BRITISH CHEMICAL AND PHYSIOLOGICAL ABSTRACTS

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

APRIL, 1942.

I.—GENERAL ANATOMY AND MORPHOLOGY.

Retroduodenal artery. L. F. Edwards (*Anat. Rec.*, 1941, **81**, 351—355).—The retroduodenal artery was identified in 97% of 100 human subjects examined. In 94 subjects it arose from the gastroduodenal artery. In all cases the artery lay parallel with and just to the right of the bile duct. The distribution of the artery is described and its surgical importance briefly indicated. W. F. H.

Value of cephalometry in estimation of fœtal weight. J. G. H. Ince (*J. Obstet. Gynæc.*, 1939, **46**, 1003—1010).—The biparietal and occipito-frontal diameters were measured in the heads of 1010 babies at birth and related to the body-wt. The variations were too great to allow an estimation of the birth-wt. or maturity to be given in any given case. P. C. W.

X-Ray studies of female pelvis [in pregnancy]. A. Brown (*J. Kansas Med. Soc.*, 1941, **42**, 378—382).—A review. E. M. J.

X-Ray therapy for closure of epiphyses. D. Spangler (*Radiology*, 1941, **37**, 310—314).—4 children aged 10—12 years were treated with X-rays in an attempt to arrest the growth of one leg where the growth of the other leg had been arrested by disease. 2700 r. in one and 4300 r. in two cases in divided doses produced closure of the epiphyses and in one case reduced the discrepancy in length; 2000 r. followed by 670 r. 6 months later failed in the fourth case. E. M. J.

Rœntgen findings in alkaptonuric ochronosis. M. M. Pomeranz, L. J. Friedman, and I. S. Tunick (*Radiology*, 1941, **37**, 295—302). —Report of 2 cases with extensive calcification of intervertebral discs and spinal ankylosis as well as calcifications in various tendon sheaths, bursal sacs, and synovial membranes. E. M. J.

Osteochondritis and tuberculosis. A. Dale (*Edinb. Med. J.*, 1942, [iv], **49**, 34—39).—Description of Calvé's disease of spine and of Köhler's disease of tarsal scaphoid with discussion on their relationship to tuberculosis. H. S.

Achondroplasia fœtalis. E. L. Jenkinson and R. E. Kinzer (*Radiology*, 1941, **37**, 581—587).—A report of 5 cases, 4 of which were in Negroes. E. M. J.

Congenital absence of fibula. R. B. Scott (*Amer. J. Dis. Child.*, 1941, **61**, 1037—1043).—A case of congenital absence of the fibula in a premature infant is reported. There was in addition shortening, anterior bowing, and dwarfing of the affected leg; shortening and anterior bowing of the tibia; equinovalgus position of the foot, with relaxation of the ankle joint; absence of the external malleolus; absence, delay in appearance, or fusion of some tarsal and metatarsal centres of ossification, and absence of webbing or hypoplasia of the toes. C. J. C. B.

Anterior and posterior rhachischisis. G. S. Dodds (*Amer. J. Path.*, 1941, **17**, 861—872).—In the 2 fœtuses described the necks were thick and very short owing to complete division into right and left halves of all of the cervical vertebræ and some of the thoracic vertebræ. The diaphragm was missing on the left side. There was a large opening in the left side of the pericardium between the pericardial cavity and the left pleural cavity. A large portion of the liver, the spleen, and portions of the abdominal alimentary tract were in the thorax, crowding the heart and lungs wholly to the right side of the median plane. External and internal anomalies were also present. (9 illustrations.) C. J. C. B.

Defective pericardial sac and interatrial septum and atresia of pulmonic orifice. R. Osgood and B. Spector (*Amer. J. Dis. Child.*, 1941, **61**, 1028—1033).—A case report. C. J. C. B.

Right-sided aortic arch. D. Eisen (*Canad. Med. Assoc. J.*, 1941, **45**, 402—406).—Report of 2 cases. C. J. C. B.

Biatrial trilocular heart with atresia of mitral valve. E. W. Walls (*Lancet*, 1941, **241**, 668—669).—Autopsy report on a child who died at 14 weeks. C. A. K.

Kartagener's triad, situs inversus viscerum, bronchiectasis, and paranasal sinusitis. S. A. Adland (*Amer. J. Dis. Child.*, 1941, **61**, 1034—1036).—A case report. C. J. C. B.

Congenital tracheoœsophageal fistula. F. P. Gengenbach and E. I. Dobos (*J. Pediat.*, 1941, **19**, 644—656).—Report of 10 cases with review of the literature. C. J. C. B.

Absence of both kidneys in new-born child. N. Kasiwabara (*Japan. J. Obstet. Gynec.*, 1940, **23**, 104).—Ureters and bladder were also absent. Other organs were normal. P. C. W.

II.—DESCRIPTIVE AND EXPERIMENTAL EMBRYOLOGY. HEREDITY.

Two human ova of pre-villous stage, having an ovulation age of about eleven and twelve days respectively. A. T. Hertig and J. Rock (*Carnegie Inst. Wash., Contrib. to Embryol.*, 1941, **29**, 127—156).—A description is given of two normal, complete, pre-villous human embryos, nos. 7699 and 7700 of the Carnegie series, at a stage of development hitherto not fully described. They were procured by hysterectomy on the 11th and 12th days after fertilisation was presumed to have occurred. Each ovum, which measures less than 1 mm. in diameter, is implanted interstitially in the superficial part of the endometrium, which measures about 4·25 mm. beside the embryo and 5 mm. beneath it, in no. 7699, and 4 mm. and 5 mm. respectively in no. 7700. At the site of entry of the embryo into the endometrium the epithelium is defective; within this defect is the base of a pear-shaped fibrinous, leucocytic, hæmorrhagic coagulum of maternal origin. The trophoblastic layer at this area is composed of a single mesothelial-like layer; the trophoblast of the remainder of the chorionic wall is greatly increased in thickness and is differentiated into a syncytiotrophoblast and a cytotrophoblast. In the former, intracellular vacuoles develop and gradually increase to form intercommunicating lacunar spaces into which maternal blood passes. The cytotrophoblast, inwardly, gives rise by differentiation and delamination *in situ* to primitive angioblastic and mesoblastic tissue; the inner layer of the latter forms a mesothelial-like membrane (Heuser's membrane) which bounds the extraembryonic coelom together with the embryonic endoderm. The bilaminar embryonic disc in each embryo is composed of a thick plate of ectodermal cells and an embryonic endoderm; the cells of the former are continuous with the cells of the amnion, which are derived *in situ* from the adjacent cytotrophoblast. The endometrium is at the late premenstrual stage corresponding to the 25th to 26th day of a normal 28-day menstrual cycle. The glands are extremely tortuous and distended and are lined by cuboidal, secreting epithelium. Where the syncytiotrophoblast is in contact with the endometrium there is early decidual reaction but there is no necrosis of maternal tissue; there is, however, leucocytic infiltration. The age of the embryos is discussed. The younger specimen, no. 7699, is younger than the Miller embryo and no. 7700 is slightly older. W. J. H.

Torpin ovum, a presomite human embryo. J. Krafka, jun. (*Carnegie Inst. Wash., Contrib. to Embryol.*, 1941, **29**, 167—193).—The ovum, which is well preserved, was obtained by hysterectomy. It is regarded as normal and shows little distortion; it is at the simple villous stage and is classified as belonging to group 1, stage II, of Streeter's classification. It is situated superficially in the endometrium, which is at the premenstrual phase. There is no blood in the glands but œdema is especially marked in a zone between the stratum compactum and the stratum spongiosum. The arrangement of the spiral arteries and sinusoids is discussed. The villus is essentially an anchoring type and is composed of a mesoblastic core and a cytotrophoblastic cap passing into a cytotrophoblastic column which is firmly attached to the stroma. The Langhans layer forms vasoformative tissue. The embryo is the youngest human specimen in which there is an amniotic duct. It shows no evidence of the primitive streak. W. J. H.

