pleuro-pneumonia-like organisms (types *B* and *E*; Sabin, A., 1939, III, 727). The mice were treated with Au Na thiomalate, Na thiomalate and its disulphide form, and Na succinimidoaurate. Only the compounds containing Au were effective and the presence of S was not necessary. V. J. W.

Effect of sodium nitrite on blood pressure of unanæsthetised hypertensive rats. M. Roth and J. C. Krantz, jun. (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 248—250).—Blood pressure is lowered for about 3 hr. by oral administration of 40 mg. per kg. or intraperitoneal administration of 25 mg. per kg. of NaNO₂. V. J. W.

Induced caries in rats. III. Effect of fluoride on rat caries and on composition of rats' teeth. F. J. McClure (J. Nutrition, 1941, 22, 391—398).—Occlusional caries in rats was partly prevented by presence of 10 p.p.m. of F' in drinking water. 80% protection was afforded by water containing 80 and 100 p.p.m. of F'. The ash, Ca, P, and F contents of molar teeth of carious and non-carious animals were not appreciably different. Post-eruptive deposition of F' in rats' molars is considerable and is probably independent of enamel surface adsorption. F' acquired after tooth eruption had no significant effect on induced caries. A. G. P.

Treatment of acute mercury poisoning with sodium formaldehydesulphoxylate. R. Wolpaw and N. Alpers (*J. Lab. clin. Med.*, 1942, 27, 1387—1395).—The treatment consists of : immediate gastric lavage with Na formaldehydesulphoxylate; intravenous injection of Na formaldehydesulphoxylate; high colonic irrigations with the same drug twice daily; gastric lavage twice daily for 2 days; daily intravenous glucose in saline; mouthwash with Na formaldehydesulphoxylate for stomatitis. 4 fatal cases out of 20 treated are described. C. J. C. B.

Potassium thiocyanate in treatment of migraine. E. A. Hines, jun., and L. M. Eaton (*Proc. Staff Mayo Clin.*, 1942, 17, 254—256). —The drug is usually effective in relieving migraine associated with hypertension. H. H. K.

Acute thyroiditis after therapeutic doses of thiocyanate. G. T. R. Fahlund (Proc. Staff Mayo Clin., 1942, 17, 289-293).—A case is reported. H. H. K.

Properties of anils.—See A., 1942, II, 399.

Higher unsaturated thiols and their derivatives.—See A., 1942, II, 390.

Alopecia from cyverine hydrochloride. O. L. Levin and H. T. Behrman (J. Amer. Med. Assoc., 1942, **118**, 41-43).—An antispasmodic drug, cyverine hydrochloride, produced alopecia of scalp and exfoliative dermatitis in a woman of 49 after 920 mg. had been given in 30 days. C. A. K.

Pharmacology of pyridylalkylamines. W. H. Hunt and R. J. Fosbinder (*J. Pharm. Exp. Ther.*, 1942, **75**, 299-307).—A series of β -2- and -4-pyridylalkylamines were studied as to their effects (1)

on the circulatory and respiratory systems of the anæsthetised cat, rabbit, and guinea-pig, (2) on isolated smooth muscle, and (3) intravenous toxicity in the rabbit. Intravenous histamine phosphate intravenous toxicity in the rabbit. Intravenous histamine phosphate was at least 100 times as active as the 2-pyridylalkylamine hydro-chlorides in depressing blood pressure in the cat, whilst pyridyl-ethylamine N-methochloride hydrochlorides were without effect, and β -4-pyridylethylamine dihydrochloride produced a weak pressor response. The rabbit's ear vessels on the side with an intact cervical sympathetic were dilated, and peripheral vasodilatation probably causes the lowered blood pressure. Those substances resembling histamine in action on the guinea-pig produced death by respiratory failure. Babbit uterus and intestine were stimulated by respiratory failure. Rabbit uterus and intestine were stimulated by all of the 2-pyridylalkylamines and these substances were less toxic than histamine when injected intravenously in the rabbit

H. C. S.

Toxicology of diethylstilbæstrol and related compounds .- See A., 1942, III, 890.

Hippuric acid synthesis in the rat after carbon tetrachloride. G. Montes, R. S. Teague, and E. E. Nelson (J. Pharm. Exp. Ther., 1942, 75, 260–264).—After administration of Na benzoate, excretion of hippuric acid (calc. as benzoic acid) proceeds more slowly in the normal rat than Griffith found in the rabbit (cf. A., 1926, 972). Neither acute nor chronic hepatic injury from CCl_4 altered the normal rate of hippuric acid excretion in an 8-hr. period.

H. C.

Poisoning due to methyl salicylate. I. S. Epstein and J. L. Work (*Ohio Sta. Med. J.*, 1942, **38**, 225–226).—Death occurred in a 5-year-old boy 19 hr. after taking 2 tablespoonfuls of an oil of winter-green rubbing mixture. Vomiting was the predominant symptom and the post-mortem showed changes similar to those seen in asphyxia. E. M. J.

Mental symptoms following carbon disulphide absorption and intoxication. F. J. Braceland (Ann. int. Med., 1942, 16, 246-261). —Acute CS₂ poisoning produces effects similar to those following inhalation of volatile anæsthetics. Chronic CS₂ absorption produces liver damage and subsequent vitamin-B deficiency. Toxic CS_2 psychosis is characterised by confusion, aggressiveness, hallucinations, delusions, depression, and amnesia for the acute attack. Gradual personality changes show a phase of irritability, depression, headache and insomnia, nightmares, lessened libido, and marked fatigue. AS

Fatal uræmia following single exposure to carbon tetrachloride fumes. W. F. Ashe and J. Sailer (*Ohio Sta. Med. J.*, 1942, 38, 553—555).—A 44-year-old man died 17 days after cleaning machinery with CCl₄, an operation lasting 4 hr. He soon became nauseated and vomited, on the third day he became anuric, passed 30—50 c.c. on the 5th—7th day, 390 c.c. on the 10th, and 1650 c.c. on the last day. Final blood vals. (mg.-%) were urea 149, creatinine 7-5, plasma-chloride mostly below 400. Post-mortem findings included diffuse toxic nephrosis central necrosis and focal fatty degeneration diffuse toxic nephrosis, central necrosis and focal fatty degeneration of the liver, fatty degeneration of the adrenal cortex, and toxic degenerative changes in the globus pallidus, pons, and medulla. E. M. J

Pathology and symptoms of phosgene poisoning. E. Rothlin (Schweiz. med. Wschr., 1941, 71, 1526—1535).—The mean lethal dose of COCl₂ in rats is 100 mg. per cu.m. acting for 20 min. Wt. and vol. of the lungs of gassed animals are greatly increased. 0.1 c.c. of 10% "Calcium-Sandoz" per 100 g. body-wt. was subcu-taneously injected beginning 24 hr or 3 days after the gassing. The taneously injected, beginning 24 hr. or 3 days after the gassing. The pulmonary tissue of these animals was practically normal; treated animals did not show marked lymphopenia and neutrophilia for 4-5 weeks. Untreated animals showed further marked eosinokg.) produces rapid pulmonary cedema and hæmorrhages; the pulmonary wt. and vol. are trebled; hæmoglobin, red cell and thrombocyte counts are increased. Previous administration of atropine increases the sensitivity to adrenaline. After previous administration of ergotamine, the animals tolerated twice the lethal dose of adrenaline; pulmonary changes were absent. Animals gassed with $COCl_{a}$ show an increase in pulmonary wt. of 300 and of pulmonary vol. of up to 500%; the hæmoglobin conch. may rise to more than 150%, the thrombocyte to 900,000 per cu.mm. There is marked lymphopenia (10% of normal). Up to 20 min. after the exposure there is marked bronchospasm, atelectatic patches, hyperæmia, and marginal emphysema, but no œdema. There is slight cerebral œdema and marked hyperæmia of spinal cord, spleen, and kidneys and commencing fatty degeneration of the liver. These changes increase in severity up to 8 hr.; then pulmonary œdema and compensatory emphysema are very marked; the heart shows degenerating muscle fibres. Similar changes were observed when COCl₂ was injected intravenously or intraperitoneally. Subcutaneous injection of ergotamine produced protection in 50-60% (0.5—1.0 mg. per kg.) and in 40-45% with 2.5—5.0 mg. per kg. if given 1 hr. before the exposure; it had no effect if given immediately after the gassing. The protection prevented the severe pathological changes in lungs, central nervous system, and blood; heart, liver, kidneys, and spleen showed the usual lesions. Treatment with $2 \cdot 5$ — $5 \cdot 0$ or 10 mg. per kg. of dihydroergotamine afforded protection in only 20 and 10% respectively. Evipan anæsthesia affords slight protection against COCl₂ because of the diminution of respiratory activities. 'A. S.

Neuropathology of benzedrine poisoning. P. G. Schube and N. Raskin (*Psychiat. Quart.*, 1940, **14**, 264–266).—Cerebral vaso-dilatation and hæmorrhages were found (guinea-pig, rat). H. L.

Toxicity of mustard oil prepared from mustard seed and cakes undergoing microbial decomposition. S. N. Sarkar (Current Sci. 1942, 11, 239) .- The oil, prepared from argemone-free mustard seed undergoing microbial decomp. and resembling samples of oil reputed to have produced symptoms of epidemic dropsy in man, is fairly H. G. R. toxic to rats.

Chemical test for argemone oil and its application to dropsy-positive mustard oils. S. N. Sarkar (Ann. Biochem. Exp. Med., 1941, 1, 271-276).—When argemone oil is heated with FeCl₃ solution in the presence of conc. HCl and alcohol an orange-red ppt. is formed. This qual, test detects argemone oil in 0.75% conc. 3 reputed dropsy-positive samples of mustard oil failed to give positive argemone tests. P. C. W

Post mortem and histological changes in tissues of rats fed on mustard oil samples prepared from mustard seeds and cakes under-going microbial decomposition. T. N. Sen (*Current Sci.*, 1942, 11, 239-241).—The liver and lungs exhibited marked dilation and engorgement but only slight changes were observed in the kidney and spleen. The auricles and the superior and inferior venæ cavæ were distended with an accumulation of dark blood and the coronary blood vessels were engorged. H. G. R.

Chemical war materials. XXV. Hydrolysis of compounds with a structure similar to that of mustard gas.—See A., 1942, I, 401.

Chemistry and pharmacology of "Cundeamor," Momordica charantia, L. H. G. Rivera (Amer. J. Pharm., 1942, 114, 72-87; cf. B., 1941, III, 342).—An infusion of the drug exerts some hypoglycæmic action in rabbits, which is enhanced when a crude cryst. substance extracted from the drug is used. The citrated crude alkaloid has rather a hyperglycæmic than hypoglycæmic action. An alcoholic extract is toxic in rabbits and rats, which show liver and gall bladder damage. A toxic saponin-like substance and a non-toxic glucoside are present. The mode of action of the drug in P. G. M. diabetes may be different from that of insulin.

Liver extract in treatment of acne vulgaris in tuberculous patients. M. R. Lichtenstein and A. W. Stillians (Arch. Dermat. Syphilol., 1942, 45, 959–962).—21% of 57 patients were greatly, 19% moderately, and 14% slightly improved; 45% received no benefit.

Autonomic drug skin test with electrophoresis. F. Deutsch and R. Nadell (J. invest. Dermat., 1942, 5, 87-93).—Ionisable auto-nomic drugs (mecholyl, adrenaline) are introduced into a skin area by electrophoresis, and their influence is determined into a skin area by electrophoresis, and their influence is determined on the development of a subsequent electrophoretic histamine effect on this skin area. Some individuals have a high reactibility only to one; others, to both; and others, to none of the autonomic stimuli. The test can be used for the determination of the autonomic equilibrium of the skin tissue. C. J. C. B.

Bee venom in treatment of chronic arthritis. A. Cohen, A. W. Dubbs, J. B. Pearah, and C. J. Best (*Penn. Med. J.*, 1942, 45, 957-959).—Improvement was obtained in 70-80% of 53, 39, and 24 cases respectively of chronic arthritis or fibrositis treated by intracutaneous injections of bee venom, 12.5% MgSO₄, or 10% glucose over the affected joint. E. M. J. glucose over the affected joint.

Medical aspects of chemical warfare. I. M. Pochapin (Penn. Med. J., 1942, 45, 795-800). E. M. J.

[Treatment of] post-vaccinial encephalitis. C. L. Davidson and J. T. Thomas (Arch. Dis. Childh., 1942, 17, 162—165).—A case of post-vaccinial encephalitis in an infant of 4 months is reported. Recovery followed treatment with intravenous pentothal Na and convoluent server. C. J. C. B. convalescent serum.

Histamine iontophoresis in treatment of Raynaud's disease and acrocyanosis. I. Shulman (*Med. Ann. Columbia*, 1942, 11, 137-142).—Histamine iontophoresis applied to the hands of 10 cases of Raynaud's disease and 2 of acrocyanosis was followed by an average increase of 44% in the rate of inflow of blood and 47% in the capacity vol. measured by the plethysmograph. Acceleration of flow in the capillaries and diminution in the no. of attacks were also seen. E. M. I.

Antibodies against aminothiazole. E. Berger (Schweiz. med. Wschr., 1941, 71, 1376—1377).—2-Aminothiazole antisera were tested against 2-aminopyridine, 2-aminothiazole, 2-acetamidothiazole, nicotinamide, thiazole-5-carboxylic acid, and piperidine, by Land-steiner's "inhibitory reaction." Aminothiazole antisera contain antibodies which react also against pyridine. There was no quant. A. S. difference.

XXI.—PHYSIOLOGY OF WORK AND INDUSTRIAL HYGIENE.

Arrested tuberculosis and hospital employment. L. Brahdy (J.Ind. Hyg., 1942, 24, 53—58).—A discussion of the employment in hospitals of patients with arrested lesions; it is considered that such employment does not cause reactivation of lesions although judgements given in claims for compensation have been based on the contrary opinion. E. M. K.

Unusual location of pneumatic hammer disease [traumatic arteritis obliterans]. J. H. Mills (Northw. Med., 1942, 41, 282-283).—A 37-year-old man who had worked a pneumatic hammer in drilling rock for 5 months, and constantly used his left foot in pressing down the drill, 4 months later developed the symptom complex of arterial occlusion of the left leg. Some time later the leg had to be amputated for impending gangrene of the great toe and a histological diagnosis of thromboangiitis obliterans of the posterior tibial artery was made.

E. M. J. **Pneumonoconiosis in tale industry.** F. W. Porro, J. R. Patton, and A. A. Hobbs (*Amer. J. Roentgenol.*, 1942, **47**, 507-524). H. L.

Absorption, accumulation, and excretion of ingested silica. J. L. Webb, R. M. Selle, and C. H. Thienes (J. Ind. Hyg., 1942, 24, 43–45).—Ingested SiO₂ caused no pathological changes in rats, nor did it affect their growth. About 5% of ingested SiO₂ was absorbed, of which 4% was excreted in the urine and 1% stored in the liver, spleen, and testis. E. M. K.

Preventing heavy metal poisoning in industrial operations. W. M. Pierce (*Chem. Met. Eng.*, 1942, **49**, No. 9, 141-143).—A review with special reference to Pb.

Protective methods for prevention of industrial dermatoses. L. Schwartz (N.Y. Sta. J. Med., 1942, 42, 1525-1528). E. M. J.

[Industrial] skin irritants. E. D. Osborne and J. J. Hallett (N.Y. Sta. J. Med., 1942, 42, 1529-1531). E. M. J.

Skin sensitisation [in industry]. R. L. Baer (N.Y. Sta. J. Med., * 1942, 42, 1531--1537). E. M. J.

XXII.—RADIATIONS.

Effect of visible light on development of tumours induced by benzpyrene in mice.—See A., 1942, III, 822.

Ultra-violet light inactivated antigens for complement fixation tests with central nervous system virus infections.—See A., 1942, III, 855.

Biological action of ionising radiations. G. Failla (Amer. J. Roentgenol., 1940, 44, 649-664).—A lecture. H. L.

Treatment of radiation injuries [by a-rays]. E. Uhlmann (Radiology, 1942, 38, 445—452).—Application of Rn in vaseline (0.0364 mc.d. per g.) in weekly treatments lasting 8 hr. and of 10% boric acid ointment in the intervals is advocated and good results are reported. (No cure rate figures are given.) E. M. J.

Cathode rays for radiation therapy. J. G. Trump, R. J. Van de Graaff, and R. W. Cloud (*Amer. J. Roentgenol.*, 1940, 43, 728–734). —1500-kv. cathode rays have a max. penetration of 7 mm. in tissue or water. Within this range they have the advantage over X-rays of lower skin damage, higher intensity at the inner region of a malignant neoplasm, and of the absence of destructive action beyond the well defined range of electrons. H. L.