Human embryo in primitive streak stage (Jones–Brewer ovum 1). H. O. Jones and J. I. Brewer (*Carnegie Inst. Wash., Contrib. to Embryol.*, 1941, **29**, 157—165).—A description is given of a normal, well preserved human embryo aged 18½ days obtained by hysterectomy. The embryonic disc is broader than it is long, measuring 0·58 mm. by 0·782 mm. There is an elevation of the ectoderm at Hensen's node from which projects forward a head-process formation; in the latter there are three discontinuous canals which do not communicate with either the yolk sac or amniotic cavity. This embryo is at the earliest stage of head process formation yet described in the human subject. The cloacal membrane is broad

and well defined. Blood cells and vessels are in the process of formation in the yolk sac, body stalk, and chorion. A yolk sac diverticulum and an allantois are present. W. J. H.

Development of macaque embryo. C. H. Heuser and G. L. Streeter (*Carnegie Inst. Wash., Contrib. to Embryol.*, 1941, **29**, 15—55).—A description is given of the development of the macaque monkey from the free blastocyst stage of 8 days up to the fœtal stage of 260 mm. The different stages were timed from ovulation, which can be determined in the macaque monkey by rectal palpation of the ovary. The complex material of the original one-cell stage is found in the blastocyst stage to be selectively distributed amongst the various groups of cells. In the 8-day blastocyst four types of cells are recognised: (1) cavity-wall trophoblast cells; (2) primitive "formative" cells; (3) polar trophoblast cells; and (4) primary endoderm cells. In the 9-day blastocyst the cells in the abembryonic region can be seen in progressive stages of delamination from the trophoblast. At the embryonic pole the trophoblastic cells become specialised to form an invasive plate which later becomes a lacunar syncytium that takes in maternal epithelium and blood. The formative cells arrange themselves radially into a germ disc. Amniogenic cells are derived from the embryonic polar trophoblast; they become specialised to form the amnion, and have irregular cell boundaries. Three phases in the development of the amnion are described. The primary yolk sac is a non-formative structure; from the beginning it is discrete from the gut primordium, which arises from the entodermal cells which are early segregated during development. The primary yolk sac arises from fibroblastic cells of the extraembryonic mesoblast. The definitive yolk sac appears to arise from the primary yolk sac by segregation of some cells beneath the germ disc. A broad application is given to the term primitive streak which is regarded as an area of the germ disc that has retained its indifferent primitive character. A correlation of age, external size, and form is given. On the whole, size appears to be a reliable guide as to age. W. J. H.

First maturation division of macaque ovum. C. G. Hartman and G. W. Corner (*Carnegie Inst. Wash., Contrib. to Embryol.*, 1941, **29**, 1—6).—A description is given of the 1st maturation division and the formation of the 2nd maturation spindle in the macaque ovum. The macaque ovum is similar to the vast majority of mammals in the fact that the 1st maturation spindle occurs within the Graafian follicle just previous to its rupture. A distinctive feature of the ripe follicle is the sparse corona radiata. There is some variation in the size of the mature follicles; the average diameter is just over 6 mm. The granulosa cells vary from 4 to 10 layers and the liquor folliculi is a dense liquid. The vol. of the ovarian eggs varied from 400,000 $\mu.^3$ to over 600,000 $\mu.^3$ with an average diameter of approx. 100 $\mu.$, *i.e.*, they are less than half the vol. of tubal eggs. W. J. H.

Tubal ova of rhesus monkey. W. H. Lewis and C. G. Hartman (*Carnegie Inst. Wash., Contrib. to Embryol.*, 1941, **29**, 7—14).—The time of ovulation was determined by bimanual palpation of the ovary. A description is given of eight eggs. There is some variation in the size of the vitellus, which is more marked in the case of the unfertilised than the fertilised eggs. The outer diameter of the zona is 150—178 μ. Since the vitellus completely fills the zonal cavity in the ovarian egg and does not do so after fertilisation, either the vitellus undergoes a shrinkage or the zona pellucida expands after ovulation. The vitelluses of both fertilised and unfertilised eggs are filled uniformly with fine yolk granules. Attempts to fertilise eggs *in vitro* were unsuccessful. W. J. H.

Development of fœtal lung. R. F. Norris, T. T. Kochenderfer, and R. M. Tyson (*Amer. J. Dis. Child.*, 1941, **61**, 933—950).—Reconstructions from the injected lungs of fœtuses show that at the 25—30-cm. stage (5—6 lunar months' gestation age) protrusion of the mesenchymal capillaries between the epithelial cells of the primitive air sacs takes place; from then aëration of the pulmonary blood is facilitated by the exposure of the capillaries to the potential air spaces. The epithelium of the terminal air sacs is then gradually lost, until at term the mature alveoli contain no visible epithelium. (6 photomicrographs.) C. J. C. B.

Development of lung with particular reference to nature of alveoli. A. W. Ham and K. W. Baldwin (*Anat. Rec.*, 1941, **81**, 363—379).—In the developing lung of the pig relatively cellular and relatively non-cellular mesenchymal types were observed. The more cellular mesenchyme is closely applied to the "endodermal tree" whilst the non-cellular mesenchyme gives rise to the fibrous supporting parts of the lung and in it the main lymph vessels develop. After the 190-mm. stage the capillary bed develops rapidly; capillaries project through the epithelium to form the chief lining of the air passages and frequently bulge into the alveoli. It is suggested that inspiratory acts in the late stages of fœtal life are the chief stimulus for the extensive growth of the capillary bed which characterises this period and account also for the position of those capillaries which bulge into alveoli. W. F. H.

Placentation of Jamaican bat (*Artibeus Jamaicensis parvipes*). G. B. Wislocki and D. W. Fawcett (*Anat. Rec.*, 1941, **81**, 307—317).—The uterus is of the simplex type and the uterine tubes penetrate the fundus near the median line. The uterus contains one embryo attached to the dorsal wall of the fundus by a discoidal placenta. The chorio-allantoic placenta is of the hæmochorial variety. There is no distinct allantoic vesicle but a simple allantoic diverticulum extends through the cord to end without dilatation in the mesenchyme over the placental surface. An extensive yolk sac with a vascular inner wall and a nonvascular outer wall fused with the chorion is present. The umbilical cord is attached marginally on the posterior border of the placental disc. The vitelline artery and vein pass from the cord on to the wall of the yolk sac where they break up into many branches on the surface of the splanchnopleure. The cord and amnion are devoid of villi or carunculæ. Scattered patches of melanophores occur in the stroma of the cord and the adjacent membranous amnion. W. F. H.

Development of half-eggs of *Arbacia punctulata*. E. B. Harvey (*Biol. Bull.*, 1940, **78**, 412—427).—Fertilised eggs were divided by centrifuging and the nuclear halves developed into blastulæ but not any further (unfertilised similar halves form plutei). The non-nucleate halves would not cleave whilst non-nucleate halves of unfertilised eggs will form blastulæ. The significance is discussed. D. M. Sa.

Development of *Daphnia magna* eggs *in vitro*. V. Obreshkove and A. W. Fraser (*Biol. Bull.*, 1940, **78**, 428—436).—Eggs can be reared parthenogenetically in sterile pond water and become free-swimming in 46 hr. There is no need for external provision of food and the young can develop normally and produce young. D. M. Sa.

Head regeneration in earthworm. B. T. Painter (*Biol. Bull.*, 1940, **78**, 463—485).—The factors determining the occurrence and nature of regeneration were investigated by various transplant and removal procedures, including a "sleeve" operation of grafting body-wall segments over the gut. The pharynx is not essential to head regeneration but it can form nerve tissue; the gut tube is as potent as the pharynx; nerve cord is not essential to regeneration, and anterior and post-clitellar nerve cords can both participate in head or tail formation. D. M. Sa.

Enzymes in ontogenesis. J. H. Bodine, L. H. Carlson, and O. M. Ray (*Biol. Bull.*, 1940, **78**, 437—443).—Embryos of grasshopper eggs were destroyed by *X*-rays of 1000 r. given on the 6th day. The O_2 consumption of the remainder of the egg falls gradually through the prediapause to the diapause; it increases slightly in the early postdiapause. Pyrotinase is formed as in normal controls. D. M. Sa.

Behaviour of cell-surface during cleavage. K. Dan and J. C. Dan (*Biol. Bull.*, 1940, **78**, 486—501).—Eggs of *Strongylocentrotus pulcherrimus* have a layer of large peripheral granules which stain with osmic acid. On fertilisation the granules migrate slightly nwards leaving a peripheral extragranular zone. Eggs were allowed to take up kaolin particles, which adhered to the surface and remained on the blastomeres after cleavage. There is a new surface between the two blastomeres, and its granular arrangement is that of the unfertilised egg. D. M. Sa.