Employment of various qualities of Reentgen rays in therapy. E. H. Quimby (*Radiology*, 1942, **38**, 261–272). E. M. J.

Irradiation in infections. L. B. Goldman (N.Y. Sta. J. Med., 1942, 42, 1341-1345).—Report of 640 cases. E. M. J.

Action of Reentgen rays on inflammatory conditions. A. U. Desjardins (*Radiology*, 1942, 38, 274–280). E. M. J.

Radiotherapy in postoperative parotitis. R. E. Fricke and G. F. Madding (*Radiology*, 1942, **38**, 294–298).—No significant difference was seen in the mortality rate of 111 cases treated with radiotherapy and 79 by other means. Of the 19 deaths only one was definitely due to the parotitis. E. M. J.

X-Ray treatment of acute postoperative parotitis. E. P. Pendergrass and P. J. Hodes (*Radiology*, 1942, **38**, 307-310).—After drainage through Stenson's duct has been established 150 r. (in air) at 130 kv. and 0.25 mm. Cu and 1 mm. Al filtration were given on 2 consecutive days,100 r. on the 3rd, and occasionally 75-100 r. on the fifth. "Milking" of the gland to keep drainage open was an important ancillary measure. 40% of 47 cases responded rapidly, a further 28% more slowly. E. M. J.

X-Ray treatment of acute general peritonitis. J. F. Kelly and D. A. Dowell (*Radiology*, 1942, **38**, 299-306).—50-75 r. were given at 90—130 kv. and 2—5 mm. Al filter 1—3 times daily in 51 cases; the mortality was reduced to 25% from 68% in 109 cases

treated by general measures only and 38% in 42 cases receiving in addition sulphanilamides. E. M. J.

Roentgen therapy in pneumonia. J. P. Rousseau, W. M. Johnson, and G. T. Harrell (*Radiology*, 1942, **38**, 281-289).-200 r. (in air) produced at 120 kv. and with a 3-mm. Al filter and 40 cm. target-skin distance were given to the affected side of the chest once or twice at 36-hr. interval in 104 cases of pneumococcal pneumonia. The temp. fell by rapid lysis in most cases within 12-36 hr. 6 cases died. 7 deaths were seen in 29 similarly treated cases which had not responded to sulphonamides. E. M. J.

Roentgen therapy for acute sinusitis. W. C. Popp and H. L. Williams (*Radiology*, 1042, 38, 290-293).—A 2-field technique converging at 45° towards the nose gave better results than 3 ant. fields on forchead and both antra. 50-100 r. were given 1-3 times at 130 kv. and 6-mm. Al filter. E. M. J.

Physical study of intracavitary radium therapy. W. V. Mayneord and J. Honeyburne (Amer. J. Roentgenol., 1941, 45, 235-249).— New methods of calculating the distribution of radiation around Ra containers are described. A study of type of dose contours around linear sources is made and complete distributions are calc. around a representative series of Ra needles and tubes. New methods are described for the investigation of dose distribution through a given vol. by the use of modified contour projectors and dose finders. The distribution of radiation in a series of mutually perpendicular planes is calc. for standard clinical arrangements of Ra sources and the isodose surfaces finally built up. H. L.

Differentiation between direct and indirect effect of Roentgen rays on organs of normal and adrenalectomised rats. C. P. Leblond and G. Segal (Amer. J. Roentgenol., 1942, 47, 302-306).—Thymolymphatic atrophy and adrenal hypertrophy were const., fatty liver and gastric ulceration frequent, after heavy irradiation of lower abdomen or head and neck. After adrenalectomy, only the gastric lesions occurred and the general lethal effect of the rays was increased. Thymolymphatic atrophy can also be produced by direct irradiation; lesions of testicular epithelium can only be produced by uch direct effect. H. L.

Radiation effects on blood vessels [immediate and delayed]. J. Borak (Radiology, 1942, 38, 481-492, 607-617, 718-727).-A review. E. M. J.

Effect of Roentgen irradiation on blood vessels of repair tissue and Brown-Pearce rabbit epithelioma.— See A., 1942, III, 825.

Pharmacology of human blood after exposure to Rœntgen rays.— See A., 1942, III, 793.

Direct or indirect action of Reentgen rays on brain. F. Ellinger (Amer. J. Roentgenol., 1942, 47, 775-776).—Survival time and blood vessel changes in goldfish were equal after irradiation with 1500 r. (lethal threshold dose) or 10,000 r.; the histological changes in the brain, especially of medulla oblongata, were, however, more severe with the higher dosage. It is concluded that the differences in the effects of increasing doses is due to direct action of radiation on the nerve cells. H. L.

Effect of Rœntgen irradiation on lymphatic transport of India ink. E. D. Sugarbaker and K. Sugiura (Amer. J. Roentgenol., 1940, 44, 756-777). H. L.

In vitro response of lymphocytes to minimal doses of X-rays.— See A., 1942, III, 797.

Effect of high-voltage Rœntgen rays on heart of adult rats.—See A., 1942, III, 800.

Effect of Rœntgen irradiation on experimental hyperthyroidism.— See A., 1942, III, 807.

Radiation reaction in lung. S. Warren and J. Spencer (Amer. J. Roentgenol., 1940, 43, 682-701).-12% of 234 irradiated cases showed histologically changes resembling chronic non-sp. interstitial pneumonitis referable to the irradiation; reartgenologically they were apparent in 8% of 62 cases. Radiation reaction is sometimes slight and transient and not directly correlated to amount of radiation, thickness of chest wall, existence of pulmonary metastases, pneumonia, or age. H. L.

Post-irradiation changes in lungs and thorax. J. R. Fried and H. Goldberg (*Amer. J. Roentgenol.*, 1940, **43**, 877–895).—A clinical, roentgenological, and pathological study with emphasis on the late and terminal stages. H. L.

Effect of Rcentgen rays on peripheral nerve [in rat]. A. H. Janzen and S. Warren (Radiology, 1942, **38**, 333–337).—4000—10,000 r. at 200 kv. produced no changes. Complete degeneration of the nerve fibres resulted from exposure to 1200-1600 mc.-hr. of γ -radiation. E. M. J.

Changes in central nervous system of goldfish irradiated in depth of water phantom. F. Ellinger and C. Davison (*Radiology*, 1942, 39, 92—95).—Changes in the medulla oblongata of goldfish after irradiation by X-rays ($\frac{1}{2}$ -val. layer 0.9.and 1.0 mm. Cu) and consisting of destruction of myclin sheaths and disappearance of nerve cells were more marked in fish kept at 10 cm. depth than at the surface and receiving a smaller "physical" dose. E. M. J.

Irradiation effect on cells and tissues of skin. W. F. Harvey (*Edinb. Med. J.*, 1942, **49**, 529-552).—A review. 35 photographs and extensive bibliography. H. S.

Statistical study of late effects of heavy Roentgen irradiation on healing of skin wounds. W. G. H. Dobbs (Amer. J. Roentgenol., 1941, 45, 107-108).—Irradiation of the skin of albino rats with 4500 r. 60 days preceding linear incision of the treated skin resulted in interference with healing as determined by wound tensile strength. H. I.

Effects of Ræntgen irradiation at low temperature on skin of young rats. T. C. Evans (Amer. J. Roentgenol., 1941, 45, 888-894).—Chilling of the animals in a refrigerator at 0° for 10 min. reduced their skin radiosensitivity. H. L.

Effects of thymus and testis of rat when thymus is irradiated. B. Jolles (*Amer. J. Roentgenol.*, 1941, 45, 259—264).—Irradiation of the thymus with 2200 r. in 2-day-old rats produced atrophy or destruction of the thymus; the testes showed no changes as long as 92 days after irradiation. Irradiation of 30—40-days-old animals with 1000—1500 r. did not produce complete atrophy of the thymus; the testes remained normal. Irradiation of the testis with 1, 2, and 5% of the thymus dose did not produce any changes in that organ detectable 35—50 days afterwards. H. L.

Physiological changes in skin produced by neutrons. J. C. Larkin (Amer. J. Roentgenol., 1942, 47, 733-739).—The scratch test in areas of irradiation erythema shows a persistent white reaction indicating increased capillary sensitivity. In an individual with factitious urticaria, neither scratching nor local application of histamine, with or without previous local injection of adrenaline, produced wheal formation on areas of irradiation erythema. Skin temp. was not elevated during the latent period of erythema. Late changes of skin vessels were not associated with changes in skin temp. H. L.

Case of radium poisoning. R. H. Stevens (*Radiology*, 1942, **39**, 39–47).—A 36-year-old man with Hodgkin's disease was given, besides deep X-ray treatment, intravenous injections of $20-50 \ \mu g$. of RaCl₂ at irregular intervals up to a total of $440 \ \mu g$. in 5^3_4 years. Destruction of the 10th dorsal vertebra was noticed 6 years and necrosis of the mandible another 2 years later. At that time an examination for radioactivity revealed 281 counts per min. in the lower spine and 494 over one cheek. A sequestrum removed from the jaw 10 years after the last injection weighed 0.525 g. and had a radioactivity corresponding to $2\mu g$. of Ra (by the photographic method). The spinal lesion healed 2 years later and now the patient is leading a normal life.

Dependence of biological effect of radiation on intensity and wavelength as measured by delayed lethal action on chick embryos. D. E. Lea (*Amer. J. Roentgenol.*, 1941, 45, 605-613).—When chick embryos after 6 days' incubation were irradiated with a given dose in a single exposure at intensity greater than 10 r. per min., the effect was independent of intensity; it was reduced by spreading the dose over a long period by continuous irradiation at low intensity or division into a series of fractions of high intensity with intervals between. The doses of γ -, medium and soft X-rays required to produce the same effect were in the ratio 1:0.6:0.55. H. L.

Relation between X-ray dosage and lymphoid cell migration in vitro. W. Stenstrom, J. T. King, and A. F. Henschel (Radiology, 1942, 38, 477-480).—Tissue cultures of fragments of adult rabbit mesenteric lymph nodes were irradiated at 200 kv., 30 ma., 0.28 mm. Cu filtration, and 162 r. per min. Inhibition of migration rose from 8.8% at a dose of 39 r. to 35% at 620 r. and 84% at 40,000 r. From the widely different rates of increase of inhibition below and above 620 r. the existence of 2 types of lymphoid cells which differ widely in their sensitivity to X-rays is inferred. E. M. J.

Effect of injection of distilled water on growth of irradiated mouse sarcoma 180. K. Sugiura (*Amer. J. Roentgenol.*, 1940, 43, 533— 538).—The radiosensitivity of this sarcoma was markedly increased by injection of distilled water or hypotonic Locke-Ringer solution following local X-ray treatment; it was not influenced by isotonic or hypertonic Locke-Ringer solution nor by daily repeated local injection of distilled water without previous irradiation. H. L.

"Contact" Roentgen rays. Time-intensity factor of the "tumour dose" for rat sarcoma 39 in situ. J. Gershon-Cohen, H. Shay, and S. S. Fels (Amer. J. Roentgenol., 1941, 45, 600-604).—10,000 r. given as single dose with the Chaoul contact therapy apparatus when the tumour was 10-15 mm. in diameter (15-19 days after transplantation) effected destruction of the tumour with survival of the animal. With divided doses the effect was the greater the shorter was the interval. H. L.

Influence of extraneous protein and virus concentration on inactivation of rabbit papilloma virus by X-rays.—See A., 1942, III, 825 Radiosensitivity of tumours. S. Warren (Amer. J. Roentgenol., 1941, 45, 641-650).—A lecture. H. L.

Radiation osteitis of ribs. L. W. Paul and E. A. Pohle (*Radiology*, 1942, 38, 543-549).—15 cases of symptomless pathological fractures of ribs with local rarefaction and tendency to non-union occurring 1—4 years following the end of deep X-ray therapy for mammary carcinoma are described and interpreted as radiation osteitis. E. M. J.

Tissue reactions after [diagnostic] injections of thorotrast. F. Wohlwill (Schweiz, Z. Path. Bakt., 1942, 5, 21-52).—Report of 49 cases, including 38 post-mortem examinations. E. M. J.

Pharmacological behaviour of sodium thorium tartrate and its Reentgen diagnostic value. F. R. Greenbaum and C. E. Aye (Amer. J. Roentgenol., 1941, 45, 265-272). H. L.

γ-Radiation from airplane instruments. R. B. Taft (*Amer. J. Roentgenol.*, 1942, 47, 467).—The amount of radiation from fluorescent dials in various airplanes to the pilot was 0.00012 r. per hr., indicating no dangerous exposure. H. L.

Measurements in reentgens of γ -radiation from radium by free air ionisation chamber. L. S. Taylor and G. Singer (Amer, J. Roentgenol., 1940, 44, 428—443).— γ -Rays could be satisfactorily measured in r. so long as the pressure was sufficient to give an effective free path between the beam and the measuring electrodes equal to the longest range of the recoil electrons. Since the ranges overlap those involved in X-ray scattering up to 1.5×10^6 v., X-rays up to at least 1.5×10^6 v. may be measured in r. under free air conditions. It is therefore possible to calibrate directly thimble chambers against a free air standard for all excitations at present available. Also, having established a val. for r. per mg.-hr. at 1 cm., radioactive preps. can be directly calibrated without further reference to the primary Ra salt standards. H. L.

Measurement of γ -radiation in reentgens. T. N. White, L. D. Marinelli, and G. Failla (*Amer. J. Roentgenol.*, 1940, 44, 889–903). —A method is described for measuring γ -rays in r. which, though differing considerably in geometrical conditions of source and ionised vol. from the thimble chamber method, gave a val. ($8\cdot47\pm2\%$ r. per mg.-hr. at 1 cm. distance) agreeing well with that obtained by the latter method. H. L.

Dosage measurements with million-volt Roentgen rays. E. H. Quimby and E. F. Focht (Amer. J. Roentgenol., 1941, 46, 376-399). H L.

Stability of standard dosage-effect curve for radiation. C. I. Bliss and C. Packard (Amer. J. Roentgenol., 1941, 46, 400-404).—A statistical study of the survival of Drosophila eggs irradiated with various doses of X-rays. H. L.

Low-absorption Reentgen ray measurements for 10–250 kv. E. D. Trout and Z. J. Atlee (Amer. J. Roentgenol., 1942, 47, 785– 790).—Curves showing the relation of the half-val. layer in Be, Al, and Cu to the inherent filtration at 10–250 kv., and absorption data in Be, Al, Cu, Pyrex glass, oil, and bakelite for the same voltages are given. The use of Be in making and reporting absorption data at very low voltages is recommended. H. L.

Simplified depth-dosage calculation for clinical purposes. G. E. Roth (Amer. J. Roentgenol., 1941, 45, 915—921).—Graphs are given from which the val. of the dose at 10 cm. depth can be read off as % of the incident radiation for any focal skin distance between 30 and 120 cm. and for all sizes of portal areas between 25 and 400 cm.³ A nomogram is given allowing determination of the depth-dose as a % of incident radiation at any other depth than 10 cm. Graphs are given enabling depth-dose vals. to be derived within the quality range 0·3—1 and 2—2·6 mm. Cu half-val. layer. H. L.

Production and measurement of soft Reentgen rays for biological experiments. D. E. Lea (*Amer. J. Roentgenol.*, 1941, 45, 614—619). A continuously evacuated X-ray tube is described operating at 3-40 kv and producing nearly homogeneous monochromatic characteristic X-rays of λ 1·5—8·3 λ . As the same metal foil serves as target and as window, the specimen to be irradiated can be brought within a few mm. of the target, and intensities of 1000 r. per sec. are obtainable at very low power inputs. Methods of measuring dosage-rate and degree of homogeneity of radiation are described. H. L.

Dosage determinations with radioactive isotopes. L. D. Marinelli (*Amer. J. Roentgenol.*, 1942, 47, 210-216).—Formulæ are developed for measuring radiation to tissues when the isotope concn. in the tissues is known. H. L.

Use of cathode-ray oscillograph for measuring Ræntgen tube voltage. C. Weyl, S. R. Warren, jun., and D. B. O'Neill (*Amer.* J. Roentgenol., 1940, 43, 428-432). H. L.

Portable indicating X-ray dosimeter.-See A., 1942, I, 411.

Practical ræntgenographic densitometer. H. E. Webber (*Amer. J. Roentgenol.*, 1941, **46**, 104—108).—A portable apparatus requiring only 110 v. a.c. is described for measuring relative density vals. H. L.

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Sensitometry of Rœntgen films and interpretation of sensitometric data. G. C. Henny (Amer. J. Roentgenol., 1941, 45, 895—908).— Theoretical and practical aspects are discussed. H. L.

Report of research and standardisation committee of American Radium Society (Amer. J. Roentgenol., 1940, 43, 118-125).