Meiotic chromosomes of *Llaveiella taenechina*. S. Hughes-Schrader (*Biol. Bull.*, 1940, **78**, 312—337).—These insects show chromosome complement of 3 pairs in the female, and 2 pairs and a single in the male. The multiple structure of the meiotic chromosome and the occurrence of a "tertiary split" are demonstrated. Data are presented to support the theory that in the anaphasic movement two forces at least are concerned, one intrinsic to the chromosome and one expressed in stem-body growth. D. M. Sa.

Duplication of seminal vesicles in *C*-strain mice. C. W. Hooker and L. C. Strong (*Anat. Rec.*, 1941, **81**, 333—349).—All males of *C* strain have prickly seminal vesicles and large, ribbed coagulating glands. 70% exhibit unilateral or bilateral duplication of the seminal vesicles, the accessory organ being a saccular diverticulum from the parent vesicle. Administration of testosterone propionate occasionally produced doubling of the seminal vesicles in members of *C* strain, and in other strains and hybrids which had not previously exhibited this character. Androgen produced the *C* type of coagulating glands in hybrids and foreign strains. The histology of the testis of mice of *C* strain appears to indicate a high ouput of androgen and it is suggested that the basic unusual feature of males of the *C* strain is a hereditary high level of production of androgen. W. F. H.

Developmental abnormalities and spontaneous diseases found in rats of mutant strain, stub. H. L. Ratcliffe and H. D. King (*Anat. Rec.*, 1941, **81**, 283—305).—Stub is a simple mendelian recessive that has a deleterious effect in the homozygous condition. Characteristic abnormalities are: slow rate of growth, relatively small body size when full grown, and marked reduction in the no. of caudal vertebræ. The animals are rarely fertile, and a possible explanation of this is that hyperthyroidism occurred regularly in males and in about half of the females. Deformed lateral toes on both front and rear feet, agenesia of one or both kidneys, and atresia of ureters are common. Differentiation of the urinary system and of the pelvic outlets of the alimentary tract and genital apparatus may

occur but the passages often undergo degeneration before or shortly after birth. Thus many new-born stubs are non-viable.

W. F. H.

III.—PHYSICAL ANTHROPOLOGY.

Physical anthropology of the existing Veddahs of Ceylon. I. W. C. O. Hill (*Ceylon J. Sci.*, 1941, [G], **3**, 25—141).—Veddahs are typically small in stature and in all bodily proportions. The skin is a dark chocolate-brown with only a slight degree of variation between the sexes. The distribution and macroscopic features of the hair are described. The general impression is one of a retained infantile pilous system with a min. display of secondary sexual hair. The cranium is constantly dolichocephalic and the face is characterised by its small height and great width and by slight prognathism. Since the conquest of Ceylon by the Sinhalese and as the result of Tamil incursions the Veddahs have been scarcely able to maintain their own. They exist as a dwindling race in the eastern part of the island. The geography and climatology of the Veddah country are described and brief reference is made of diet, occupations, habitations, and pathology. W. F. H.

The Australian aboriginal: study in comparative physiology. C. S. Hicks (*Schweiz. med. Wschr.*, 1941, **71**, 385—388).—The basal metabolic rate was within ±10% of the standards in spite of the people being naked at early morning temp. of −4°. The metabolism of fasting subjects remains const. or tends to fall whilst the R.Q. falls rapidly. Food is eaten raw and whole animals are eaten. There were no signs of avitaminosis although white men rapidly show signs of vitamin-*A* and -*C* deficiency in this climate. The sp. dynamic action of food is more pronounced than in Europeans. The air temp. inside the natives' camp was 10—15° in the morning. There is an extremely active control of skin circulation and heat loss from a cold part is minimised by a diminished blood flow through that part, flow control being much more localised than in the white. Considerable constriction of one radial artery was observed with a full circulation in the other. Blood pressures are uniformly low and the average pulse rate is 50 per min. The subjective sensation of cold is felt as keenly as in the white.

A. S.

IV.—CYTOLOGY, HISTOLOGY, AND TISSUE CULTURE.

Studies on living spinal ganglion cells. D. P. Murnaghan (*Anat. Rec.*, 1941, **81**, 183—203).—Spinal ganglia from chick embryos of 7—15 days' incubation and from newborn mice were studied in tissue cultures and fresh spreads. Large nos. of mitochondria especially dense around the nucleus occur in the spinal neurons. Slightly elongated mitochondria are present in the cell itself and in the nerve processes they are rod-shaped or filamentous and arranged in incomplete linear striations. Neurofibrils were not observed and it is suggested that in normal, living ganglion cells there is some invisible physico-chemical basis for the fibrillar appearance seen in fixed and stained specimens. In both species examined cells growing out from the brain are recognised as oligodendroglia and are regarded as morphologically equiv. to the satellite cells of the spinal neurons and the sheath cells of Schwann along the axons.

W. F. H.

Cytological manifestations of secretion in adrenal medulla of the cat. H. S. Bennett (*Amer. J. Anat.*, 1941, **69**, 333—381).—The cells of the adrenal medulla are arranged with one pole directed towards a vein and the other pole towards a capillary. The cytological polarity can be correlated with vascular polarity. This manifests itself in several ways, involving the position of the nucleus, position of Golgi apparatus, site of secretion droplets, site of vitally staining bodies, concn. of reducing substance in the cell, and location of vacuoles in the cytoplasm. Most of the secretion is discharged into the vein. The " chromaffin " reaction depends on the oxidation of certain org. compounds in the medulla to brown polymerides, and not on Cr *per se*. On the basis of histochemical data it is inferred that adrenal medulla cells undergo a secretory cycle. Cells in phases of active secretion, depletion, resynthesis, and presecretion are described. The data presented indicate that when a medullary cell secretes, it converts reducing phenolic derivatives in its cytoplasm into adrenaline, which gathers in droplets near the venous pole of the cell. Electrical stimulation of the splanchnic nerves greatly increased secretion. W. F. H.

Structure of intestinal peritoneum in man. M. A. Baron (*Amer. J. Anat.*, 1941, **69**, 439—496).—At the 5th month *in utero* the intestinal serous coat is represented by a mesothelial layer with a thin mesenchymal lining. At this stage the blood and lymphatic vessels are in direct contact with the mesothelium. By the 7th month the peritoneum consists of mesothelium, basement membrane, and a deep latticed collagenous layer. The formation of deep collagen is associated with the primary development of the circular musculature of the gut. A superficial fibrous collagenous layer appears about the 8th month. Elastic networks appear during the 9th month and further development of these occurs in postnatal life. Muscular contraction serves only to give definite form to the fibrous structure of the peritoneum. In the adult, blood and lymphatic vessels occur only in the deep latticed collagenous layer. Resorption and transudation of fluid through the nonvascular layers of the peritoneum is effected by diffusion through tissue spaces. W. F. H.

Experimental pleomorphism of motor nerve plates as mode of functional protoplasmic movement. E. J. Carey (*Anat. Rec.*, 1941, **81**, 393—413).—Greatly expanded motor nerve plates were observed in the intercostal muscles of the white rat, following superfunctional activity of respiration produced by inhalation of CO_2. The expanded phase of the nerve plate is associated with contraction, and the retracted phase with relaxation, of the muscle fibre. Expansion of the terminal arborisation in the nerve plate is accomplished by functional amœboid motion which determines the pleomorphism. Over 50% of the motor plates stimulated by CO_2 reached twice the size of normal nerve plates. Expansion of the processes of the nerve plate favoured the conduction of impulses from nerve to muscle. Retracted motor nerve plates were related to coarse, widely spaced cross striations and expanded nerve plates to fine closely spaced cross striations. W. F. H.

Histological studies of uninvolved skin of patients with psoriasis. J. E. Madden (*Arch. Dermat. Syphilol.*, 1941, **44**, 655—663).—300 specimens from the uninvolved skin of 77 patients were studied. The changes found were leucocytic infiltration, capillary dilatation, and lengthening of the rete pegs and papillary bodies. The elastic and connective tissue were normal. Fat was generally increased especially in the scale, in the sebaceous apparatus, and in and around the sweat glands. (4 photomicrographs.) C. J. C. B

Sheets of pure epidermal epithelium from human skin. P. B. Medawar (*Nature*, 1941, **148**, 783).—Thinnest possible skin-slices were digested with trypsin and the epidermis was so freed from mesodermal elements. Excessive no. of hair follicles in rabbit, rat, or dog skin interferes with the separation. E. R. S.

Effect of visible light on growth of fibroblasts *in vitro*. M. Natume (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 47—48).—Irradiation of chick-embryo heart cultures with red light caused accelerated growth with 15—20-w. lamps. Overdosage effects were obtained with 60 w. The effect of blue light irradiation was not so pronounced and the effects of overdose were apparent with 30 w. P. C. W.

Mitoses occurring in acanthosis produced by hormones. E. Uehlinger, W. Jadassohn, and H. E. Fierz (*J. Invest. Dermat.*, 1941, **4**, 331—335).—In normal epidermis of guinea-pigs there are relatively few mitoses even after injection of colchicine 25 μg. per 20 g. The mitoses in the normal epidermis are not confined to the basal cell layer, but are occasionally seen in the stratum Malpighii. In the acanthosis of mammillary epithelium produced by œstrone, mitoses are numerous in the basal cell layer and in the stratum Malpighii. (3 photomicrographs.) C. J. C. B.

What is known about the physiology of cell division. E. Bujard (*Arch. Sci. phys. nat.*, 1941, [v], **23**, 194—216).—A review.

W. McC.

Histo-chemistry of pituitary. F. Bienwald (*Virchow's Arch.*, 1939, **303**, 576—587).—Mucus, cartilage, mast cell granules, and protagon granules of Schwann's sheath exhibit metachromasia when stained with thionine in the tray. Other tissues such as posterior lobe of pituitary of mammals, birds, and reptiles, and basophil cells of anterior and intermediate lobe of pituitary of man, horse, guinea-pig, and pig, show metachromatic properties only when formalin-fixed sections are stained with thionine and tartaric acid in the capillary space between slide and cover slip. Polysaccharides of $R{\cdot}O{\cdot}SO_3H$ type are responsible for ordinary metachromasia; cerebrosides and phosphatides cause the special metachromasia. In the latter thionine is reduced to a pink intermediate mesoquinone and after a few weeks is converted into the leuco-base. J. A.

Karyoclastic properties of saponin. K. Chodkowski (*Arch. int. Méd. exp.*, 1938—39, **13**, 665—683).—Two samples of saponin (Schering and Spiess, Warsaw) were injected subcutaneously into white mice in doses of 1—2 and 5—7 mg., respectively. The mice were killed ½—168 hr. later and the tissues examined histologically. The action on the thymus was that of a typical poison with a more than 20-fold increase in pyknosis lasting 48 hr. and decreased no. of mitoses which was still present 168 hr. after the injection. The action on other lymphoid tissues was less pronounced, the karyoclastic action being quicker and the mitoses being less inhibited. Pyknosis differed in thymocytes and lymphocytes. Mitotic action in the glands of Lieberkuhn, ovaries, and testes was little affected. Precocious mitoses were seen 2 hr. after the injections in the adrenal medulla and cortex, islet, acinar and epithelial elements of the pancreas, and renal convoluted tubules; retarded mitoses were found (72 hr. after the injection) in parenchyma of liver, pancreas, kidney, and adrenals. Precocious mitotic stimulation was specially marked with the purer saponin sample. Quant. differences between

the effects of the two samples were attributed to their differing degrees of purity or origin. P. C. W.

Karyoclasia produced by colchicine in amphibians. R. Delcourt (*Arch. int. Méd. exp.*, 1938—39, **13**, 719—783).—Histological investigation was made of organs removed from toads, frogs, salamanders, and axolotls after colchicine injection and the results are reported in detail. Contrary to the findings in the mouse, the phase of hypermitosis is preceded by a phase of pyknosis, lasting about 10 hr. Following this the mitoses increase and during 48—72 hr. after the injection are maintained in metaphase. After this time some degenerate while others recover and complete their division. The absence of axis spindle appears to be the prime mover in the mitotic disorder. In the frog the action of colchicine is augmented at 37°. In urodeles the hypermitosis dominates the karyoklastic activity and the majority of the mitoses attain completion. In axolotls there is disturbance of the deposition of hepatic fat for 20 hr. following the injection. Large doses in frogs produce "spherular excretion" as do normal doses in axolotls; the excretion is found in the intestinal and excretory canals, remains intracellular, and is eventually reabsorbed. The sensitivity of the various organs is, in descending order: thymus, hæmatopoietic organs, reticulo-endothelial system, digestive tube, excretory canals (liver, pancreas, kidney), and lung. The sensitivity is an index of the latent factors of mitosis. The relatively slow action of colchicine in amphibians is attributed to their relatively low metabolic rate. P. C. W.

Chlorazol-black E and some other new stains. H. G. Cannon (*J. Roy. Microscop. Soc.*, 1941, **61**, 88—94).—Chlorazol-black E is a good routine botanical and zoological stain. Materials such as *Obelia*, polyzoa, etc. from 70% alcohol are stained for 20 min. in a saturated solution of the dye in 70% alcohol, dehydrated, cleared, and mounted in balsam. The dyestuff can be used as a vital stain, and the colour of stained preps. is suitable for photomicrography. A further series of similar dyes stain nuclei and chromosomes deeply and sharply, and cytoplasm (the same colour) faintly: none require a mordant or differentiation: they do not overstain, and results are permanent. Details are given for lignin pink, Hickson purple, Marshall red, Beyer brown, Victoria green G, Manchester blue, and Owen's blue. E. E. H.

Use of synthetic resin as substitute for Canada balsam. J. Kirkpatrick and A. C. Lendrum (*J. Path. Bact.*, 1941, **53**, 441—443).—The use of a synthetic polystyrene resin (Distrene 80) in place of Canada balsam demands the complete removal of paraffin wax from the slide. C. J. C. B.

V.—BLOOD AND LYMPH.

Activity of carbonic anhydrase within red blood corpuscles. D. Keilin and T. Mann (*Nature*, 1941, **148**, 493—496).—The activity was studied quantitatively by a spectroscopic method, which depends on the facts that (1) hæmoglobin within the cells can be easily oxidised to methæmoglobin without affecting the integrity of the cell walls, (2) methæmoglobin changes its colour and pattern of absorption spectrum with p_H 6·5—9·5, (3) p_H changes within the cell can be produced by alkaline PO_4''' or CO_3'', and by CO_2 or acid PO_4''' solutions, (4) the velocity of these changes can be determined spectroscopically, (5) carbonic anhydrase is strongly and reversibly inhibited by sulphanilamide, which does not react with methæmoglobin; the catalytic activity is determined by comparing the velocity of change from acid to alkaline methæmoglobin and vice versa in presence and absence of sulphanilamide. A microscope with microspectroscope ocular was used, and details of technique are given. 50% change required 34—75 sec. for 0—5 × 10^{-5}M-sulphanilamide, and 210 sec. for 5 × 10^{-4}M-sulphanilamide. Hamburger's Cl′ shift was also studied by this method. Cl′ was removed from cells by washing with isotonic alkaline PO_4''' or 0·2M-$NaHCO_3$ in 0·1M-NaOH, and the rate of formation of acid methæmoglobin in acid PO_4''' solution determined. This is slow, but rapid with added NaCl, though not rapid with NaCl and sulphanilamide. Cl′ shift depends on carbonic anhydrase activity, and sulphanilamide delays the reactions which induce the Cl′ shift. E. R. S.

Menstruation and sedimentation rate of red cells. R. Greene (*Lancet*, 1941, **241**, 556).—In 10 healthy women there were no characteristic changes in red cell sedimentation rate during the menstrual cycle. C. A. K.

Clinical studies with aid of radiophosphorus. Absorption and distribution of radiophosphorus in the blood of, its excretion by, and its therapeutic effect on, patients with polycythæmia. L. A. Erf and J. H. Lawrence (*Ann. int. Med.*, 1941, **15**, 276—290).—The amount of radioactive P retained by various fractions of blood of 4 normal and 6 polycythæmic subjects was studied; the retention in red cells and plasma was identical in both groups regardless of the route of administration; that in the red cells of both groups was higher after intravenous injection. The level of ^{32}P in the phospholipin fraction increased in a 96-hr. period whilst that of the acid-sol. and nucleoprotein fractions decreased after the 24—48-hr. period. The acid-sol. and nucleoprotein fractions of white cells reached a peak ^{32}P retention between 48 and 96 hr. The level in the phospholipin fraction of plasma was max. between 48 and 96 hr., that of the acid-sol. before 48 hr., and that of the nucleoprotein fraction varied considerably. Very small quantities of ^{32}P are found in the red cell stroma. 25—50% of ^{32}P are excreted in urine and fæces of the normal subject within 6 days, regardless of the route of administration. Polycythæmic patients excreted less than 25% in that period. The hæmatological findings of the patients improved. A. S.