Comparison of certain aspects of 200- and 400-kv. radiation. C. C. McClure (*Amer. J. Roentgenol.*, 1941, **45**, 909-914).—Cu absorption curves with thimble and flat filters showed that X-rays at 210 and 400 kv. become softer after passing through paraffin (which has about the same effect as tissue). At a depth of 10 cm. the 400-kv. (peak) rays contained a large amount of soft radiation but were still much more penetrating than the corresponding 210-kv. (peak) radiation. H. L.

Physical characteristics of supervoltage Reentgen rays. J. G. Trump and R. W. Cloud (*Amer. J. Roentgenol.*, 1940, **44**, 615–618).—In radiation produced in a voltage range of 300—1400 kv. by the generator described previously, an increase in voltage is accompanied by an increase in depth dose with a reduction in scattering. With filtration of 2 mm. of Pb, 5 mm. of Cu, and 2 mm. of Al, a treatment distance of 70 cm., and with a 10×10 cm. field, a treatment rate 45 r. per min. measured by the standard thimble chamber in free air will be obtained with the generator operating at 1200 kv. with 0.5 ma. on the target. H. L.

Simple technique and new instrument for rapid Rœntgen pelvimetry. W. Snow and F. Lewis (Amer. J. Roentgenol., 1940, 43, 132-137). H. L.

Compact, supervoltage, Rcentgen ray generator using a pressureinsulated electrostatic high-voltage source. J. G. Trump, R. J. Van de Graaff, and R. W. Cloud (*Amer. J. Roentgenol.*, 1940, 44, 610—614).—A 1·25-Mv. const.-potential electrostatic X-ray generator is described. Above 600 kv., X-ray intensity increases about as the 2·7 power of the voltage from "unfiltered" and as 3·2 power for the "filtered" radiation. This rapid increase of intensity with voltage permits the generator operating above 1000 kv. to produce considerable intensity with less than 1 ma. of current on the target. H. L.

Design of 4-g. radium bomb. A. H. Warner and R. H. Neil (Amer. J. Roentgenol., 1940, 44, 117-121). H. L.

Exposure meter for rœntgenography. R. H. Morgan (Amer. J. Roentgenol., 1942, 47, 777-784). H. L.

Relative biological effectiveness of Roentgen rays and neutrons on regeneration of fore-limb of Amblystoma larves. E. C. Horn (Amer. J. Roentgenol., 1941, 46, 727-731).—X-Ray dosage required for preventing regeneration was 13-14 times that of the neutron dosage as measured per unit of ionisation. H. L.

Effects of Roentgen rays on Saccharomyces cerevisia. P. S. Henshaw and H. Turkowitz (Amer. J. Roentgenol., 1940, 43, 93— 106).—The growth of samples receiving varying amounts of radiation was determined by measuring the turbidity of the suspensions photometrically. Growth was delayed by irradiation owing to organisms being killed; delay plotted as function of exposure to radiation gave an exponential curve. Organisms surviving appeared as vigorous as controls. No threshold dose of radiation is required before an effect begins to be manifest. Cells affected lethally may undergo several divisions following exposure but rarely beyond the 40-cell (colony) stage. H. L.

Experimental modification of sensitivity of yeast to Rœntgen rays. R. S. Anderson and H. Turkowitz (*Amer. J. Roentgenol.*, 1941, 46, 573-542).—*Torula cremoris* cells were more sensitive to X-rays in the presence of O_2 than in its absence. H. L.

Effect of Ræntgen therapy on infections produced in skin of rabbits with cultures of *Streptococcus hamolyticus* and *Staphylococcus aureus.* D. M. Angevine and A. Tuggle (*Amer. J. Roentgenol.*, 1941, 46, 96-103).—The effects were: increased no. of lesions, more necrosis, enhanced invasiveness of the organisms. H. L.

Combined action of Roentgen rays and sulphanilamide on Staphylococcus aureus. R. Flocks, O. N. Fellowes, and H. D. Kerr (Amer. J. Roentgenol., 1940, 44, 115—116).—No synergistic reaction between the 2 agents was observed in mice inoculated with Staph. aureus. H. L.

Action of Roentgen rays on gametes of Arbacia punctulata. I. Delay in cell division caused by exposure of sperm to Roentgen rays. II. Modification of the mitotic time schedule in the eggs by exposure of the gametes to Roentgen rays. III. Fixation of irradiation effect by fertilisation in the egg. P. S. Henshaw. IV. Changes in radiosensitivity during the first cleavage cycle. P. S. Henshaw and I. Cohen. V. Influence of low temperature on recovery from Roentgen ray effects in the eggs. VI. Production of multiple cleavage in the eggs by exposure of the gametes to Roentgen rays. P. S. Henshaw (Amer. J. Roentgenol., 1940, 43, 899-906, 907-912, 913-916, 917-920, 921-922, 923-923).—I. Normal eggs fertilised with irradiated sperm showed delay in occurrence of the first cleavage which varied linearly with the log of exposure for the greater range of the effect produced. For relatively small doses none of the sperm failed to carry irradiation effect into the eggs; fertilisation was prevented entirely only after doses of 300,000 r. or more. In this particular case, cell division can be retarded by irradiation produced in half the normal nuclear component; the effect is cumulative in each cell treated. The effect cannot be attributed to ionisation alone unless the sensitive units are large mol. aggregates.

II. Exposure of sperm or eggs to 62,450 r. does not retard the entrance of sperm into the egg, its movement through the egg cytoplasm, or its fusion with the egg nucleus. The greatest delay in the mitotic phases of the first cleavage occurred in the prophase.

III. Fertilisation acts to fix whatever irradiation effect is present at the moment of fertilisation.

IV. Eggs are more susceptible than sperm to intensities of 7800 r. per min. For equal doses of radiation, irradiation of the zygote produces a greater effect than treatment of either gamete alone; the same effect is obtained when both gametes are given the same treatment as the zygote. By 2 different methods of measuring the irradiation effect, the zygotes showed increase in susceptibility until the time of fusion of the pronuclei and decrease during the prophase. The peak in susceptibility was synchronous with the peaks of viscosity and permeability; there was no correlation between changes in radiosensitivity and rate of O₂ uptake.

cosity and permeability, there was no consistent permeability and rate of O_4 uptake. V. Lowering temp. from 24° to 0° reduced the amount of recovery. VI. Radiation to either gamete just prior to fertilisation caused multicleavage. This change, dependent on a threshold dose, was apparently not due to the change which produces delay in cleavage; it is also not due to polyspermy, irregularity of cytokinetic or karyokinetic rhythms with respect to each other, or incomplete fusion of the pronuclei. The first signs of multipolarity are the appearance of accessory asters which appear to be due to changes in the nuclear material and to cause hyperdivision of the chromatin. As chromatin deficiency usually results in cell death, the production of accessory asters appears as one of the important mechanisms by which irradiation causes cell death; as chromatin modification is also regarded as one of the plausible explanations of cancer, radiation seems to produce cell death and malignancy by the same mechanism.

H. L.

Effect of temperature and time on X-ray sensitivity of maize seeds. —See A., 1943, III, 862.

XXIII.—PHYSICAL AND COLLOIDAL CHEMISTRY.

Determination of coefficient of absorption of cellular pigments. R. Wurmser (*Rev. Brasil. Biol.*, 1941, 1, 325-327).—The formula by which the val. of the coeff. of absorption of cellular pigments may be calc. *in vivo* is given and discussed. I. C.

Electrophoresis of crotoxin. C. H. Li and H. Fraenkel-Conrat (J. Amer. Chem. Soc., 1942, **64**, 1586-1588).—By electrophoresis experiments crotoxin is proved to be a homogeneous substance and its isoelectric point is 4.71. Its solutions, unlike those of other proteins, do not exhibit "reversible" boundary spreading. W. R. A.

Electrophoretic patterns following aëration of ragweed pollen extract. H. A. Abramson and D. H. Moore (J. Biol. Chem., 1942, 144, 579—580).—Photographs of the electrophoretic patterns of ragweed pollen extract before and after aëration are reproduced, the beneficial effects of varying the time of exposure of both the negative and the print being illustrated. J. L. E.

Doubling [growth and division] of biocolloids. R. E. Liesegang (Kolloid-Z., 1942, 98, 358-367).—Published work is summarised and discussed. F. L. U.

XXIV.—ENZYMES.

Effect of $p_{\rm H}$ and presence of glucose on enzymic activities of bacteria.—See A., 1942, III, 852.

Simple method for enzyme concentration. J. Feigenbaum (*Nature*, 1942, **150**, 318-319).—The enzyme solution in a Cellophane bag is suspended in ethyl alcohol; water diffuses out, and part of the enzyme is pptd. The remainder is pptd. with abs. alcohol or acetone, centrifuged, washed with ether, and the whole is dried over H_2SO_4 . Inactivation was not observed. A. A. E.

Degradation of d-amino-acids by d-amino-acid oxidase.—See A., 1942, 11, 394.

Development of cytochrome oxidase in the chick embryo. H. G. Albaum and L. G. Worley (*J. Biol. Chem.*, 1942, 144, 697-700).— Cytochrome oxidase, measured by O_2 uptake in presence of cytochrome c and p-phenylenediamine, does not appear until the 4th day of incubation, and the O_2 uptake of extracts with or without p-phenylenediamine and cytochrome c cannot be inhibited with Na azide until this time. A sharp increase in enzyme activity and N content occurs at the 8th day, when fat begins to be utilised in place of carbohydrate. H. G. R.

Choline-oxidase activity of fatty livers .- See A., 1942, III, 818.

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Inactivation of fumarase by metallic ions. K. Laki (Z. physiol. Chem., 1942, 273, 248-252).-Inactivation of fumarase by heat is a unimol. reaction and is very rapid at 60°. Apparent inactivation by Cu'' and Hg'', also unimol., is due to catalytic effect on heatinactivation. These ions decrease the energy of activation. The consts. of the reactions are given. Inactivation by Fe''' and Ag' is not unimol.; these ions probably act by oxidising some particularly sensitive groups (e.g., thiol) in the enzyme. W. McC.

Rôle of phosphoric acid in dehydrogenation processes.—See A., 1942, III, 836.

Inhibition of catalase by hydroxylamine and p-hydroxylaminobenzenesulphonamide and the reversal of inhibition by serum, crystalline serum-albumin, and hæmin. M. G. Sevag, M. Shelburne, and M. Ibsen (J. Biol. Chem., 1942, 144, 711-717).—NH₂OH and p-hydroxylaminobenzenesulphonamide inhibit both the hæme and non-hæme type of enzyme system since they combine with both hæmin and cryst. serum-albumin free from hæmin. The inhibition is completely reversible in presence of these substances and serum. H. G. R.

Kidney- and blood-catalase activity of tumour-bearing animals.— See A., 1942, III, 824.

l(-)-Cysteic acid decarboxylase of dog's liver.—See A., 1942, III, 818.

Enzyme which inactivates cestrone.-See A., 1942, III, 811.

Influencing of enzyme reactions by chemotherapeutic and pharmaceutical substances. II. Restriction of choline-esterase by pyrazolones. Differentiation of choline-esterases of differing origin. E. A. Zeller (*Hetv. Chim. Acta*, 1942, 25, 1099—1110).—Choline-esterase is immediately reversibly and strongly restricted by antipyrin and its amino-, dimethylamino-, and isopropyl derivatives. Inhibitor concn. (x) and rate of reaction (y) are connected by the formula $y = ax^{-b}$. The restriction of choline-esterase by sulphonamides is likewise reversible. Amino- and dimethylamino-antipyrin are less and isopropylantipyrin is considerably more active than the parent compound. The degree of restriction does not depend solely on the basicity of the inhibitor mol. Like the diamines and sulphonamides, the pyrazolones restrict the choline-esterase of human serum more than that of guinea-pig serum. The choline-esterase of human and rat brain is much less restricted by pyrazolones than is that of human serum. H. W.

Inhibition and activation of atropine-esterase. D. Glick (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 104—108).—This enzyme (A., 1940, III, 826; 1942, III, 172) was equally activated by equimol. concns. of KCl, NaCl, NaBr, and NaI, more powerfully by CaCl₂, MgSO₄, and Na₂SO₄, and less so by KCNS. It is inhibited by NaCN, NaF, cysteine, glutathione, and eserine. Cystine activates it; Na citrate, Congo-red, and methylene-blue are without effect. V. J. W.

Hydrolysis of hyaluronic acid of human joint fluid in vivo. C. Ragan and A. DeLamater (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 349-351).—Injection of a hydrolysing enzyme from bull's testis into the knee-joint lowered viscosity of the joint fluid in 4 arthritic patients. V. J. W.

Action of phenylthiourea on tyrosinase. F. Bernheim and M. L. C. Bernheim (J. Biol. Chem., 1942, 145, 213—217).—Phenylthiourea is an effective inhibitor of tyrosinase when pyrocatechol, p-cresol, dihydroxyphenylalanine, tyramine, adrenaline, and tyrosine are used as substrates. In all cases inhibition is complete at first and then suddenly disappears, the final rate of oxidation of the substrate being the same as that of the control. The period of complete inhibition varies for each substrate, and the more rapidly the compound is oxidised the shorter is the period of inhibition. The latter is explained by displacement of the inhibitor from the enzyme surface by an intermediate, and to a smaller extent by an end-product. Na diethyldithiocarbamate causes an inhibition that increases with time, whilst inhibition by thiourea resembles that produced by phenylthiourea, but considerably larger amounts of thiourea are required. p-Aminobenzoic acid and various urethanes do not protect the enzyme against any of these inhibitors. Phenylthiourea has no immediate effect on O₂ consumption of slices or cell suspensions of rat liver, kidney, brain, and muscle, but there is a small decrease after incubation for approx. 3 hr. It has no effect on the activity of cytochrome-, succinic acid-, choline-, *l*-proline-, *d*-amino-, amine-, and sarcosine-oxidase of liver and kidney. Xanthine-oxidase of liver is slightly inhibited, but oxidation of glucose and lactic and pyruvic acids by brain is unaffected. J. N. A.

Protyrosinase in developing eggs of grasshopper.—See A., 1942, III, 791.

Inactivation of pyridine nucleotides by animal tissues in vitro. P. Handler and J. R. Klein (J. Biol. Chem., 1942, 144, 453-454; cf. A., 1942, III, 489),—Nicotinamide nucleoside remains unchanged after incubating with diphosphopyridine nucleotide and is therefore neither the end product of decomp. of pyridine nucleotides by animal tissues nor an intermediate in that process. L. L. W. Action of papain on ox serum-pseudoglobulin and on diphtheria antitoxin. M. L. Petermann (J. Biol. Chem., 1942, 144, 607–616). —An ultracentrifugal analysis of the action of papain, and the sedimentation properties and flocculation behaviour of the digests, were studied. Both cryst, and crude papain split the globulin into halves, quarters (sedimentation const. 5·3 and 3·7 Svedberg units, respectively), and dialysable fragments. The antitoxin is split into halves (sedimentation const. 5·5 units) and quarters (3·4 units), the halves resembling in solubility, precipitability by toxin, and in size those obtained by peptic digestion; there is no evidence of denaturation. L. L. E.

Synthesis of plasteins by the action of trypsin and papain on digests of insulin. J. N. Haddock and L. E. Thomas (J. Biol. Chem., 1942, 144, 691—695).—Plasteins are formed by the action of trypsin or papain on a conc. solution of the products of the peptic digestion of insulin and by papain on the protein-free concentrate of a papain digestion. These plasteins do not lower the blood-sugar of rabbits on subcutaneous injection. H. G. R.

Method of assaying trypsin.-See A., 1942, III, 817.

Phosphatase in developing teeth of rat. Phosphatase in chromosomes of mouse testes.—See A., 1942, III, 793.

Relation of phosphatase activity in bone tumours to deposition of radioactive phosphorus.—See A., 1942, III, 825.

Rôle of vitamin-C and phosphatase in bone formation.—See A., 1942, III, 821.

Adrenal cortex and alkaline phosphatase. W. Kutscher and H. Wüst (Z. physiol. Chem., 1942, 273, 235-247).—In guinea-pigs, adrenalectomy greatly decreases the alkaline phosphatase activity of the intestine and kidney. The effect is partly counteracted by administration of deoxycorticosterone acetate. Possibly the active component of the phosphatase is one of the sterol derivatives of the adrenal cortex. W. McC.

Plant phosphatases. III. Glycero- and pyro-phosphatases and phytase activities of plant tissues. K. V. Giri (Ann. Biochem. Exp. Med., 1941, 1, 297-306; cf. A., 1938, III, 955).—6 ccreals, 9 pulses, 10 oil seeds or nuts, 4 roots or tubers, 4 vegetables, and 4 leafy vegetables were analysed for glycero- and pyro-phosphatase and phytase activities. The concn. of the enzymes was higher in leaves, fresh vegetables, and tubers than in seeds rich in protein and starch. The ratio of pyro- to glycero-phosphatase activity was variable but in all cases greater than unity. In animal tissues and body fluids it is less than unity. P. C. W.

Inhibitors of potato phosphatase. L. Massart and K. Vermeyen (*Naturwiss.*, 1942, 30, 170).— 10^{-6} M-Na₂MO₄, -Na₂WO₄, and -phosphotungstate cause 62, 92, and 94% inhibition respectively of the enzyme in 5% aq. β -glycerophosphate at $p_{\rm H}$ 5·8. J. N. A.

Effect of inorganic plant nutrients on malt diastase activity. A. E. Braun (J. Biol. Chem., 1942, 145, 197-199).—The effect of a salt on diastase activity depends not only on the salt but also on its concn. in the medium. MnCl₂ up to an ionic strength of 0.3, and ZnCl₂ up to 0.0003, increase diastase activity, whilst FeCl₃, CuCl₂, and H₃BO₃ decrease the activity. Hence the metallic ion has a marked effect on diastase activity whilst CI' has little effect.

J. N. A. **Polysaccharide synthesis from glucose by purified enzymes.** S. P. Colowick and E. W. Sutherland (*J. Biol. Chem.*, 1942, **144**, 423– 437).—Phosphoglucomutase is prepared free from other enzymes which act on glucose 1- or 6-phosphate, by $(NH_4)_2SO_4$ fractionation of muscle extract and heating at $p_{\rm H}$ 5·2. Phosphoglucomutase + phosphorylase cause rapid formation of polysaccharide and inorg. phosphates from glucose 6-phosphate. Successive action of yeast hexokinase, phosphoglucomutase, and phosphorylase causes rapid synthesis of polysaccharide from glucose. L. L. W.

XXV.—MICROBIOLOGICAL AND IMMUNO-LOGICAL CHEMISTRY. ALLERGY.

Endogenous respiration of baker's yeast. H. Borei (*Naturwisš.*, 1942, **30**, 260—261).—The respiration of baker's yeast involves, first, a unimol. reaction which takes place during 2—3 hr. at 30° and, secondly, a reaction prolonged over several days. The limiting factor of the first is supply of substrate, whilst enzymes or purely physical phenomena control the second. There is a mathematical discussion of the relation of the cytochrome system and the effect of NaF and NaN₃ is also discussed. P. G. M.

Production of Gigas-mutations in yeast by carcinogenic hydrocarbons. R. Bauch (*Naturwiss.*, 1942, **30**, 263—264).—The effect of 3:4-benzpyrene, 1:2:5:6-dibenzanthracene, and methylcholanthrene has been investigated. P, G. M.

Rôle of adenine nucleotides and growth factors in increased proliferation following damage to [yeast] cells. J. R. Loofbourow (*Nature*, 1942, **150**, 349-350).—Adenosine, muscle-adenylic acid, or adenyl pyrophosphate stimulates the growth of yeast in wellsupplemented media. The metabolic effects of suspension fluids from damaged yeast cells are duplicated by combinations of adenine nucleotides and known growth factors. E. R. S.

Yeast-growth-promoting effect of diaminocarboxylic acid derived from biotin. V. du Vigneaud, K. Dittmer, K. Hofmann, and D. B. Melville (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 374—375).— This compound has 10% of the growth-stimulating activity of biotin, and, unlike biotin, is not inhibited by avidin. V. J. W.

Growth and fermentation of top-fermentation brewery yeasts with amino-acids as nutrients.—See B., 1942, III, 266.

Inhibition of fermentation by potassium cyanide and sodium fluoride. Co-enzyme of fermentation.—See A., 1942, III, 848.

Biological methylation. IX. Action of Scopulariopsis brevicaulis and certain Penicillia on salts of aliphatic seleninic and selenonic acids. M. L. Bird and F. Challenger (J.C.S., 1942, 574—577).— Na salts of methane-, ethane-, and propane-1-seleninic acids or their H nitrates with bread cultures of S. brevicaulis or of certain Penicillia yield dimethyl, methyl ethyl, and methyl propyl selenide respectively (absorbed in HgCl₂-dil. HCl), accompanied in the first two cases by methyl and ethyl H selenide, or the corresponding diselenides. The corresponding K selenonates with similar cultures give only dimethyl selenide. These results support the view that methaneselenonic and -seleninic acid and dimethyl selenone and selenoxide are intermediates in the conversion of H₂SeO₃ into dimethyl selenide by S. brevicaulis. A. LI.

Growth factor requirements and synthetic ability of Rhizopus suinus. W. H. Schopfer (Arch. Sci. Phys. nat., 1942, [v], 24, Suppl., 101—106).—Many species of Rhizopus grown on a medium containing only glucose, asparagine, $(NH_4)_2SO_4$, and K_2HPO_4 synthesise to a certain extent their own growth factors. Bios, and in particular biotin, are formed. When aneurin is added to such a medium, it inhibits growth of certain strains. A conc. extract of wheat germ when treated with C is completely inactive for growth of Phycomyzes but not for Rhizopus. The extract still contains a thermostable, active factor, and for Rh. suinus and Rh. oryzæ this factor can be replaced by relatively large amounts of asparagine, which annuls the inhibiting effect of aneurin. It can also be replaced by 25 μ s. per 25 c.c. of mesoinositol, the action of which is quite sp., and is not given by a large no. of related compounds. Using the Saccharomyzes test, it is shown that when the amount of aneurin is sufficient to inhibit growth there is a marked decrease in the amount of bios and biotin formed by the organism. Aneurin is not absolutely sp.; pyrimidine and to a smaller extent thiazole is also active. J. N. A.

Vitamin-growth factor requirements and synthetic ability of *Trichophyton*. Conditions for synthesis. W. H. Schopfer and S. Blumer (*Arch. Sci. Phys. nat.*, 1942, [v], 24, *Suppl.*, 106—112).— When *T. album* is grown on a Czapek-Dox medium, glucose and peptone are the best sources of C and N respectively. The efficiency of peptone as a nutrient depends on the amounts of bios, and particularly biotin, it contains. Biotin, although active, cannot completely replace peptone. Asparagine and glutamic acid cause almost normal synthesis of biotin (although slower than peptone) whilst NH₄ citrate is unfavourable. With each of these as source of N, there appears to be a phase of development during which there is insufficient synthesis of biotin. The effect of asparagine is due to an impurity, removable by crystallisation, which is active in extremely small amounts. Ash from asparagine is inactive but that from glutamic acid improves media containing asparagine, glutamic acid, or NH₄ citrate. Aneurin (or its components) is present in *Trichophyton* grown in presence of asparagine and absence of biotin. Addition of aneurin (without biotin) causes considerable increase in growth on poor media. On unfavourable media there is gradual degeneration of the cultures, probably due to gradual loss of synthetic power.

Production of bacteriostatic substances by fungi. I. Examination of 100 fungal species. W. H. Wilkins and G. C. M. Harris (Brit. J. exp. Path., 1942, 23, 166-169).—Bacteriostatic substances were present in 40% of the Aspergilli, in 25% of the Penicillia, and in practically none of the Fungi imperfecti examined. F. S.

Antibacterial substance produced by Penicillium claviforme. E. Chain, H. W. Florey, and M. A. Jennings (Brit. J. exp. Path., 1942, 23, 202-205).—Extraction of the culture solution affords cryst. claviformin, (probably) $C_9H_{10}O_5$, m.p. 110°, which accounts for most of the anti-bacterial power. It inhibits Gram-positive and negative organisms, but is toxic to animal tissues in low concns., rendering any therapeutic application unlikely. F. S.

Mould toxins of *Gliocladium* and *Trichoderma*. R. Weindling (*Phylopath.*, 1941, **31**, 991–1003).—The cryst. toxin (gliotoxin), the probable cause of antagonism between *Gliocladium* and other fungi, is formed during the log phase of growth of the organism. Production of gliotoxin is favoured by presence of O_2 , by $p_{\rm H}$ below 50, by NH₄^{*} rather than by NO₃^{*} or peptone as N source, and by sucrose and glucose in preference to fructose or glycerol as C source. The toxin is stable in neutral or acid solution at ordinary temp.

but is decomposed rapidly in alkaline solution. Thermostability increases with acidity. At $p_{\rm H}$ 2·4 no decomp. occurs during 30 min. at 122°. The toxic action of gliotoxin on *Sclerotinia americana* is intermediate between those of CuSO₄ and HgCl₂ and is max. at $p_{\rm H}$ 8·2. A. G. P.

Preparation of mustard oil resembling epidemiologically incriminated sample in physical and chemical properties. S. N. Sarkar (Ann. Biochem. Exp. Med., 1941, 1, 325—326).—It is shown that argemonefree mustard seeds or the cakes derived therefrom may be infected with a mould (probably a member of the Moniliaceæ) and the oil extracted afterwards may give a positive HNO_3 test as well as other physical tests for epidemiologically incriminated oil. P. C. W.

Preservation of fungi by desiccation. G. A. Costa (*Rev. Brasil. Biol.*, 1941, 1, 155—159).—Fungi and yeast have been preserved by desiccation in vac. at low temp. for 10 months. Specimens thus preserved did not show pleomorphism. I. C.

Occurrence of active montagnetol in Rocella montagnei.—See A., 1942, II, 405.

Genetic control of biochemical reactions in Neurospora: an "aminobenzoicless" mutant. E. L. Tatum and G. W. Beadle (Proc. Nat. Acad. Sci., 1942, 28, 234—243).—An X-ray-induced mutant of N. crassa is unable to synthesise p-aminobenzoic acid. This mutant differs from normal only by a single gene, and grows normally when p-aminobenzoic acid is added to the culture medium, the growth being proportional to the amount supplied. p-Aminobenzoic acid overcomes the inhibitory effect of sulphanilamide. The latter blocks the utilisation and not the synthesis of p-aminobenzoic acid. Experiments with substitutes for p-aminobenzoic acid show that an aromatic N is essential, and that any second substituent must be para to the N. The biosynthesis of p-aminobenzoic acid is not brought about by introducing N to a closed ring, but by introducing the NH₂ group before the benzener ring is formed. H. M. I.

Effect of temperature on vacuolar frequency of Stylonychia pustulata. J. D. Smyth (Proc. Roy. Irish Acad., 1942, 48, B, 25—41).— Of various protozoa only S. pustulata showed a steady pulsation rate of the contractile vacuole at const. temp. The temp. coeffs. μ and Q_{10} were calc. by means of Arrhenius' equation. In individuals for which μ is const., the empirical equation of Bělehrádek, $y = a/x^{2}$, holds. The problem of identifying chemical or physical reactions with vals. of μ is discussed. J. H. B.

Effect of carcinogenic agents on *Paramecium caudatum*.—See A., 1942, III, 823.

Agglutination reaction in experimental animals in response to Plasmodium knowlesi antigen. J. C. Ray, S. Mukerjee, and A. N. Roy (Ann. Biochem. Exp. Med., 1941, 1, 207—218).—Agglutinating antibodies are produced in the sera of monkeys infected with P. knowlesi after the acute phase of infection passes off, the concn. of agglutinin increasing with the duration of infection. Agglutinins can be produced by artificial immunisation of monkeys with antigens from dead P. knowlesi. Absorption of sp. agglutinins from immune sera could be obtained with parasitised erythrocytes or with cellfree malaria antigens. P. C. W.

Problem of air-borne infection. T. J. Mackie (*Edinb. Med. J.*, 1942, **49**, 607–627).—A lecture. True air-borne infection (as distinct from droplet infection) is conditioned by controllable factors and is ''dilute.'' Air infectivity can be reduced, especially by a hypochlorite spray. H. S.

Prophylactic use of human serum against contagion in a pediatric ward. L. H. Barenberg, W. Levy, N. M. Greenstein, and B. Greenberg (*Amer. J. Dis. Child.*, 1942, 63, 1101–1109).—Pooled plasma is a valuable prophylactic agent against rubella. C. J. C. B.

Antibacterial factors of human saliva. M. van Kesteren, B. G. Bibby, and G. P. Berry (J. Bact., 1942, 43, 573-582).—Human saliva contains at least two antibacterial substances, one of which resembles lysozyme. They are antibacterial to two distinct groups of organisms and can be separated by the differential action of heat, ultra-violet radiation, storage, and pptn. by acetic acid and acetone. F. S.

Bacterial nutrition and chemotherapy. H. McIlwain (Lancet, 1942, 242, 412-415).—A review. C. A. K.

Effect of sulphanilamides on growth of micro-organisms in presence and absence of *p*-aminobenzoic acid. S. Wiedling (*Nature*, 1942, 150, 290—291).—Landy and Dicken's observations on yeast (A., 1942, III, 426) accord with those of the author on diatoms and bacteria. A. A. E.

Antagonism of anti-sulphonamide effect of methionine, and enhancement of bacteriostatic action of sulphonamide, by urea. H. M. Tsuchiya, D. J. Tenenberg, W. G. Clark, and E. A. Strakosch (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 262—266).—1-6% of urea did not by itself affect growth of *E. coli* in a synthetic medium, but it enhanced the bacteriostatic effect of 1 mg.-% Na sulphadiazine and inhibited the anti-sulphonamide activity of 1 mg.-% of *dl*methionine. V. J. W.

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Choice of media for *in-vitro* sulphonamide studies.—See A., 1942, III, 837.

Effect of vacuum on destruction of bacteria by germicides. A. J. Salle and M. Korzenovsky (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 12-16).—Germicidal efficiency of formaldehyde vapour was much enhanced by the creation of a partial vac. (2 in. Hg) but liquid germicides were not affected. V. J. W.

Influence of tissue on bacteriostatic effect of p-nitrobenzoic acid. J. T. King and M. S. Kaplan (Proc. Soc. Exp. Biol. Med., 1942, 50, 41-43).—This effect is reduced by presence of disintegrating tissue. V. J. W.

Bacterial lysis by menthol. G. Pacheco and G. A. Costa (*Rev. Brasil. Biol.*, 1941, **1**, 87–93).—Menthol solutions added to bacterial suspensions produce lysis of the following bacteria: *Vibrio comma; Staph. aureus, C. pseudodiphtericum, Brucella melitensis, Shigella dysenteriæ, Sh. paradisenteriæ* (var. Flexner, Hiss, and Russel, Strong), *Strept. pneumioniæ, B. anthracis, B. subtilis.* Other genera of bacteria are not lysed by menthol and sensitiveness to menthol of different specimens of the same species varies greatly. Killed bacteria are not lysed by menthol. Other terpenes, like camphor and eucalyptol, do not produce bacterial lysis. I. C.

Bactericidal action of synthetic detergents. Z. Baker, R. W. Harrison, and B. F. Miller (J. Exp. Med., 1941, 74, 611–620).— Synthetic cationic detergents are more actively bactericidal against Gram-positive organisms. Anionic detergents (alkyl sulphates) are weaker and act only against Gram-positive organisms.

A. C. F.

Isolation from soil of spore-forming bacteria which produce bactericidal substances. J. L. Stokes and C. R. Woodward (J. Bact., 1942, 43, 253–263).—24 antagonistic strains of soil bacilli were obtained by a simple plating method. They were divided into an active and inactive group the broth cultures of which were and were not bactericidal respectively. The bactericidal principles of the active group were readily isolated by extracting with alcohol the ppt. that formed by adjusting the $p_{\rm H}$ to 4.6—4.8. They were finally obtained as grey or tan powders by pptn. from the alcoholic extracts with 1% aq. NaCl. F. S.

Occurrence of bacteriostatic and bactericidal substances in soil.----See B., 1942, III, 226.

Changes in reaction caused by filtration through Seitz filters. H. H. Browne (J. Bact., 1942, 43, 315–316).—A change in $p_{\rm H}$ from 6.31 to 9.60 was observed when distilled water was filtered through a Seitz filter under a partial vacuum using a 6 cm. \times 3 mm. pad. A similar change in $p_{\rm H}$ was found with sucrose and lactose solutions but not with borax or phosphate buffer solutions. F. S.

Method for exposing cultures to carbon dioxide or anaërobic atmospheres in Petri dishes. E. J. Foley (*J. Lab. clin. Med.*, 1942, 27, 1431-1432).—A modified method to use with the Spray dish (*ibid.*, 1930, 16, 203) is described. C. J. C. B.

Cell-free enzymes of Azotobacter vinelandii. S. B. Lee, R. H. Burris, and P. W. Wilson (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 96–98),---Cell-free juice of this organism contained hydrogenase and dehydrogenases for succinic, lactic, and malic acids. Na succinate was oxidised; oxalacetic acid, but not pyruvic acid, was decarboxylated. Heart-muscle cytochrome-c does not stimulate its oxidation of ascorbic acid. V. J. W.