Pigmented eczema with macrocytic anæmia. N. Burgess and C. Maclaren (*Brit. J. Dermat. Syph.*, 1939, **51**, 207—210).—A case is reported. A. S.

Purification of liver anti-pernicious anæmia factor. P. Karrer (*Schweiz. med. Wschr.*, 1941, **71**, 343—344).—Liver was treated in 4 stages; (1) extraction with 99% and then with 50% acetone; evaporation of acetone in a vac.; pptn. of proteins with sulphosalicylic acid and extraction of the active principle with phenol; transfer into water–ether mixture; evaporation; (2) adsorption of impure prep. on charcoal (norit) and washing with phenol; repeat 5 times; preps. still contain many impurities, especially nucleotides (high P content, positive pentose reaction); (3) shake with 75% acetone; active principle is found in acetone-insol. fraction; its pentose content is considerably diminished; repetition of acetone treatment yields pentose-free preps.; (4) further impurities are extracted in water-free pyridine. These preps. were clinically highly potent and could not be further fractionated by treatment with acetone of different concns. or $(NH_4)_2SO_4$. The preps. are still not homogeneous, as shown in absorption spectra and determination of mol. wt., recording coeffs. of dialysis of different substances through one membrane. The preps. contain C 45·6, H 6·7, and N 14·6%. The ninhydrin reaction is strongly, biuret weakly, positive. The NH_2-N content is 0·75—0·9%. The preps. are free from pentoses, P, and pterins; they contain S. Following 18 hr. hydrolysis with 20% HCl at 100° the NH_2-N increases to 9%; it is not increased by pepsin in 0·05N-HCl; trypsin and chymotrypsin doubled it at p_H 7·7 in 38 hr. The preps. do not contain phenylalanine, proline, hydroxyproline, glycine, tryptophan, or histidine; they contain arginine and tyrosine. A. S.

Anæmia in pregnancy. H. Guggisberg (*Schweiz. med. Wschr.*, 1941, **71**, 457—463).—4 types of anæmia in pregnancy are distinguished. (1) Normochromic normocytic anæmia, mainly due to an increase in circulating plasma vol. (2) Hypochromic microcytic anæmia with colour index under 1·0, due to increased Fe requirements. Normal women showed fluctuations of the blood-Fe content from 50 to 151 μg. per 100 c.c. Urinary Fe excretion during pregnancy is increased; the life duration of the red cells is diminished. Intestinal Fe absorption was only diminished in women with hypo- or an-acid gastric juice. Hæmoglobin concn. was diminished after parturition when no additional Fe was given during pregnancy. Satisfactory results were obtained with combined ascorbic acid–Fe therapy. (3) Hyperchromic macrocytic anæmia with colour index over 1·0. Some cases showed megaloblasts in bone marrow smears, others did not ("pseudo-pernicious anæmia"). (4) Hæmolytic anæmia: hæmoglobinæmia disappears after parturition. A. S.

Siderocytes in man. H. Grüneberg (*Nature*, 1941, **148**, 469—470).—4·45% of siderocytes (A., 1941, III, 829) were found in a 14-week human fœtus (heart blood). 0·10—3·65% were found in 5 premature and full-term fœtuses. In most cases a single granule was found in each siderocyte, but up to 4 granules per cell in the earlier stages. E. R. S.

Significance of target cells in anæmia. M. G. Bohrod (*Amer. J. med. Sci.*, 1941, **202**, 869—874).—Target cells are commonly seen in the regeneration of blood, regardless of the cause of the blood loss. In acute anæmias they are present for only a short time early in the regenerative phase, and disappear when a rise of erythrocyte count is evident. In chronic anæmias they may be present over long periods of time. They are hyper-resistant cells produced by the bone marrow in response to the blood loss. Increased resistance to the hæmolytic action of hypotonic saline and to acetic acid has been demonstrated. The contention that the target cell represents the fundamental defect in Cooley's anæmia is unjustified. C. J. C. B.

Transmission of antianæmic principle across placenta. O. P. Jones (*Arch. intern. Med.*, 1941, **68**, 476—497).—When normal pregnant rats are fed diets containing desiccated hog stomach some antianæmic substance is absorbed from the gut and is transmitted across the placenta to influence prehepatic embryonic erythropoiesis, as shown by reduction in the mean cell and nuclear diameters of the primitive erythroblasts. Ventriculin concentrate is generally more effective than regular ventriculin. C. A. K.

Primary hypochromic anæmia terminating in pernicious anæmia. E. B. Miller and W. Dameshek (*Arch. intern. Med.*, 1941, **68**, 375—394).—Details are given of 2 cases of primary hypochromic anæmia which terminated in pernicious anæmia. In one case the hypo-

chromic preceded the pernicious form by several years, in the other the administration of Fe unmasked a coexistent pernicious anæmia. The literature is discussed. C. A. K.

Anæmia in poor of Glasgow. J. McIntosh and N. Morris (*Glasgow Med. J.*, 1941, **136**, 103—121).—A survey of blood-hæmoglobin level in 1059 persons on the public assistance roll. Anæmia is prevalent in infants and children under 4 years and in women in the reproductive period, but uncommon in schoolchildren, adult males, and women over 50 years. Anæmia in young children is due to inadequate Fe intake, low birth wt., and possibly infection; anæmia in women to pregnancy, childbirth, and lactation, and to a smaller extent menorrhagia. Mothers show lower vals. than the children and fathers; in lodging houses there is a greater prevalence of anæmia in men. The lower the initial hæmoglobin level the greater must be the max. daily dose of Fe to obtain rapid and adequate response. G. H. B.

Hæmoglobin metabolism. M. C. G. Israëls (*Lancet*, 1941, **241**, 443—444).—A brief review. C. A. K.

Blood picture of horse. J. Stewart and H. H. Holman (*Vet. Rec.*, 1940, **52**, 157—165).—Chemical, physical, and cytological studies were made on blood from 36 Clydesdale horses and 26 old horses of various breeds. E. G. W.

Hæmatology of horses with grass sickness. H. H. Holman (*Vet. Rec.*, 1940, **52**, 195—200).—The blood picture was studied in 15 horses affected with acute or chronic grass sickness (cf. preceding abstract). There is progressive anhydræmia. The leucocyte picture was neutrophil "shift to the left," lymphopenia, and complete eosinopenia (acute cases). These changes are not sp. for grass sickness. E. G. W.

Stored blood. IX. Further observations on erythrocytes. A. Crosbie and H. Scarborough (*Edinb. med. J.*, 1942, [iv], **49**, 40—59; cf. A., 1941, III, 416).—Determinations by three methods show that osmotic fragility increases gradually; after 25 days' storage 50% of cells are hæmolysed in 0·80—0·85% NaCl. Mechanical fragility is uniformly increased; after 20 days' storage 3—4% hæmolysis is produced. Spontaneous hæmolysis appears after 10 days but is no contraindication to transfusion. 3·1% Na citrate is isotonic with fresh human erythrocytes but 3·8% Na citrate and Hayem's solution are satisfactory diluents for cell counts on stored blood. Dilution with fresh or supernatant plasma produces hæmolysis which may occur *in vivo* with blood stored over 30 days. Crenation is usual but disappears during 10—30 days as cell vol. increases. Sedimentation rate becomes progressively slower and is associated with spherocytosis. Spherocytosis and retarded sedimentation are rapidly produced by suspending fresh erythrocytes in stored plasma. The above changes were found in citrated blood (1 in 10 of 3·8%). H. S.

Blood transfusion. N. Morris (*Proc. Roy. Phil. Soc. Glasgow*, 1940—41, **65**, 28—44).—A lecture.