Flagella staining technique for soil bacteria. P. J. Fischer and J. E. Conn (*Stain Tech.*, 1942, 17, 117—121).—Hofer and Wilson's method of cleaning the slides is followed by O'Toole's technique for spreading smears, and a modification of Bailey's mordant. Consistently good results are obtained. E. E. H.

Comparative physiology of crown gall, attenuated crown gall, Bacillus radiobacter, and hairy-root bacteria. A. J. Riker, M. M. Lyneis, and S. B. Locke (*Phytopath.*, 1941, 31, 964–977).—Crown gall, attenuated crown gall, and *B. radiobacter* showed similar abilities to utilise sources of N and C in culture media and similar powers of producing CO_2 and H_2S . Virulent and attenuated crown gall cultures gave similar agglutination and agglutinin-absorption tests. A. G. P.

Significance of fat in sulphur oxidation by Thiobacillus thiooxidans. W. W. Umbreit, H. R. Vogel, and K. G. Vogler (J. Bact., 1942, 43, 141–148).—This obligatory autotrophic S-oxidising bacterium oxidises insol. S by dissolving it in a fat globule located at the ends of the cell. This fat is highly unsaturated, having an I val. greater than that of any known natural fat. F. S.

Carbohydrate metabolism of *Trichomonas hepatica*. R. Willems, L. Massart, and G. Peeters (*Naturwiss.*, 1942, **30**, 169–170).— Respiration of *Tr. hepatica* in liver broth is optimum at 38° and in presence of 5–10% of O₂. 20% of O₂ or air causes 40% inhibition. In glucose-PO₄^{'''} buffer at 38° and $p_{\rm H}$ 7·4, 10⁶ organisms utilise 6 mm.³ of O₂ per hr.; the R.Q. is 0.87. Respiration in liver broth is unaffected by 0.0001–0.01M-KCN; 0.00001–0.0001M- has no effect in glucose-PO₄^{'''} buffer, whilst 0.001M-methylene-blue causes 75% inhibition of respiration. In PO₄^{'''} buffer the organism reduces methylene-blue and the rate of reduction is increased in presence of glucose and fructose, whilst it is unaffected by succinate, fumarate, lactate, and pyruvate. Respiration in PO₄^{''} buffer at $p_{\rm H}$ 7·4 is increased in presence of glucose, fructose, and mannose, whilst lactate, pyruvate, succinate, and hexose mono- and di-phosphate have no effect. Respiration in glucose-PO₄^{''} buffer at 38° and $p_{\rm H}$ 7·4 is unaffected by 0·01M-NaF, 0·01M-NaN₃, and 0·0001M-2: 4-dinitrophenol. 0·001M-Dinitrophenol considerably inhibits and 0·002M-iodoacetic acid completely inhibits respiration. J. N. A.

Cellulose-splitting micro-organisms in human fæces.—See A., 1942, III, 818.

Penicillin in cultivation of acne bacillus. S. Craddock (*Lancet*, 1942, **242**, 558—559).—Pure cultures of acne bacilli were obtained from acne material in glucose broth containing penicillin in twice the concn. which inhibited staphylococcal growth. C. A. K.

Bile acid metabolism. II. Action of Alcaligenes facalis on cholic acid. L. H. Schmidt, H. B. Hughes, M. H. Green, and E. Cooper (J. Biol. Chem., 1942, 145, 229–236; cf. A., 1942, 111, 755).—O₂ is essential for the action which results in the oxidation of the 3 hydroxyl groups of cholic acid to keto-groups with formation of 3:7:12-triketocholanic acid in 83% yield. The hydroxyl groups are oxidised successively and that situated at $C_{(3)}$ is the last to undergo oxidation. High concess of the acid inhibit growth of the organism, and the rate of oxidation varies inversely as the copen. of the acid. Oxidation is relatively rapid with 1·136% or less, and is completely inhibited by 1·865% or more. The rate of oxidation also increases with the no. of organisms in the inoculum. J. N. A.

Influence of oxygen under pressure on cultures of Clostridium welchii. G. Pacheco and G. A. Costa (Rev. Brasil. Biol., 1941, 1, 145—154).—Exposures to O_2 at pressures of 3 atm. and to air of cultures of Cl. welchii caused almost complete extinction of the cultures and favoured sporogenesis. I. C.

Effect of β -1-naphthylacrylic acid on the growth of *B. coli*. H. Bloch and H. Erlenmeyer (*Helv. Chim. Acta*, 1942, **25**, 694—697). —The (? *trans-*) form, m.p. 206°, of this acid has inhibitory action on the growth of *B. coli*, overcome by large amounts of tryptophan. R. S. C.

Action of acids on the growth of Bacterium coli. H. Bloch and H. Erlenmeyer (Helv, Chim. Acta, 1942, 25, 1063–1066).— γ -Phenyl- $\Delta\beta$ -butenoic acid restricts the growth of B. coli in the same manner as indolyl- or β -1-naphthyl-acrylic acid. A substantially weaker action is exercised by trans-cinnamic acid whilst β -phenylpropionic, benzoic, and fumaric acid have no effect. The influence of transcinnamic acid is ascribed to simple disinfection. H. W.

Experimental histoplasmosis in mice. R. J. Parsons (*Arch. Path.*, 1942, **34**, 229-239).—In mice intravenous and intraperitoneal injections of the mycelial form of *H. capsulatum* result in the transformation of the organism into the yeast-like pathogenic form. The intravenous injection of the mycelial form usually, and that of the yeast-like form regularly, results in generalised and fatal histoplasmosis in young white mice. (5 photomicrographs.)

C. J. C. B. **Prolongation of survival period of diphtheria toxin-injected rabbits by cholesterol administration.** H. Meng and C. Tsai (*Quart. J. Exp. Physiol.*, 1942, **31**, 263—270).—Rabbits were treated with cholesterol, lecithin, cholesterol + lecithin, NaCl, or NaCl + cholesterol respectively before and after subcutaneous injection of a min. lethal dose of diphtheria toxin. Toxin-injected animals died within 44—92 hr.; 10% of 38 animals treated with cholesterol (subcutaneously or by mouth) or cholesterol + NaCl survived, 84% survived 5—25 days (average 9 days), and 5% died within 66—68 hr. NaCl and lecithin have no effect on the survival time. Lecithin antagonises the beneficial action of cholesterol. The adrenal cortex of rabbits injected with diphtheria toxin was enlarged and showed severe changes; its total cholesterol content was reduced. A. S.

Thermolabile somatic antigens of *B. dysenteriæ*, **Flexner.** H. Braun and E. K. Unat (*Schweiz. Z. Path. Bakt.*, 1942, **5**, 1–20).– 2 groups of strains of *B. dysenteriæ*, Flexner, were differentiated: (1) containing a thermolabile Ol- and a thermostabile Os-antigen; these are agglutinated better when boiled; (2) containing only a thermostabile Os-antigen which are agglutinated better or equally well when alive. The latter contain a thermolabile somatic substance $O\lambda$ which is non-antigenic. E. M. J.

Bacillary dysentery in infants and children. M. L. Cooper, H. M. Keller, and L. R. B. Glesne (*J. Pediat.*, 1942, **20**, 596-603).-3 media, Na deoxycholate citrate, S-S, and MacConkey's, for the isolation of *Shigella paradysenteriæ* from stools were compared.

C. J. C. B. C. J. C. B. C. J. C. B. *C. J. C. B. Path. Bakt.*, 1942, **5**, 238—239).—*Neisseria gonorrhæa* showed good growth on nutrient agar containing 1 : 80,000 of vitamin- B_1 . E. M. J.

Difference in metabolic requirements of meningococcuts and gonococcuts. A. K. Boor (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 22-25).—Meningococcus grew well on an agar medium containing

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tryptic digest of casein, glucose, and buffer at $p_{\rm H}$ 7.4—7.6. Gonococcus grew only when 0.025—0.075% of cystine was added. V. I. W.

Recovery from meningococcæmia and meningococcus endocarditis following anaphylactic shock [due to saline]. G. Baehr (J. Mt. Sinai Hosp., 1941, 7, 294—297).—Case report of a 13-year-old girl. E. M. J.

Purification of amylase of Bacillus macerans.—See A., 1942, III, 848.

Antigenic properties of Hamophilus pertussis. D. G. Evans (Lancet, 1942, 242, 529-531).—A toxic extract of H. pertussis, obtained by physical disruption of bacilli, when detoxified with formaldehyde can produce antitoxin and antibacterial antibody on injection into rabbits. A suspension of whole bacilli, similarly treated, gave antibacterial antibody only, as did heated bacilli or heated extract. The application of this to prophylactic immunisation against whooping cough is discussed. C. A. K.

Clinical and bacteriological survey of pneumonia in childhood. E. Hendry (Arch. Dis. Childh., 1942, 17, 111—121).—For 123 children under 2 years, the mortality was 19% and for 13 over 2 years 3%. Probably treatment with sulphapyridine was responsible for the low rate. All the recognised types of pneumococci, save types 28, 32, and 33, were found. Types 19 and 6 accounted for 38.3% of the cases. C. J. C. B.

Capacity of pleuropneumonia-like organisms to grow on chorioallantoic membranes. H. F. Swift (J. Exp. Med., 1941, 74, 557-567). A. C. F.

Necessity for "typing" pneumonias. J. G. M. Bullowa (J. Mt. Sinai Hosp., 1941, 7, 316-321). E. M. J.

Formation of agglutinins in cold-blooded animals. F. L. Buch (J. Méd. Ukraine, 1940, 10, 1153-1177).—In fishes formation of sp. agglutinins for *B. proteus* and *B. septicamia ranarum* vaccines at a titre of 1:50 and 1:200 was observed; no anaphylaxis was noted. Distinct signs of anaphylaxis are found in turtles, which show also formation of antibodies, but not in amphibia. M. K.

Effect of surface-active agents on oxidations of lactate by bacteria. E. J. Ordal and A. F. Borg (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 332—336).—As agents Na dioctyl suphosuccinate (anionic) and cetylpyridinium chloride (cationic) were used. The lactic dehydrogenase of *S. aureus* is more susceptible to both than is that of *E. coli*. In the case of *S. aureus* both behave similarly towards oxidation by methylene-blue and by O_2 . In the case of *E. coli* oxidation by O_2 is inhibited by a lower concn. of cetylpyridinium chloride than oxidation by methylene-blue, whereas inhibition of O_2 oxidation by the dioctyl ester requires a much higher concn. than inhibition of methylene-blue oxidation. V. J. W.

Action of pyridine and thiazole derivatives on the growth of Siaphylococcus aureus. H. Erlenmeyer, H. Bloch, and H. Kiefer (Helv. Chin. Acta, 1942, 25, 1066-1072).—The culture medium contains KH_2PO_4 , K_2HPO_4 , cystine, $Fe(NH_4)_2(SO_4)_2$, $MgSO_4$, and gelatin hydrolysate in which S. aureus cannot grow without the presence of a sp. growth promoter. An optimal growth is observed in the presence of nicotinic acid or nicotinamide without aneurin. If the latter is added, the max. development is attained rather more rapidly and less acid or amide is required. Aneurin alone is only slowly effective in very large doses. Pyridine-3-sulphonic acid enhances the promoting action of nicotinaride but cannot replace) but does not affect the behaviour of nicotinamide. The Na salt behaves similarly. Pyridine-3-sulphonamide somewhat restricts growth promoted by nicotinamide has no promoting action and feebly restricts the effect of nicotinamide. Thiazole-5-sulphonic acid can replace nicotinic acid or its amide as growth promoter but larger quantities are required; 2-pyridine-3'-sulphonamidopyridine behaves similarly. 2-Thiazole-5'-carboxylamidopyridine cannot replace nicotinic acid and has no restrictive action on growth promoted by it.

Effects of cozymase on growth of staphylococci and antistaphylococcal action of sulphonamides.—See A., 1942, III, 837.

Sulphonamide-resistant strains of staphylococci. J. J. Vivino and W. W. Spink (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 336—338).— 2 strains of *S. aureus* became resistant to sulphathiazole on repeated culture in increasing concns. and 2 other resistant strains were isolated from patients. V. J. W.

Demonstration of nucleus in cell of staphylococcus. G. Knaysi (J. Bact., 1942, **43**, 365—380).—In a staphylococcus granules were demonstrated which stain with methylene-blue at $p_{\rm H}$ 1.8, give the Millon and the Sharp tests for protein and a positive Feulgen reaction, and have other reactions sufficient to identify them as consisting of nucleoprotein. The resting cell contains one round granule. Actively growing cells contain 2—4 granules of shapes indicating elongation and division. (16 photomicrographs.)

Specific treatment (type A antiserum) of staphylococcal septicæmia. L. A. Julianelle (Ann. int. Med., 1942, 16, 303-326).—98 patients suffering from staphylococcal septicæmia and 4 with severe staphylococcal infection without septicæmia were treated with sp. type A antibacterial rabbit's serum. All staphylococci fermented mannitol and contained type A carbohydrate; their virulence in white mice, rabbits, and guinea-pigs was low. 54 patients died (5 had recovered from staphylococcal septicæmia but died of other causes). 23 out of 26 patients suffering from osteomyelitis and septicæmia recovered. The least satisfactory results were obtained in cardiac infection and sinus thrombosis (18 patients in the former and 3 in the latter; all died). 15 of the 54 fatalities occurred within 72 hr. after commencing serum treatment. A. S.

Vaccination against puerperal fever. J. B. Bernstine and G. W. Bland (*Penn. Med. J.*, 1942, **45**, 790–794).—274 pregnant women were given weekly intramuscular injections of a vaccine containing 5 strains of *Strept. hæmolyticus*, 8 of *S. viridans*, 2 each of *Staph. aureus* and *B. coli communis*, and 4 of *S. nonhæmolyticus*, the proportions being 35, 15, 25, 15, and 10. Most cases were started between the 4th and 6th month of pregnancy. Puerperal morbidity was 3.3% against 23.3% in an unvaccinated group. No fatalities occurred. E. M. J.

Association of specifically different a-streptococci with various diseases; preparation and use of specific antisera and vaccines. E. C. Rosenow (*Amer. J. clin. Path.*, 1942, **12**, 339-356).—A review. C. J. C. B. Specific relationship of cell composition to biological

Specific relationship of cell composition to biological activity of hæmolytic streptococci. R. C. Lancefield (*Harvey Lectures*, 1940– 41, Ser. 36, 251–290).—A review. E. M. J.

Importance of culturing hæmolytic streptococci under increased carbon dioxide tension. E. Haynes (*Amer. J. clin. Path. Tech. Sect.*, 1942, 6, 55-56).—Most strains grow better in 5-10% CO₂. C. J. C. B.

Bactericidal action of sulphathiazole on Strep. facalis.—See A., 1942, III, 839.

Scarlet fever toxin-antitoxin flocculation reaction. G. A. Hottle and A. M. Pappenheimer (J. Exp. Med., 1941, 74, 545-556).—A quant. study. A. C. F.

Action of tetanus anatoxin after active immunisation. R. Regamey (Schweiz, Z. Path. Bakt., 1941, 4, 177—192).—Serum tetanus antitoxin titre fell from an average val. of 1.0 6 months after T.A.B. and tetanus immunisation to 0.5 after 9 months; all 60 titres were above 0.15. Injection of 1 or 2 c.c. of tetanus anatoxin caused a rise after a latent period of 4—6 days of 1540 and 2570% respectively up to the 8th day. (Cf. A., 1942, III, 560.) E. M. J.

Diagnosis of renal tuberculosis by precipitation test. Z. V. Fainstein (J. Méd. Ukraine, 1940, 10, 1341–1357).—Sera of rabbits immunised with sp. antigens [killed culture of T. bovinus and T. humanus (serum 1) and human kidney (serum 2]) were used for the pptn. test. In tubercular patients antigen of tubercle bacilli excreted in urine is detected by pptg. serum 1; a positive pptn. test with serum 2 suggests renal tuberculosis. In 72 of 75 patients the test agreed with the clinical course or histological indings. Tests with urine obtained separately from each kidney establish the side of lesion. M. K.

Collodion-agglutination test in human tuberculosis. R. P. Morris (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 172–173).—Sp. positive reactions were obtained in only 4% of human tuberculous sera.

Comparison of tuberculin patch test and Mantoux test. V. J. W. Narodick (Northw. Med., 1942, 41, 193—196).—Of the 1000 cases examined by both tests, 661 proved positive reactors to the patch, 472 to the first and 199 further cases to the second strength of the purified protein derivative. Of the 332 cases of clinically active tuberculosis in this group 2 failed to react to either strength of the Mantoux test and 4 to the patch test. E. M. J.

Comparison of tuberculin patch test and Mantoux test. H. J. Brock and F. T. Schnatz (N.Y. Sta. J. Med., 1942, 42, 1241—1242). —The patch test compared favourably with the Mantoux test in the detection of previous tuberculous infection in children, but unfavourably in adults. E. M. J.

Action of hormones on cultures of *B. tuberculosis humanus*, Betge. R. Schwab (*Schweiz. Z. Path. Bakt.*, 1941, 4, 301-320).--No action was seen. E. M. J.

Examination of O antigenic complex of Bact. typhosum. W. T. J. Morgan and S. M. Partridge (Brit. J. exp. Path., 1943, 23, 151— 165),—A substance prepared from Bact. typhosum by extraction with diethylene glycol possesses the immunological properties of the O antigen of Bact. typhosum and consists of a multimol. complex containing three main components, a sp. polysaccharide, a protein, and a phospholipin. The protein component is chemically and immunologically very similar to the conjugated protein prepared from the sp. somatic antigen of Bact. shiga. The toxicity of both antigenic preps. appears to be largely due to the undegraded polysaccharide component, whereas the degraded polysaccharides are practically without toxicity. F. S. **Typhoid Vi agglutinins in Rhodesian natives.** H. Radowsky (*Trans. Roy. Soc. trop. Med. Hyg.*, 1942, **36**, 45–46).–5.6% of 59 random sera examined showed Vi agglutinins. C. J. C. B.

Photodynamic action of stains on bacteriophage. O. Suarez Morales (*Rev. Brasil. Biol.*, 1941, 1, 11-17).—Eosin, neutral-red, and fluorescein have no destructive action on the bacteriophage of *B. coli* and *Flexner* and corresponding bacteria. Fuchsin, gentianviolet, crystal-violet, and methyl-green (1:5000) have a weak destructive action on bacteriophage, very weak action on the corresponding bacteria, and no photodynamic action. Methylene-blue, azur I, azur II, water-blue, Nile-blue, aniline-blue, trypan-blue, and toluidine-blue (1:10,000-1:100,000) have a strong photodynamic action on the bacteriophage but are inactive in the dark. The inactivating action may depend on the λ of the transmitted light.

Autocatalytic formation of viruses and related problems. T. Neugebauer (*Naturwiss.*, 1942, 30, 168—169).—The author discusses his theory of van der Waals forces between virus mols. and protein mols. in the host, and the work of Jordan, and claims priority. J. N. A.

Routes of entry into nervous system of viruses introduced into the blood. B. T. Cooke, E. W. Hurst, and C. Swan (Austral. J. Exp. Biol., 1942, 20, 129–138).—The viruses of herpes and pseudorabies, injected intravenously, infect the viscera first, and ascend the dorsal cord to other parts of the nervous system. Infectious myxomatosis virus reaches the nervous system direct from the blood stream. The size of the brain, rather than the wt. of the animal, determines the min. dose of methylene-blue required to stain the nervous system after intravenous injection of a virus, the intensity of such staining, but not that of trypan-blue, being increased by theophylline or adrenaline and pituitrin. Even in cases where herpes virus must have passed through the capillary endothelium, no activity could be demonstrated in the vessel walls. P. G. M.

Durand's disease: virus infection transmissible to animals and man. G. M. Findlay (*Trans. Roy. Soc. trop. Med. Hyg.*, 1942, 35, 303-318).—A case due to laboratory infection is described. The symptoms consisted of fever, headache, nasal catarrh, cough, nausea, and vomiting of blood. The virus is highly infective for guinea-pigs, which react with fever, enlargement of the lymph nodes and spleen, and interstitial pneumonia. Guinea-pigs can be infected by subcutaneous, intracutaneous, and intraperitoneal inoculation, by application to the scarified or even the normal skin, by intracerebral and intratesticular injection, by intranasal instillation. Intratesticular inoculation produces an orchitis with enhancement of virulence. Numerous other animals can be infected but after intraperitoneal inoculation the disease is usually inapparent. Rhesus monkeys, cats, and dogs develop symptoms after intracerebral injection. The virus is from 38 to 57 m μ . in size, as determined by filtration through gradocol membranes, and has been grown in serum Tyrode and chick embryo and in the developing chick embryo *in vivo*. No cross immunity with lymphogranuloma venereum or lymphocytic choriomeningitis has been found.

C. J. C. B. Antibodies in human serum which neutralise the viruses of equine encephalomyelitis. F. H. Wright (*Amer. J. Hyg.*, 1942, 36, 57— 67).—By the intraperitoneal mouse protection test, sera from 89 persons, most of whom showed a recent history of clinical encephalitis, were used to make quant. estimations of antibody neutralising the viruses of equine encephalomyelitis. 15 sera showed high-titre antibodies and protected mice against more than 10,000 intraperitoneal m.l.d. of either the eastern (5) or western (10) strain of virus. Cross protection between the two virus strains was not found. No serum contained antibodies of high titre unless the donor had been in close contact with the homologous virus under natural or laboratory conditions. Those sera which protected against less than 10 m.l.d. of virus were regarded as negative. The sensitivity of the intraperitoneal test is emphasised. B. C. H.

New method for concentrating influenza virus from allantoic fluid. G. K. Hirst, E. R. Rickard, and L. Whitman (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 129—133).—When allantoic fluid is stored at -72° for some weeks and centrifuged on thawing, a ppt. is formed on which most of the virus is adsorbed and which can be redissolved in a small bulk of fluid. Vaccine made from it with content of 0.4% formaldehyde gave good results. V. J. W.

Frei test. Evaluation of chick embryo antigen (lygranum). F. C. Combes, O. Canizares, and G. Morris (*Arch. Dermat. Syphilol.*, 1942, **46**, 264—268).—700 Frei tests were made on patients with clinical lymphogranuloma venereum and on control subjects with both chick embryo antigen (lygranum) and mouse brain antigen. In addition, 102 tests were made with antigen prepared from human pus. Lygranum gave results which were reliable and easier to evaluate and had less tendency to cause false positive and negative reactions than mouse brain antigen. All 3 antigens may elicit false positive reactions. Routine Frei tests on patients at Bellevue Hospital without clinical evidence of lymphogranuloma venereum gave an incidence of positive reactions as high as 4.5%.

[Epidemiology and immunity in] choriomeningitis and poliomyelitis. C. Armstrong (*Harvey Lectures*, 1940—41, Ser. 36, 39—65). E. M. J.

Nature of immunity in poliomyelitis. A. F. Rasmussen, jun., and P. F. Clark (*Proc. Soc. Exp. Biol. Med.*, 1942, **50**, 344-348).—The proximal end of the cut sciatic nerve in immune and control monkeys was placed in virus suspension for 4-10 min. 2-5 days later extracts of the sciatic nerve and cord were injected intracerebrally into normal monkeys. Extracts from the "immune" tissues failed to cause infection, but those from the controls were infective. V. I. W.

Occurrence of poliomyelitis virus in autopsies : patients and contacts. J. F. Kessel, F. J. Moore, F. D. Stimpert, and R. T. Fisk $(J \cdot Exp. Med., 1941, 74, 601-609)$.—Poliomyelitis virus was recoverable from colon and adenoid tissues in 73% of cord-positive autopsies. The virus yield from stools is higher in children than adults. The stool of contacts is positive after the 2nd month. A. C. F.

Microdiplococci in filtrates of natural and experimental poliomyelitis virus compared under electron and light microscopes. E. C. Rosenow (*Proc. Staff Mayo Clin.*, 1942, **17**, 99–106).—Microdiplococci were found in unstained films of natural and experimentally produced poliomyelitis virus under very high magnification with the Rife polarised light microscope (\times 8000) and the electron microscope (\times 12,000), and in specially stained films of filtrates under lower magnification (\times 1000) with the ordinary light microscope. The microdiplococci are considered to be forms of the virus and to be related to or associated with the streptococcus which was isolated consistently in studies of poliomyelitis. H. H. K.

Susceptibility of South African gerbils (genus Tatera) to rickettsial diseases and their use in preparation of anti-typhus vaccine. J. Gear and D. H. S. Davis (Trans. Roy. Soc. trop. Med. Hyg., 1942, **36**, 1--7).—South African gerbils (T. brantsi and T. afra) are very susceptible to tick typhus. These gerbils were also susceptible to epidemic louse-borne typhus and after exposure to X-rays the growth of Rickettsia prowazeki is as profuse as the growth of R. mooseri in X-rayed white rats. Inoculation intraperitoneally of T. brantsi with a murine strain of typhus, after exposure to X-rays, yielded a growth of rickettsiæ more profuse than that seen in white rats similarly inoculated. C. J. C. B.

Localisation of neurotropic strain of yellow fever virus in central nervous system. G. M. Findlay (*Trans. Roy. Soc. trop. Med. Hyg.*, 1942, **36**, 21–24).—After intraperitoneal injection of the virus, insulin shock localises the neurotropic strain of yellow fever virus in the central nervous system of adult mice. Coal gas poisoning may produce a similar result. C. J. C. B.

Ultracentrifuge experiments with insect viruses. G. Bergold and J. Hengstenberg (Kolloid-Z., 1942, 98, 304-311).—The sedimentation rate of virus proteins obtained from silkworms and larvæ of Lymantria monacha and L. dispar suffering from polyhedral disease has been studied in the ultracentrifuge by the scale method. At $p_{\rm R}$ 8:8—11 the preps. from all three sources show the same sedimentation const., leading to a mol. wt. ~200,000 and mol. diameter 8—9 m μ , assuming spherical mols. At $p_{\rm R}$ 7:8 association occurs. Most of the preps. examined contained only a single substance, and all, except one that had been twice reptd. with HCl, were active. F. L. U.

Isolation and crystallisation of plant viruses. Spreading experiments with insect viruses.—See A., 1942, III, 846.

Chemical inactivation and reactivation of a plant virus. J. Johnson (*Phytopath.*, 1941, 81, 679–701).—Tobacco mosaic virus was inactivated by a no. of substances. Reactivation in some cases follows removal of the inactiving agent with water. Irreversible inactivation or destruction of the virus occurs with certain classes of substances, notably oxidising agents, acids of $p_{\rm H}$ below 1.5, bases of $p_{\rm H}$ exceeding 11.0, and other toxic substances in concus. greater than those causing reversible inactivation. Milk, bloodserum, citrus fruit extracts, trypsin, and extracts of certain microorganisms have an immediate inactivating action probably resulting from loose physical or chemical union with the virus. A. G. P.

Phosphorus exchange between tobacco mosaic virus containing radioactive phosphorus and sodium phosphate. G. Schramm, H. J. Born, and A. Lang (*Naturwiss.*, 1942, **30**, 170—171).—When a tobacco mosaic virus protein containing radioactive P is dialysed against 0.01M-Na₂HPO₄ at $p_{\rm H}$ 8 for 6 days, there is no activity in the dialysate, and the activity of the protein remains unchanged.

J. N. A.

Changes in nitrogen and virus content of detached tobacco leaves in darkness. W. N. Takahashi (*Phytopath.*, 1941, **31**, 1117—1122). —Decomp. of protein in dark cultures was similar in normal and in mosaic-infected leaves. Tobacco mosaic virus multiplies in detached leaves in darkness and also under conditions in which host proteins undergo hydrolysis. Under these conditions the virus protein is not utilised in respiration. The infectivity of mosaic tissues is increased by maceration and treatment with trypsin. Cryst. inclusions in mosaic tissues cannot serve as reserve proteins during N starvation. Stream double refraction in virus suspensions is not destroyed by prolonged culture of detached leaves in darkness.

A. G. P.

Synthesis of tobacco mosaic virus protein in relation to leaf chromo-protein and cell metabolism. M. W. Woods and H. G. DuBuy (*Phytopath.*, 1941, **31**, 978—990).—Multiplication of the virus is blocked by HCN. Prolonged N starvation of the plant reduces the activity of the CN'-sensitive respiratory ('A'') system on which virus multiplication depends. Virus protein is probably formed from the same structural units as is chromoprotein. The extent of from the same structural units as is chromoprotein. The extent of injury caused by the virus depends on the maintenance of a suitable balance between the CN'-sensitive respiratory system and the chromoprotein. In this the inorg. N supply is a major factor.

Molecular size and shape of nucleic acid of tobacco mosaic virus. S. S. Cohen and W. M. Stanley (*J. Biol. Chem.*, 1942, 144, 589-598).—Data are given for the electrophoresis, partial sp. vol., diffusion, sedimentation, viscosity, electron microscopy, osmotic pressure, optical properties, and elementary composition of proteinfree ribose-nucleic acid and its derivatives that have been isolated from heat-denatured tobacco mosaic virus. Freshly isolated nucleic acid, which has an approx. particle wt. of 300,000 and is highly asymmetric, decomposes spontaneously to form asymmetric particles, mol. wt. approx. 61,000, and both mols. appear to be longer than the virus mol.; cold alkali converts these into particles with mol. wt. 15,000 and an axial ratio of 10. These results are discussed in relation to problems of virus structure. J. L. E.

New method for demonstrating cyto-antibodies in vitro. B. Sigurdsson (Proc. Soc. Exp. Biol. Med., 1942, 50, 62-66).—Frag-ments of embryo chick heart coalesce on incubation in serum or Ringer's solution. Coalescence is aided by preliminary treatment with trypsin, and inhibited by antibodies, e.g., serum of a rabbit immunised to minced chick embryo. V. J. W.

Interaction of antibody protein with dietary nitrogen in actively immunised animals. R. Schoenheimer, S. Ratner, D. Rittenberg, and M. Heidelberger (*J. Biol. Chem.*, 1942, **144**, 545-554).—When isotopic amino-acids are administered to actively immunised rats and rabbits, the antibody, like other serum- and body-proteins, participates in metabolic reactions involving uptake of dietary N. The amino-acid replacement and N transfer amongst individual amino-acids occur in antibody- and normal serum-proteins in the same manner as in organ proteins. The half-life of an antibody mol. is approx. 2 weeks, the same as that of the average serum-I. N. A. protein.

Behaviour of antibody protein toward dietary nitrogen in active and passive immunity. M. Heidelberger, H. P. Treffers, R. Schoen-heimer, S. Ratner, and D. Rittenberg (J. Biol. Chem., 1942, 144, 555—562; cf. preceding abstract).—Passively injected antibody undergoes no change involving N replacement in its constituent amino-acids. In a rabbit already actively immune to another antigen, absence of uptake of dietary N by the passive antibody is in marked contrast to replacement of N in the active antibody. Replacement of dietary N into actively produced antibody is probably due to sp. alteration of cellular function caused by presence of homologous antigen. of homologous antigen. N. A.

Antigenicity of non-precipitating complexes. F. C. Bawden and A. Kleczkowski (Brit. J. exp. Path., 1942, 23, 169-178).—Bushy stunt virus and human serum-globulin remain antigenic when changed into non-pptg. complexes by heating with rabbit albumin in suitable conditions (cf. A., 1942, III, 70, 354). The injection of such complexes into rabbits produces antisera apparently identical in all their serological reactions with those produced against the normal virus or globulin. Solutions of the non-pptg. antigens fix complement with antisera as strongly as solutions of the normal pptg, antigens, showing that complement fixation does not depend F. S. on the formation of insol. material.

Effects of heat on serological reactions of antisera. F. C. Bawden and A. Kleczkowski (Brit. J. exp. Path., 1942, 23, 178-188).-The complement-fixation power of antisera to O-type antigens (bushy stunt virus and human serum-globulin) and to an H-type antigen (tobacco mosaic virus), and the sp. neutralisation of infectivity by the virus antisera, were equally affected by heat. Tobacco mosaic virus antisera lost all their serological reactions almost simultaneously, but with O-type antigens less heating was needed to destroy pre-cipitability than to destroy other scrological reactions. Antisera partly denatured by heat contain mixtures of antibodies in different states; a small proportion of mixed complexes prevents the ppth. of O-type antigens (cf. A., 1942, III, 69), but has little effect on complement fixation and the pptn. of H-type antigens. F. S.

Wassermann reaction in infectious mononucleosis with special reference to Kolmer test. J. A. Kolmer, I. W. Ginsburg, and E. R. Lynch (Amer. J. clin. Path., 1942, 12, 316-319).—The Kolmer quant. complement-fixation and Kahn standard flocculation tests gave completely negative reactions in 18 cases of infectious mono-

nucleosis. The Kline diagnostic test gave 1 positive and 1 doubtfully positive reaction in the group. The transient positive Wassermann and flocculation reactions are probably due to the production of a lipoidophilic reagin by the infectious agent of the disease in some cases, similar to that occurring in syphilis, malaria, and leprosy. They are not due to a reaction between heterophile antibody in the sera and heterophile antigen in the alcoholic tissue extracts reenforced with cholesterol employed in the tests. C. J. C. B.

Non-specific fixation of complement (guinea-pig serum) by three lots of Kolmer antigen. B. E. Diamond and B. M. Iverson (*Amer. J. clin. Path.*, 1942, 12, 328-335).—Antigen is the most important factor in the non-sp. fixation of complement; different lots of antigen vary considerably. The diet of the guinea-pigs and their housing conditions have no such effect. Inactivated, pooled, normal serum prevents the non-sp. fixation of complement by antigen.