Seasonal and postural changes in blood volume determined by carbon monoxide method, employing electric photometer for estimation of low percentage saturation of hæmoglobin with carbon monoxide. M. E. Maxfield, H. C. Bazett, and C. C. Chambers (*Amer. J. Physiol.*, 1941, **133**, 128—154).—A CO method is described similar to that of Chang and Harrop (1928). The measurements of % CO-hæmoglobin and hæmoglobin concn. were made with a differential electric photometer (described), the main advantage of which is that accurate determinations of 5—12% of CO-hæmoglobin can be made on 0·04—0·4 ml. of whole blood. This method gives reliable relative vals. but low abs. vals. in man. The basal recumbent blood vol. level is very const. in any one subject (total spread of 10% in 9 determinations over 5½ months); it varies in different individuals; males, max. 3·47 l., min. 2·39 l. In any one individual blood vol. varies as a result of seasonal variations in environmental temp. (increase in spring warm weather by 11·5—33·7%) and by change in position. M. W. G.

Acute blood loss in normal subjects. R. V. Ebert, E. A. Stead, and J. G. Gibson (*Arch. intern. Med.*, 1941, **68**, 578—590).—760—1220 c.c. of blood (15—20% of blood vol.) were removed from 6 normal subjects in 6—13 min.; in 5 of them there was collapse characterised by weakness, nausea, blurred vision, pallor, sweating, bradycardia, and fall of blood pressure. At the height of collapse the heart rate was 36—40 per min. The plasma vol. began to increase at once and after 72 hr. equalled original plasma vol. + vol. of red cells removed; at first the added fluid was poor in protein but after 2 hr. the serum-proteins increased, and after 72 hr. about ¼ of the total plasma-protein had been added since the venesection. Physiological NaCl solution was poorly retained when given intravenously after hæmorrhage. (The plasma vol. was determined by the dye method of Gibson and Evans and the total vol. from hæmatocrit vals.) C. A. K.

Concentrated serum in head injuries. J. W. A. Turner (*Lancet*, 1941, **241**, 557—558).—Conc. (×5) serum produced blood dilution (hæmatocrit) and fall of c.s.f. pressure in 5 of 6 patients with recent closed head injury, with relief of severe headache. C. A. K.

Gum acacia in nephrotic syndrome. A. Goudsmit, M. W. Binger, and N. M. Keith (*Arch. intern. Med.*, 1941, **68**, 513—524).—Intravenous injection of acacia (500 c.c. of 6% solution in distilled water) in 4 patients with nephrotic œdema produced marked diuresis and increased urinary Cl excretion. The blood showed insufficient changes of vol. or colloid osmotic pressure to account for these effects. C. A. K.

Investigations on serum-proteins with special reference to blood groups. J. Gróh (*Kolloid-Z.*, 1941, **94**, 1—10).—Recent work on the ultra-violet absorption of serum-protein fractions is reviewed and discussed. The characteristic differences in behaviour shown by the different blood groups are attributed to constituents adsorbed by the proteins rather than to the proteins themselves; uric acid and bilirubin are suggested as possible causes. F. L. U.

Conjugation of horse serum-albumin with carbimides.—See A., 1942, II, 123.

Influence of ultra-violet rays on blood groups. H. Buchwald (*Z. Immunitätsforsch.*, 1939, **96**, 236—241).—Irradiation of erythrocytes, kept in a moist chamber, with ultra-violet rays for 8—15 hr. decreases the agglutinogen titre, but does not completely destroy the agglutinogens. G. W.

Isoagglutinin changes after transfusion. P. L. Mollison and I. M. Young (*Lancet*, 1941, **241**, 635—638).—After the transfusion of group *B* blood to a woman of group *O* the anti-*B* isoagglutinin titre showed an initial reduction followed by a rapid marked increase and subsequent slow return to normal in the course of several weeks. Similar changes in the titre of anti-*A* isoagglutinin were attributed to the transfusion of conc. *A* serum in the course of treatment; this was reproduced in 2 patients of group *O* who were given 100 c.c. of ×4 normal conc. reconstituted human *A* serum. C. A. K.

Calcium in autohæmagglutination. H. J. Parish and R. G. Macfarlane (*Lancet*, 1941, **241**, 477—479).—Autohæmagglutination occurred in a healthy man aged 27 (group *O*). When his blood was withdrawn into citrate or oxalate the red cells were agglutinated by his own serum at room or cold room temp. but not at 37°. The reaction was reversible. Agglutination did not occur when the serum was mixed with cells washed in saline, but always resulted when citrate or oxalate was present (even when normal group *O* cells were added to the patient's serum). Heparinised plasma did not produce the reaction, and addition of $CaCl_2$ inhibited it. The patient's washed red cells were not agglutinated by normal serum even in presence of citrate. The abnormality appeared to be an agglutinin in his serum which was active against red cells at room temp., but was inhibited by warming to 37° or by presence of ionised Ca. C. A. K.

No agglutinin formation in invertebrates. F. L. Buch (*J. Méd. Ukraine*, 1940, **10**, 813—826). M. K.

Action of vegetative nervous system on white blood cells. S. A. Rovinski and D. E. Konstantinovski (*J. Méd. Ukraine*, 1940, **10**, 1201—1210).—Lumbar puncture was performed in 25 dogs and followed by introduction of air to stimulate the vegetative centres of 3rd ventricle. Marked increase in no. of leucocytes with shift to the left, lymphopenia, and hypo- and an-eosinophilia were observed, with max. reaction after 3—4 hr. Clinical observations in intraventricular hæmorrhages show leucocytosis and lymphopenia. M. K.

Blood picture in blood of monocytic leukæmia cultivated *in vitro*. B. B. Varschavskaja (*J. Méd. Ukraine*, 1940, **10**, 805—811). M. K.

Histoplasmosis of Darling: report of case. R. B. Wright and F. W. Hachtel (*Ann. int. Med.*, 1941, **15**, 309—319).—Blood cultures (broth or blood agar) grew after 5 days' incubation *Histoplasma capsulatum*; a lymph node showed the changes of histoplasmosis. The main symptoms were continued fever, anæmia, splenomegaly, and leucopenia. The patient died. The intracellular form of the fungus was found in hæmatoxylin–eosin sections of various organs. (B.) A. S.

Leukæmoid reactions due to diverse causes. J. M. Hill and C. N. Duncan (*Amer. J. med. Sci.*, 1941, **201**, 847—857).—A review of 8 cases due to various causes. C. J. C. B.

Artificial blister in study of eosinophils with particular reference to dermatitis herpetiformis. M. H. Goodman (*J. Invest. Dermatol.*, 1941, **4**, 349—361).—Blisters were artificially produced in dermatitis herpetiformis; many eosinophils are attracted from the blood into the cutis within 24 hr. and invade the blister space, the nos. depending on the extent of cutaneous involvement and the no. of circulating cells. In artificially produced blisters in normal controls, eosinophils do not appear in young blisters and few in older ones. In 3 control cases with a marked blood eosinophilia, the eosinophils did not appear early in the formation of the artificial blister but within 24 hr. the blister space showed many of these cells but few in the subjacent cutis. C. J. C. B.

Abdominal lymphadenoma. A. J. Rhodes and A. Grunberg (*Edinb. Med. J.*, 1942, [iv], **49**, 29—33).—Description of a case with transposition of the viscera and nine accessory spleens. H. S.

Estimation of quantitative and qualitative platelet factors. H. N. Sanford and E. I. Leslie (*J. Lab. clin. Med.*, 1941, **27**, 255—259).—1 c.c. of blood is withdrawn from a vein into an iced, oiled syringe and introduced into a paraffined tube imbedded in ice. The tubes are then packed in ice in a large centrifuge cup and centrifuged for 1—1½ min. at 5000 r.p.m. A few grains of heparin are placed on a chilled watch crystal resting in ice. A sample from the centre of the centrifuged plasma is drawn into a capillary tube, several drops are mixed with the heparin, and a drop is placed in a chilled counting chamber, covered with a chilled cover glass, and placed in a refrigerator for 15 min. to allow for settling; the platelets are then counted. These plasma platelet counts are corr. for whole blood from the hæmatocrit reading (assuming all the platelets to be in the plasma). The remainder of the plasma left in the capillary tube is used to estimate coagulation time by breaking off pieces of the tube until a thread of plasma forms. As soon as the capillary tube of plasma is withdrawn from the original paraffined tube containing the blood sample, the latter is again placed in ice and centrifuged for 15 min. A sample of the platelet-free centrifuged plasma is taken into a capillary pipette and the coagulation time determined as before. Normal adults show a plasma platelet count of 100,000—400,000 per cu. mm. Coagulation time of normal plasma is 4—8 min. and of platelet-free plasma 6—10 min. Following transfusion in hæmophilia normal plasma coagulation time drops to high normal vals. but the time for platelet-free plasma remains long, even during hæmorrhage-free periods. C. J. C. B.