C. J. C. B. Bone-marrow changes produced by specific antibodies .-- See A., 1942, III, 793.

Quantitative blood-group antigen in dead organs .- See A., 1942, III, 794.

Endotoxins. C. Hallauer (Schweiz. Z. Path. Bakt., 1942, 5, 122-134).-A review. É. M. J.

Anaphylactic shock with hæmoconcentration. H. Blotner (J. Amer. Med. Assoc., 1942, 118, 219-221).—Severe anaphylactic shock produced by injection of tetanus antitoxin in a man of 22 was associated with hæmoconcn. (red blood count, 6.9 million per cu. mm.). Intravenous saline produced rapid relief of symptoms and lowered the red cell count to 5 million in 6 hr. C. A. K.

Shock-resistance of white rat. I. Went and J. Martin (Magyar Orv. Arch., 1939, 40, 329-337).—No anaphylactic reactions could be produced on blood pressure, bronchial muscle, or isolated heart of sensitised white rats. These organs also showed a high resistance to histamine, choline, and acetylcholine. Factors affecting shockresistance are discussed. A. W. M.

Hydatid cyst intracapsular hæmorrhage and anaphylactic shock [with recovery]. V. D. Leone (N.Y. Sta. J. Med., 1942, 42, 1585— E. M. J. 1586).-Case report.

Treatment of allergic asthma [in rabbits]. P. Kallós and L. Kallós-Deffner (Schweiz. Z. Path. Baht., 1942, 5, 97-118).—Guineapigs made to inhale rabbit anti-goat-blood serum in spray form died with the same appearances as after intravenous injection unless treated prophylactically with Ca gluconate-lactobionate or after a few min. inhalation with intravenous Ca-Sandoz. Adrenaline had no effect. Histological changes obtained and those seen after intracutaneous injection of the antigen are described. E. M. J.

Familial incidence of alimentary idiosyncrasy [allergy]. E. Han-hart (Gastroenterologia, 1941, 66, 121-129).—A review.

M. Treatment of food allergy [in asthmatics]. H. Black (*Sth. Med. J.*, 1942, **35**, 771-773).-100 cases of asthma were desensitised by the oral method and 5 months later 73 had lost their allergy to a certain amount of the affected food. Simple avoidance of the offending food cured only 6 of 50 cases. E. M. J. E. M. J.

Intestinal manifestations of milk allergy in newborn period. M. I. Rubin (Penn. Med. J., 1942, 45, 711-714).-Report of 4 cases.

E. M.

Chronic inflammation due to implanted collagen. B. D. Pullinger and A. Pirie (J. Path. Bact., 1942, 54, 341-344).—The histological picture of the lesion, after the disappearance of the implanted collagen, closely resembles that of non-sp. "chronic inflammatory tissue." (3 photomicrographs.) C. J. C. B.

Contact dermatitis. L. Hollander, A. Fisher, and F. J. Krug (Penn. Med. J., 1942, 45, 920-926). E. M. J. J. Krugh

Contact dermatitis due to various agents .-- See A., 1942, III, 843.

Production of skin allergy against simple chemical compounds. K. Landsteiner (Schweiz. med. Wschr., 1941, 71, 1359–1360).—The experimental work of the author and his co-workers (Chase; Jacobs, Di Somma) is reviewed. A. S.

Spread of allergic sensitization as reflex phenomenon. G. Miescher (Schweiz. med. Wschr., 1941, 71, 1360-1362) .- The work of Landsteiner and his co-workers on production of skin allergy against chemical compounds is discussed; the phenomena are explained on a reflex basis. A. S.

Oral prophylaxis for poison ivy dermatitis in children. L. Goldman (Amer. J. Dis. Child., 1942, 64, 241-247).-35 of 39 patients showed satisfactory results from oral antigen. C. J. C. B.

XXVI.—PLANT PHYSIOLOGY.

Comparison of some large alpine lakes in Western Canada. D. S. Rawson (Ecology, 1942, 23, 143-161).—In four lakes in the W. Rocky Mountains and two in South Central British Columbia, the

A. G. P.

amount of plankton is closely correlated with the mean temp. of the upper 10 m. and with the mineral content of the water. The amount of bottom fauna is positively correlated with the amount of plankton except where the lake is deep, when the amount of bottom plankton is low. L. G. G. W.

Eggs of Amblystoma maculatum with especial reference to green alge found within the egg envelopes. P. W. Gilbert (*Ecology*, 1942, 23, 215-227).—A unicellular green alga related to the genus *Chlorochytrium* is found in the eggs of *A. maculatum* and *A. jeffersonianum*. The eggs when deposited are free from alga and the alga enter from the water and penetrate into and grow in all three envelopes of the egg, but are most numerous within the inner envelope. Each algal cell has a single chloroplast, is either spheroidal or ovoid in shape, and the alga possesses motile and non-motile phases. Protozoa may enter the egg and the algæ is considered to be symbiotic because light which favours algal development accelerates the hatching rate of the eggs, and there is no evidence that light exerts any direct effect on hatching. L. G. G. W.

Gaseous exchange of seeds and isolated cotyledons of Cucurbita pepo. R. Brown (Ann. Bot., 1942, 6, 293-321).—Apparatus in which a single cotyledon can be cultured and its gaseous exchange examined is described. O_2 intake and CO_2 production increase from 18 to 48 hr., the initially high val. of the R.Q. falling to approx. 0.5 and indicating the accumulation of a new respiratory carbohydrate. Removal of the pellicle increases the rate of gaseous exchange and the R.Q. Gas exchange is also increased by rise of temp. and by increase n available water (with decrease in R.Q.). Light depresses the R.Q. without appreciable effect on the rate of CO₂ production. In the early stages of development respiration of the cotyledon is probably partly anaërobic. The embryo stimulates development of the cotyledon. A. G. P.

Relative respiratory rates and hygroscopic equilibria of common and hull-less oats. P. E. Ramsted and W. F. Geddes (*J. Agric. Res.*, 1942, **64**, 237–241).—At the same moisture content the respiratory rate of the common oat exceeded that of the hull-less variety. The latter was the more hygroscopic. Data do not indicate that hull-less oats are more liable than the common type to heating in storage. The smaller inter-grain space in stored hull-less oats may lead to accumulation of higher $[CO_2]$ and therefore greater loss of viability. A. G. P.

Mechanism of vegetable tissue respiration. I. Fumarase and succino-dehydrogenase. N. B. Das and P. K. Sen Gupta (Ann. Biochem. Exp. Med., 1942, 1, 117-126).—Fumarase occurs in germinated and ungerminated seeds of pea, cucumber, barley, and rice, being least active in the last. Max. activity is present 7 days after germination. Succino-dehydrogenase is present in germinated and ungerminated seeds of pea, cucumber, and barley, increasing in activity in the first 3-4 days after germination, then gradually diminishing. Little or no *l*-malic acid is formed when succinic acid is added to vegetable tissue. O₂ uptake by germinated pea slices was inhibited by CN' and malonate, particularly the former. Theories of C₄-dicarboxylic acids and cytochrome taking part in vegetable respiration and the mechanism of asparagine formation are discussed. P. C. W.

P. C. W. Diurnal variation in the mineral content of the cotton leaf. E. Phillis and T. G. Mason (Ann. Bot., 1942, 6, 437-442).—Leaves were collected at 6-hourly intervals and contents of water, N, P, K, Ca, Mg, and Cl determined. Marked diurnal variations were found. Leaves showed loss of water from 6 a.m. to noon, gain from noon to midnight, and no change or slight gain from midnight to 6 a.m. Minerals showed increase during day and either decrease or no change during night. Losses of mineral elements caused by dew complicated interpretation of results. R. H. H.

Foliar hydration in the cotton plant. I. Effects of potassium supply and size of plant. II. Preliminary observations using the disc-culture method. T. G. Mason and E. Phillis (Ann. Bot., 1942, 6, 443-453, 455-468).—I. Sand-cultured cotton plants receiving widely different supplies of K were sampled after 9 weeks. Hydration of leaves was more intimately associated with size (dry wt. of whole plant) than with K content. So long as increasing K supply caused increase in size of plant, foliar hydration decreased. When dry wt. approached max., decrease, in hydration ceased and then reversed. In field experiments KCl-K₂SO₄ was applied at rates of 0, 5, 10, 20, and 40 cwt. per acre. Samples were taken after 9 weeks. Increase in size was accompanied by increase in hydration. This was accounted for by difference in subterranean humidity. In pot experiments repeated under short daylight to ease water strain results were similar to those in field experiments.

II. Discs punched from leaves were floated in daylight on full nutrient and CaCl₂ solutions, and on water. The discs on water showed no gain of water in first week and loss of 20% in second. Those on nutrient solution absorbed water readily and in 13 days increased in wt. by 170%. This was accompanied by smaller relative increases in dry wt., f.p. depression, conductivity, and osmotic val., and by larger increase in salt content. With discs on CaCl₂ solutions the more conc. was the solution, the greater was the uptake of both water and salt. Possible explanations of these results are advanced and comparison is made with influence of salts on the hydration capacity of gelatin near its isoelectric point.

R. H. H. Factors affecting germination of sugar beet and other seeds; toxic effects of ammonia. M. Stout and B. Tolman (*J. Agric. Res.*, 1941, **63**, 687–713).—The toxicity of extracts of seed balls of sugar beet is due to NH₃ produced by enzymic hydrolysis of N-containing substances in the extracts. 0.3—0.4 mg, of NH₃ per ml. of solution is toxic to germinating seeds, seedlings, and 2-months-old plants. This is not the result of increased $\rho_{\rm H}$. All seeds examined were sensitive to 0.1 mg, of NH₃-N per ml. The osmotic pressure of the extract is a less important factor except in the case of fleshy fruits, germination of seeds from which is inhibited by high osmotic pressure. NH₄ salts were comparatively non-toxic. Extraction of sol. N compounds from pericarpal tissue improved germination of the seeds. A. G. P.

Chemical composition of Symphoricarpos rotundifolius as influenced by soil, site, and date of collection. L. A. Stoddart (J. Agric. Res., 1941, 63, 727-739).—Analyses of S. rotundifolius at different periods of growth in different localities are recorded. The stage of growth was the most important factor contributing to variations in composition, the % of protein, N-free extract, total ash, Ca, Mg, and P decreasing as the season advanced. Soil type influenced the total ash and P contents. The protein and N-free extractives showed higher and the Mg content lower vals. on the better sites. A. G. P.

Iodine in relation to plant nutrition. J. C. Lewis and W. L. Powers (J. Agric. Res., 1941, 63, 623-637).—No evidence of growth response in water-cultured maize, barley, or lettuce to small additions of I (1 and 0.001 part per billion of the nutrient) was obtained. The I content of the plants was linearly related to that of the culture solution. Azotobacter agile cultures in media containing 0.001 part of I per billion grew at normal rates for a year. The slight responses of lucerne and red clover to I in soil cultures result from secondary causes rather than from the correction of a nutrient deficiency.

Are ammonium salts toxic to the cotton root rot fungus? L. M. Blank and P. J. Talley (*Phytopath.*, 1941, **31**, 926-935).—No evidence was obtained of sp. toxicity of NH₄ to *Phymatotrichum omnivorum* in artificial media or soil cultures. When the organism is cultured in NH₄ media an acid condition develops rapidly and further growth is restricted unless the acidity is prevented or counteracted. Beneficial effects of NH₄ fertilisers on cotton are due to growth responses of the host rather than to toxic action on *P. omnivorum*. A. G. P.

Manganese deficiency and accumulation of nitrates in plants. G. W. Leeper (J. Australian Inst. Agric. Sci., 1941, 7, 161-162).— Mn deficiency in oats and Canary grass (Phalaris minor) is associated with accumulation of NO₃' in stems. In stems of plants grown in rich soil or that treated with Mn salts little or no NO₃' was detectable. A. G. P.

A. G. P. Partition of mineral elements in cotton plant. III. Mainly concerning nitrogen. E. Phillis and T. G. Mason (Ann. Bot., 1942, 6, 469-485; cf. A., 1941, III, 234).—Plants were grown until 9 weeks old in sand culture with low N supply (30 p.p.m.). Discs punched from leaves of some of the plants were floated in daylight on nutrient solution containing 150 p.p.m. of N as Ca(NO₃)₂. N supply to plants left growing was increased to 600 p.p.m. After 5 and 8 days leaves from growing plants and leaf discs on solution had synthesised equal amounts of protein. In 4 subsequent experiments with N supply ranging from very low to very high level, it was found that the crystalloid N content of leaves largely determined their protein-N content. With increase in crystalloid N, protein rose to max. and subsequently declined. This relationship pointed to apolar adsorption. Contents of total sugars and sol. P depended largely on levels of polysaccharides and insol. P respectively, adsorption playing important part. R. H. H.

Physiological studies in plant nutrition. XIII. Experiments with barley on defoliation and shading of the ear in relation to sugar metabolism. H. K. Archbold (Ann. Bot., 1942, 6, 487-531).-Barley plants grown under conditions of partial N deficiency received treatments of ear shading and defoliation. Effects on stems and sheaths were confined to changes in sugar level due to restriction of sugar accumulation and not to increase in utilisation. Defoliation greatly reduced the level of stem-sugar. Leaves were important in ear formation but did not affect grain size. Shading of ears led to small reduction of stem-sugar. Contributions of various organs to the supply of carbohydrates to ears were : leaves 15%, flag-leaf sheath 15%, stems and other sheaths 40%, and ears 30%. These proportions may be affected by growth conditions, particularly of N deficiency. R. H. H.

Coloration of box leaves. A. Mirimanoff (Arch. Sci. phys. nat., 1942, [v], 24, Suppl., 163-167).—The autumnal coloration of the leaves in spring is due to carotinogenesis and represents a phase of dystrophy of cellular metabolism, due to mould, or insect parasites,

or to a deficiency of some nutrient, possibly N. Pigmentation is accompanied by increased formation of lipins and decrease, and finally disappearance, in the amount of starch in the chloroplasts.

J. N. A.

Cytology of carotiniferous Chlorophyceæ. I. The pyrenoid. II. Starch-fat degeneration. F. Chodat (Arch. Sci. phys. nat., 1942, [v], 24, Suppl., 127—130, 130—134).—I. The chromatophore of Chlorella rubescens, Chod., has a visible pyrenoid. Cells of the red and green clones when grown in an anticarotinogenic (proteinforming) medium show very distinct pyrenoids, whilst in a carotinogenic (lipin-forming) medium, the pyrenoids are no longer visible, due solely to their greatly decreased size. The pyrenoid is considered to be a site of metabolic activity.

II. In young cells of the red clone the chromatophore protrudes out of the cell. In older cells in the groove of the chromatophore there are numerous capsules of a starchy nature which contain an oil, and in young cells they are on the interior surface of the plastid. Between the capsules and the plastid there are drops of orangecoloured oil. This oil is absent from old cells. The progressive degeneration of the plastid is accompanied by swelling of some of the starchy capsules, and in the last stages these are the only visible objects. J. N. A.

Increased size and nicotine production in selections from intraspecific hybrids of Nicotiana rustica. H. H. Smith and C. W. Bacon (J. Agric. Res., 1941, 63, 457-467).—Hybrids of N. rustica (tall type), N. rustica, Olson, and N. rustica var. brasilia, Schrank., are examined with a view to production of larger leaves and increased yields of nicotine per acre. By suitable selection N. rustica hybrids could probably be grown economically for nicotine production alone. A. G. P.

Vitamin-C and chromosome number in Rosa. C. D. Darlington (Nature, 1942, 150, 404).—Vitamin-C determinations suggest that genetic differences determining vitamin content, irrespective of chromosome no., distinguish species within the Caninæ, although these are less than those distinguishing Caninæ and Cinnamomæ. Polyploidy may determine an increase in vitamin production. A. A. E.

Inhibitory action of juice of Solanum lycopersicum on germination of seeds and growth of plants. A. Ozorio de Almeida, M. D. Goulart, M. Ielpo, and A. V. Pinto (*Rev. Brasil. Biol.*, 1941, 1, 345-354).—The juice and its alcoholic extracts have an inhibitory effect on the germination of seeds and on the growth of some plants. Ether and CHCl₃ extracts are inactive The active substance of the juice may produced as a defence against microbes and parasites. L. C.

Reversible growth inhibition of isolated tomato roots. J. Bonner (Proc. Nat. Acad. Sci., 1942, 28, 321-324).—Growth of isolated tomato roots is inhibited by sulphanilamide, sulphathiazole, and sulphapyridine. The inhibition is neutralised by addition of paminobenzoic acid, which when given alone has no growth-promoting effect. Tomato roots normally contain p-aminobenzoic acid or a substance with similar action. R. L. E.

Protective action of vitamin-H' [*p*-aminobenzoic acid] against inhibition by sulphanilamide of ten species of green algæ. F. Chodat and S. Soloweitchik (*Arch. Sci. phys. nat.*, 1942, [v], 24, *Suppl.*, 167—168).—0.0005% of *p*-aminobenzoic acid completely annuls the inhibition of growth of ten green algæ by 0.5% of sulphanilamide.

Extraction of auxin from virgin soils.—See B., 1942, III, 226.

XXVII.—PLANT CONSTITUENTS.

Manganese in soil of State of São Paulo. J. E. de Paiva Netto (Anais Assoc. Quím. Brasil, 1942, 1, 126-152; cf. A., 1942, I, 412).--A survey of the general distribution of Mn in plants and animals. F. R. G.

Distribution of boron in various parts of seeds. G. Bertrand and L. Silberstein (Compt. rend., 1942, 214, 41-45).—The B content of kernel and tegument in the seeds of cacao, chop nut (Physostigma venenosum, Balf.), bean (Faba vulgaris, Mœnsch, and Coumarouna odorala, Aub.), horse chestnut, Para nut, and lunaria is recorded. It is usually highest in the germ, and may play some part in regulating conditions for growth. A. LI.

Nitrogen of the potato. A. Neuberger and F. Sanger (Biochem. J., 1942, 36, 662-671).—For determination of a-amino-acid-N the hinhydrin method is more satisfactory than the HNO₂ method. Histidine, lysine, and cystine are absent from the potato, but asparagine (2·4 g. from 1·5 kg. of "Majestic" potato), glutamine (approx. 180 mg. per 1. of press juice of King Edward potato), tyrosine (535 mg. from 5 l. of extract), and smaller amounts of phenylalanine, leucine, etc. were isolated. The basic fraction contains adenine, trigonelline, choline, and arginine. N compounds are not equally distributed throughout the potato; isol. N and asparagine occur mainly in the skin and cortex whilst glutamine is present mainly in the medulla. Golden Wonder potatoes contain 51-2% of the total N as protein and 19.4% as amides, Majestic 29.5% as protein and 40% as amides. P. G. M. Simultaneous measurement of carbon dioxide and organic volatiles in the internal atmosphere of fruits and vegetables. F. Gerhardt (J. Agric. Res., 1942, 64, 207—218).—A suitable analytical method is described. The tissue is boiled in water; CO₂ is absorbed in alkali and other volatile substances in H_2SO_4 . Data obtained for apples and other fruits and vegetables in storage and during ripening are recorded. Effects of soft scald and of wrapping in oiled paper are shown. A. G. P.

Application of potassium ferricyanide method for the determination of carbohydrate in cane leaves. K. L. Khanna and S. C. Sen (*Proc. Indian Acad. Sci.*, 1942, **15**, **A**, 456—460).—The alcoholic extract from cane leaves is conc. in a vac., treated with aq. Pb acetate, and the filtrate added to aq. K oxalate. The filtrate (A) after removal of Pb oxalate is titrated (for glucose) with 1% alkaline $K_3Fe(CN)_6$. Disaccharides in A are determined (as glucose) after hydrolysis with citric acid. A. T. P.

Hemicelluloses and pectic materials from cottonwood (Populus macdougali). E. Anderson, R. B. Kaster, and M. G. Seeley (J. Biol. Chem., 1942, 144, 767—772; cf. A., 1938, III, 84).—The hemicelluloses appear to consist of methoxyuronic acid combined with a chain of 7—9 xylan units. Those obtained before chlorination of the wood yield much d-xylose and a small proportion of d-glucose on hydrolysis, those obtained after chlorination d-xylose only. Chlorination destroys material which gives a positive response to the I test for starch. Hydrolysis of those obtained before chlorination also results in liberation of a methoxyuronic acid combined with 2 mols, of d-xylose. Probably the hemicelluloses result from partial oxidation and decarboxylation of starch or dextrin. The pectic material appears to be pectic acid. W. McC.

Starch. XXIII. Composition of starch of the leaves, shoots, and tubers of potatoes. K. H. Meyer and P. Heinrich (*Helv. Chim. Acta*, 1942, 25, 1038–1046).—The starch is extracted from the leaves and shoots by warm CaCl₂ solution and pptd. by KI₃. Decomp. of the compound gives a pulverulent mixture of the constituents of starch which is fractionated by electrodialysis into amylose and amylopectin. The % of the former and the latter in the leaves, tubers, and shoots are approx. 21.5, 78.5; 37, 63; 73, 27. The diameters of the starch grains of the leaves, shoots, and tubers are respectively $0.5 - 1.5 \mu$, $5.5 - 15 \mu$, and $15 - 35 \mu$. Starch of the leaves contains only 0.015% P whereas 0.06% is present in that of the shoots and tubers. H. W.

Phosphatides from oil seeds. B. Rewald (*Biochem. J.*, 1942, 36, 822-824).—The phosphatides of groundnut seed, sesamé seed, cottonseed, linseed, and sunflower seed contain lecithin (35.7, 52.2, 28.8, 36.2, 38.5%) and kephalin (64.3, 40.6, 71.2, 63.8, 61.5%); that of sesamé seed also contains 7.2% sol. in hot but insol in cold alcohol. J. N. A.

Biochemical study of flowers, fruits, and seeds of Cydonia japonica, Pers., and C. maulei, Mast. V. Plouvier (Compt. rend., 1942, 214, 93-95).—The amounts of water, reducing sugar, HCN, and fatty oil, and the presence of glucosides and hydrolytic enzymes, in different parts of the flowers of C. japonica, Pers., and C. maulei, Mast., and in the fruits and seeds between June and October, have been investigated. In both cases during ripening of the fruit, reducing sugar increases, while HCN and glucosides hydrolysable by invertase disappear. Maturation of the seed shows an initial diminution in reducing sugar, and appearance of sucrose, HCN, fatty oil, amylase, and pectase. A. LI.

Palm oil carotenoids. II. Lipin pigments from West African plantation oil, and isomerisation of carotenoids. R. F. Hunter, A. D. Scott, and J. R. Edisbury (*Biochem. J.*, 1942, 36, 697—702). —The following carotenoids have been demonstrated in a West African palm oil with free fatty acid content of $2\cdot8$ — $3\cdot5\%$: $a-,\beta-$, and γ -carotenes, lycopene, neolycopene, lutein, neolutein, and an intermediate between β - and γ -carotenes. Ergosterol and hentriacontane were also present. Isomerisation of β -carotene, which takes place more rapidly in toluene (non-polar) than in nitromethane (polar), resembles that occurring between cis- and trans-azobenzenes.

P. G. M.

Derivatives of anthraquinone and hydroxyanthracene in plants. R. Wasicky (Ann. Acad. Brasil Sci., 1942, 14, 143—157).—Hydroxyanthraquinones are formed during the germination of Cassia alata and C. fistula and are present in the young leaves but diminish with age. F. R. G.

Chlorofucine (chlorophyll γ), green pigment of diatoms and brown algee. H. H. Strain and W. M. Manning (J. Biol. Chem., 1942, 144, 625—636).—Diatoms and brown algæ contain chlorophyll *a* and chlorofucine. The latter is a green chlorophyll-like pigment and it is a normal constituent of the cells and not a post-mortem product. Neither group of organisms contains detectable amounts of chlorophyll *b*. In certain regions of the spectrum chlorofucine absorbs considerably more light than does chlorophyll *a*, and it may play an important rôle in photosynthesis. J. N. A.

Loco weeds. IV. Constituents of Astragalus wootoni. W. S. Knowles and R. C. Elderfield (J. Org. Chem., 1942, 7, 389-391;

cf. A., 1940, II, 185; III, 462).—A 70% alcholic extract of the dried whole plant yields *d*-pinitol, trigonelline, choline, and betaine. The poison of the Wooton loco weed is not destroyed by boiling with 4% H_2SO_4 ; it readily diffuses through a Visking membrane and is not adsorbed on Al_2O_3 . The weed contains less than 1 p.p.m. of Se. H. W.

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Constituents of Pachyrrhizus angulatus, Rich. V. Rattan and P. B. Sen (Ann. Biochem. Exp. Med., 1941, 1, 163-164).—Analysis of the tubers shows moisture 82:38%, starch 9.72%, reducing sugars (expressed as glucose) 2:17%, non-reducing sugars (expressed as glucose) 3:03%, protein 1:47%, lipins 0:09%, ash 0:50% (Cu 0:43 mg., Fe 1:13 mg., Ca 16:00 mg. per 100 g. of tuber), and fibre et. 0:64%. P. C. W.

Concentration and characterisation of the emetic principle present in barley infected with *Gibberella saubinetii*. W. G. Hayman (*Phytopath.*, 1941, 31, 871–885).—The emetic principle is extracted from scabbed barley by water and the conc. extract yields the active substance to methyl alcohol. Recorded tests indicate the substance to be alkaloidal. A. G. P.

Thyroid-stimulating substances of plant origin. E. Maschmann (*Naturwiss.*, 1942, 30, 261-263).—Cabbage, mustard, radish, and rape seed, or these and other fresh vegetables, contain thyroid-stimulating substances insol. in acetone and light petroleum. Their chemical nature is unknown. P. G. M.

Action of juice of Solanum lycopersicum on animal cells. A. Ozorio de Almeida, M. D. Goulart, M. Ielpo, and A. V. Pinto (*Rev. Brasil. Biol.*, 1941, 1, 355—359).—The juice of S. lycopersicum (1:50) destroys *Paramecium caudatum*. It does not affect the rate of growth of mice or of tumours evoked in mice. The active substance of the juice may be the protective principle which is present in raw apples and is active against intestinal amediasis and other infestations. I. C.

Hibiscitrin from flowers of *Hibiscus sabdariffa*: constitution of hibescetin.—See A., 1942, II, 327.

Uterine principle from Viburnum prunifolium.—See A., 1942, III, 842.

Chemistry of gossypol.-See A., 1942, II, 431.

XXVIII.—APPARATUS AND ANALYTICAL METHODS.

Permanent devocalisation of dogs by removal of true and false vocal cords. G. L. Donelly (*Proc. Soc. Exp. Biol. Med.*, 1942, 50, 79—80).—Both cords are removed at one operation, through the mouth, by use of Miles nasal cutting forceps. V. J. W.

Polaroid stereoscope. R. W. Stamm (Amer. J. Roentgenol., 1941, 45, 744-752).—An apparatus is described permitting simultaneous stereoscopic observation of standard size X-ray films by 8 persons. H. L.

Direct-reading photo-electric colorimeter. E. J. King (Lancet, 1942, 242, 511-512).—The apparatus and its application in methods of blood analysis are described. C. A. K.

Simplified apparatus for dark-field cinemicrography. F. Rosebury and T. Rosebury (J. Lab. clin. Med., 1942, 27, 1487-1490).

C. J. C. B. **Bacteriological applications of fluorescence microscope**. P. Handuroy and J. Posternak (Schweiz, Z. Path. Bakt., 1942, 5, 240-263). E. M. J.

Phosphorescence microscope.—See A., 1942, I, 411.

Quantitative spectrographic analysis by the arc method.—See A., 1942, I, 411.

Portable Geiger-Müller counter. R. B. Taft (Radiology, 1942, 38, 350-352). E. M. J.

Simplified Geiger-Müller counter tube circuit. V. A. Odle (Amer. J. Roentgenol., 1940, 43, 942-943).—A circuit is described employing crystal type headphones in serial connexion with the Geiger-Müller tube and operated by portable power supply. H. L.

Cellophane cover slips. C. A. Pons (Amer. J. clin. Path., Tech. Sect., 1942, 6, 57). C. J. C. B.

Home-made mechanical shaker. J. M. Scott (Amer. J. clin. Path., Tech. Sect., 1942, 6, 58-59). C. J. C. B.

Mechanical manipulator for small pipettes. F. Hollander and J. Stein (J. Lab. clin. Med., 1942, 27, 1354). C. J. C. B.

New precision pipette for volumetric gas analysis. E. Simonson (J. Aviat. Med., 1941, 12, 240-242),—This pipette permits the analysis of any amount and % of air mixtures with increased accuracy. F. S.

Determination of moisture in living tissue. E. G. Hallsworth and R. L. Reid (*Nature*, 1942, 150, 524).--Determinations on dehydrated vegetables by toluene distillation and by heating in an

oven at 115°, 96°, or 70° (below 50 mm.) gave highly discordant results. A. A. E.

Rapid determination of fat in animals and plants. A. G. Lowndes (*Nature*, 1942, 150, 291).—The solution of the fat in xylene remaining after determination of water by distillation is mixed with water and steam-distilled. The residue is demulsified with HCl, and the fat extracted with light petroleum. A. A. E.

Micro-gasometric determination of nitrogen in blood and saliva. P. F. Scholander (*Rev. Sci. Instr.*, 1942, **13**, 362—364).—The method uses a micrometer burette, and allows the determination of dissolved N_2 in about 40 cu. mm. of blood, saliva, or other liquids, with an accuracy of 0.02 ml. of N_2 per 100 ml. of sample. Special pipettes for the removal of blood and saliva are described. The method has also been used for the micro-determination of O_2 dissolved in water. A. 1. M.

Micro-diffusion methods. Ammonia and urea using buffered absorbents (revised methods for ranges greater than 10 μ s. N). E. J. Conway and E. O'Malley (*Biochem. J.*, 1942, **36**, 655-661).—In the improved method described for determination of urea involving the use of urease, the concn. of H_3BO_3 in the absorbent has been reduced and this, together with the use of a mixture of methyl-red and bromocresol-green as indicator, makes the end-point more satisfactory. The speed of absorption is also accelerated by the use of KBO₂. P. G. M.

Chemical and biological determination of choline. R. W. Engel (J. Biol. Chem., 1942, 144, 701-710).—The reineckate method of Jacobi *et al.* (A., 1941, III, 516) has been modified and yields results considerably higher than those reported by other workers. Methyl alcohol is the most efficient solvent for extraction of choline from biological material and the temp. of hydrolysis has been increased from 80° to 100°. The biological assay depends on the protective action of the dietary supplement against the occurrence of kidney hæmorrhage in rats and will estimate the total protective val. of the foodstuff. H. G. R.

Use of orcinol test in photometric determination of nucleosides and nucleotides. H. K. Barrenscheen and A. Peham (Z. physiol. Chem., 1941, 272, 81—86).—Nucleosides and nucleotides in trichloroacetic acid extracts of tissues (50—100 mg. of organs, 2 c.c. of blood) are determined by measuring the depth of colour produced with orcinol and CuCl₂ in conc. HCl, glycogen, when present in high conc., being previously removed by pptn. with 96% alcohol. The colour produced with adenosine triphosphate is used as standard. W. McC.

Use of new digestion mixture for protein determinations. J. Benotti (*J. Lab. clin. Med.*, 1942, 27, 1444—1446).—Using a new digestion mixture, a method is described for total protein, albumin, globulin, and non-protein-N. C. J. C. B.

Determination of β -carotene and neo- β -carotene with the visual spectrophotometer.—See A., 1942, II, 388.

Microscopical identification of adrenaline.—See B., 1942, III, 245.

Determination of potassium with dipicrylamine.—See A., 1942, I, 409.

XXIX.---NEW BOOKS.

Disorders of the Blood. L. E. H. Whitby and C. J. C. Britton (4th Edn., London, 1942, pp. xii \pm 595).—The high standing of the authors in the world of hæmotology is well known. The new edition which has been thoroughly revised includes new treatment of blood pigments, hæmorrhagic states, hæmolytic anæmias of the new born, blood groups, and blood transfusion; recent wartime advances have been incorporated and the literature is brought up to date. The book retains its position as the most authoritative British work in its field, and is not surpassed in any language. S. W.

Bibliography of Aviation Medicine. E. C. Hoff and J. F. Fulton (Springfield and Baltimore, 1942, pp. xv + 237).—This bibliography has been prepared for the American Committee on Aviation Medicine, Division of Medical Sciences, National Research Council. Relevant papers have been sought in 800 journals, including 35 Russian periodicals, and previous compilations have been carefully studied. Microfilms have been made of many papers not conveniently accessible. In all 5736 references are given with full title, and there is a full index of authors. The subject material is classified as follows : history and general aspects of aviation medicine; special physiology of aviation and conditions simulating flight; special pharmacology; special psychology; aeromicrobiology; diseases and accidents of aviation; selection and assessment of efficiency, training, performance, and fatigue and protection of flight personnel; preventive medicine and therapeutics; aviation and public health; organisation; special problems; general studies. This book will be of inestimable service to all workers in this field

This book will be of inestimable service to all workers in this field and is a real contribution to the war effort. The technical side is of the high standard associated with the name of Charles C. Thomas. S. W.

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