Effect of large doses of cytotoxic antireticular serum on cultures of human tissues of mesenchymal origin. A. D. Timofeevski and S. B. Benevolenskaja (*J. Méd. Ukraine*, 1940, **10**, 1115—1126).—Passage cultures of mesenchyme (lymph nodes, inflamed connective tissue) and sarcoma were divided into 2 equal parts; one was implanted in a medium of cytotoxic serum (2·5—20%), the second in normal horse serum. 2·5% of cytotoxic serum in the nutrient medium does not inhibit growth of mesenchyme; 5% has a retarding effect on proliferation of cells. Lymphocytes of lymph nodes are especially sensitive, undergoing degeneration in 2·5%. M. K.

Curative effect of antireticular cytotoxic serum. A. A. Bogomoletz (*J. Méd. Ukraine*, 1940, **10**, 737—780).—A lecture. M. K.

Genetic effects on serum-proteins. R. W. Cumley, M. R. Irwin, and L. J. Cole (*Proc. Nat. Acad. Sci.*, 1941, **27**, 565—570).—The antigens in the serum of Pearlneck (*Streptopelia chinensis*), sp. for that species as compared with Senegal (*S. senegalensis*), segregate in back-cross individuals according to genetic expectation. The species-sp. qualities of the serum-proteins are determined by gene action; probably the total protein complex of the serum is also determined by genes. The genes which in Pearlneck produce the serum are not the same as those that produce the cellular antigens, and are probably not on the same chromosomes. The results confirm those obtained with the sera and cells of back-cross hybrids of other combinations of species of doves and pigeons. J. N. A.

Colloidal osmotic pressure of blood in normal and pathological conditions. XVII. Fever. XVIII. Changes in plasma-proteins and colloid osmotic pressure following cutting off of portal circulation or extirpation of liver. M. Horikawa (*Tôhoku J. Exp. Med.*, 1935, **27**, 325—334; 1936, **28**, 90—105).—XVII. Blood-protein and colloidal osmotic pressure are usually decreased by fever. Certain fevers (*e.g.*, dysentery-vaccine fever) decrease the former but increase the latter, the albumin : globulin ratio being increased.

XVIII. Hæmoglobin (average 61%) and plasma-protein (average 4·7%) in the blood of *Bufo vulgaris japonica* are less in males and winter toads than in females and summer toads, but the colloid osmotic pressure (average 133 mm. water) was greater in each case. All vals. were decreased by cutting off the portal circulation and by extirpation of the liver. Ch. Abs. (*el*)

Relationship of hypoalbuminæmia to œdema of malaria. I. Kopp and H. C. Solomon (*Amer. J. med. Sci.*, 1941, **202**, 861—868).—In malaria, plasma-albumin vals. fall progressively to crit. levels at which œdema may occur. Plasma-globulin, as a rule, shows a progressive increase after the first few paroxysms, reaching its highest level at a time when albumin vals, are lowest. Fibrinogen vals. fluctuate and in 3 of 7 patients were reduced below pre-febrile levels. The termination of malarial fever is followed by an immediate continued rise of -albumin and a delayed but progressive drop of -globulin so that normal vals. are obtained in 10—24 days. Fibrinogen vals. return to normal within 1 week. The albumin–globulin ratio falls rapidly during malaria, reaching levels of 1 or below after 10 to 12 parosysms have occurred. The dependent or generalised œdema occurring during the course of therapeutic malaria in patients free from renal damage or cardiac failure is the result of a reduced osmotic pressure caused by a marked fall of the albumin fraction to levels of 3 g.-% or less. C. J. C. B.

Action of vitamin-*K* on bleeding time in thrombocytopenia. M. Dressler (*Schweiz. med. Wschr.*, 1941, **71**, 483—488).—1 g. of 2-methyl-1 : 4-disuccinylnaphthaquinol is equiv. to 15 million Dam units. Vitamin-*K* promotes the formation of prothrombin and diminishes the bleeding time even in cases with pronounced thrombocytopenia. A. S.

Experimental hypoprothrombinæmia. J. E. Rhoads, R. Warren, and L. M. Panzer (*Amer. J. med. Sci.*, 1941, **202**, 847—861).—10 means of producing hypoprothrombinæmia in animals are reviewed from the literature. $CHCl_3$ anæsthesia and CCl_4 poisoning in dogs lead to a rapid drop in plasma-prothrombin from which recovery occurs regardless of whether or not the bile reaches the duodenum. Total hepatectomy in the dog and cat leads to a prompt decline in plasma-prothrombin. A rapid decline in prothrombin may occur in human plasma stored *in vitro*, reaching 20% of normal in 24 hr. C. J. C. B.

Treatment of hæmorrhagic disease of newborn [use of vitamin-*K*]. A. I. S. Macpherson (*Brit. Med. J.*, 1941, II, 433—436).—Studies in 10 cases of hæmorrhagic disease of the newborn showed that intramuscular whole blood injections were ineffective, that blood transfusion caused improvement with temporary rise of blood-prothrombin level, and that sustained improvement was only attained with injections of vitamin-*K* (2-methyl-1 : 4-naphthaquinone) which raised prothrombin levels to normal. C. A. K.

Mechanism of enhanced diabetes with inflammation. V. Menkin (*Amer. J. Physiol.*, 1941, **134**, 517—541).—An acute inflammatory reaction accompanied by extensive exudation induced by intrapleural injection of 1·5 c.c. of turpentine in dogs does not alter blood-sugar. In dogs made diabetic by pancreatectomy acute inflammation induces a rapid marked rise in blood-sugar, and in -non-protein-, -urea- and -amino-acid-N. The extent of proteolysis at the site of acute inflammation in diabetic dogs is more marked than in non-diabetic. There is a lower concn. of total proteins and a corresponding higher concn. of urea, non-protein- and amino-acid-N than in exudative material of non-diabetic animals. In diabetic exudates the polymorphs show more signs of injury than in normal exudate. Enhanced protein catabolism in the inflamed area of the diabetic animal is correlated with a marked rise in both exudate-sugar and -lactic acid. Insulin reduces not only the level of sugar and lactic acid in such diabetic exudates, but also the degree of local proteolysis. M. W. G.

Origin, fate, and significance of serum enzymes. A. W. Oelgoetz, P. A. Oelgoetz, and J. Wittekind (*Amer. J. digest. Dis. Nutr.*, 1936, **3**, 159—161).—Normal serum always contains amylase, lipase, and protease in const. concn. The serum enzymes are probably pancreatic enzymes. Pancreatic enzymes are absorbed in the active state when given *per os*, but the normal concn. of serum enzymes cannot be increased. When given in excessive dosage, pancreatic extract seems to be stored in the liver and spleen, whence it is liberated in such concn. as to maintain the normal serum level. Ch. Abs. (*el*)

Rate of removal of amines from blood. D. Richter, M. H. Lee, and D. Hill (*Biochem. J.*, 1941, **35**, 1225—1230).—A sensitive method for determining amines in blood is described. The amines are extracted from whole blood by light petroleum in presence of K_2CO_3 and are then taken up in N-H_2SO_4 saturated with NaBr which separates them from phospholipins. The amines are extracted with light petroleum and converted into picrates. These in $CHCl_3$ give a strong yellow colour which is determined by means of a photo-electric absorptiometer. The method can detect 1 p.p.m. of β-phenylethylamine or *iso*amylamine; when tested by this method normal ox, guinea-pig, and human blood contain less than this amount of amines. The rate of detoxication of β-phenylethylamine administered intravenously in man determined from the time taken by the blood pressure to return to normal is approx. 26 mg. per kg. body-wt. per hr., and the rate of detoxication of *iso*amylamine determined from the rate of removal from the blood is 60—250 mg. per kg. body-wt. per hr. J. N. A.

Significance of serum-lipase in obstetrics and gynæcology. K. Takeda, K. Temma, and K. Kubo (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 18—19).—Lipase in the serum decreases during the last months of pregnancy; the decrease continues in the puerperium. The decrease is greater in cases of eclampsia. The lipase falls after laparotomy and operation for cancer of the uterus. The lipase content of the serum is related to the erythrocyte count. P. C. W.

Carbon suboxide and proteins. IV. Ultracentrifugal behaviour of carbon suboxide-treated horse serum-albumin. J. L. Oncley, W. F. Ross, and A. H. Tracy (*J. Biol. Chem.*, 1941, **141**, 797—802).—C_3O_2 (0·4 mol. per g.-atom of N) is allowed to react with the carbohydrate-free, cryst. albumin at p_H 7·5 for 1 hr. Ultracentrifugation of the product shows the presence of a considerable proportion of material sedimenting faster than the original protein. The two components of this material appear to be products formed by the coupling of 2 or 3 protein mols., respectively, by malonyl bridges. P. G. M.

Dissociation of calcium and magnesium carbonates and bicarbonates.—See A., 1942, I, 145.

Plasma-uric acid and -urea in eclampsia. M. D. Crawford (*J. Obstet. Gynæc.*, 1941, **48**, 60—72).—Plasma-uric acid and -urea were examined in 42 eclamptic patients. A rise in plasma-uric acid occurred in every case immediately after the onset of fits and the rise was proportional to the no. of fits. Plasma-urea showed little change immediately after fits but rose 24 hr. later. Similar rises were found in mental patients having convulsion therapy and in rabbits in which convulsions were induced by azoman. Rise in plasma-uric acid at labour is similar in eclamptic and normal women. P. C. W.

Changes in blood concentration in normal and toxæmic pregnancy. M. D. Crawford (*J. Obstet. Gynæc.*, 1940, **47**, 63—79).—Hæmatocrit readings show that there is hæmoconcn. during the last 7 days of pregnancy in normal patients especially in the last 2 days. There is rapid blood dilution in the first 3 days post-partum followed by a gradual return to normal. The changes involve the transfer of 20—25% of the plasma fluid. In pre-eclamptic toxæmia there are similar changes with hæmoconcn. for one or more weeks before delivery. In cases of chronic toxæmia without anæmia the changes are similar to those in pre-eclamptic toxæmia; in those with anæmia the hæmatocrit changes are normal except that there is no rise during the puerperium. The post-partum dilution is increased by œdema before delivery, hæmorrhage at delivery, or by infection during the puerperium. P. C. W.

Hyperlipæmia. "Idiopathic lipæmia." T. D. Kinney (*Amer. J. Dis. Child.*, 1941, **62**, 1014—1024).—The autopsy findings in a case of hyperlipæmia with hepatosplenomegaly, retinal lipæmia, and xanthomatosis are described. Histological and chemical examinations showed lack of fat deposition in the tissues in striking contrast to the high fat content of the serum. There was no evidence of disease of liver, pancreas, bones, or thyroid. C. J. C. B.

[Blood-fat] in old subjects. I. V. Bazilevitsch and L. I. Pravdina (*J. Méd. Ukraine*, 1940, **10**, 1253—1266).—An increase of lipins and fatty acids was found in the blood of healthy subjects aged 90—110, but no symptoms of arteriosclerosis were detected. M. K.

Grass sickness in horses; biochemical investigation. J. Stewart, W. S. Gordon, and J. W. McCallum (*Vet. Rec.*, 1940, **52**, 237—243).—Biochemical study of the blood of 16 horses with grass sickness showed an anhydræmia in the peracute and acute types of the disease. E. G. W.

Seasonal ketonæmia in dairy herd, without clinical symptoms. A. Eden and H. H. Green (*Vet. Rec.*, 1940, **52**, 725—728).—In a herd of 59 dairy cows wide variations in blood-ketone vals. were observed, 70% of the cows showing a rise under stall conditions, without symptoms. In 1938 the average winter val. was 8·1 mg.-%, the summer val. 3 mg.-%; one cow reached 45 mg.-% but appeared normal. There was no associated hypoglycæmia and the plasma-HCO_3' was normal. The ketonæmia was not affected by adding ½ lb. of butter fat or linseed oil to the ration. E. G. W.

Removal of pyruvic acid from human blood *in vitro*. E. Bueding and R. Goodhart (*J. Biol. Chem.*, 1941, **141**, 931—944).—Defibrinated, heparinised, citrated, or oxalated human blood removes added pyruvate. The effect is increased by keeping at room temp. for 30—60 min. before the addition; longer keeping causing a decrease. The rate of removal decreases with increasing time of incubation with pyruvate and the amount removed per ml. of blood is const. irrespective of the amount of blood used. Pyruvate removal by whole blood is increased by incubation with 0·075M-PO_4''' (optimum p_H 7·4), by NaF, and by NaCN (due to formation of the cyanohydrin), and decreased by 0·2% of iodoacetate but is not affected by aneurin, cocarboxylase, glucose, or the O_2 tension of the blood. In presence of 2% of F', 83—95% of the pyruvic acid removed can be recovered as lactic acid and no evidence of decarboxylation or formation of other carboxyl compounds was obtained. The responsible enzyme system is heat-labile, located within the blood cells, and activated by a heat-stable, phosphorylated intermediary of carbohydrate catabolism, probably triose phosphate. A subsequent increase in pyruvate to above the original val. is observed in heparinised and defibrinated, but not in oxalated, blood. H. G. R.

Effects of insulin, metrazol, and electric shock on blood-pyruvate, -lactate, and -glucose. K. A. C. Elliott, T. D. Rivers, F. H. Elliott, and B. Platt (*J. Lab. clin. Med.*, 1941, **26**, 1928—1933).—Insulin, metrazol, and electric shock treatment had no sp. effect on the level of blood-pyruvate or -lactate, *i.e.*, none other than that due to the muscular contractions produced. The concn. of these substances was not related to blood-sugar level or brain functions. Blood-pyruvate and -lactate rose and fell together; the rises resulted from muscular activity. In metrazol and electric shock the rises of both substances, and of blood-glucose, were very high; curare decreased the effect of metrazol convulsions on blood-lactate, -pyruvate, and -glucose. The changes in blood-pyruvate were less marked than those of -lactate. C. J. C. B.

Fate of pyruvic acid content of fresh rat's blood during glycolysis. H. von Euler, L. Melander, S. Tingstam, and B. Högberg (*Z. physiol. Chem.*, 1940, **267**, 103—107).—During the first 28 hr., the pyruvic acid content of the whole blood increases (to four-fold) and then decreases to approx. zero vals.; the lactic acid content follows a similar course; the sugar level steadily falls from 90 mg.-% to nil. With the serum for the first 24 hr., the three levels remain approx. const., apart from relatively slight up-and-down variations. F. O. H.

Changes in blood-phosphorus of rats subjected to blood regeneration by repeated bleedings. G. E. Youngburg and M. V. Youngburg (*J. Lab. clin. Med.*, 1936, **21**, 798—808).—After repeated withdrawals of ¼—½ of the total blood of rats maintained on normal diets there was little change in the inorg., org. acid-sol., and lipin-P of the plasma and corpuscles; for rats on a low-P diet, plasma- and corpuscle-P were thereby reduced and some P was transferred from the tissues to the blood. P became normal on resumption of normal diet. Endogenous P is limited, so that plasma and corpuscles become depleted when the food source is lacking. One class of P compounds is not readily converted into another. Ch. Abs. (*el*)

Insulin hypoglycæmia. R. D. Lawrence (*Lancet*, 1941, **241**, 602).—When diabetics are first given insulin hypoglycæmic reactions they show marked autonomic disturbances, *e.g.*, faintness, sweating tremors, and hunger pains, before signs of affection of the central nervous system appear, *e.g.*, mental confusion, symptoms like alcoholic intoxication, convulsions, and coma. After a few years of insulin usage the premonitory autonomic symptoms fail to appear and central nervous symptons appear without warning. C. A. K.

Hyperglycæmia due to ingesting fatty acids and liver-glycogens. S. Markees (*Schweiz. med. Wschr.*, 1941, **71**, 486—490).—Oral administration of Na butyrate and hexoate in rabbits increases the blood-sugar; excision of liver tissue showed a diminution in liver-glycogen which was observed in the fasting and glucose-treated animal. The source of fatty acid hyperglycæmia is the liver-glycogen. A. S.

Modification of alimentary hyperglycæmia by ingestion of fat. F. Sciclounoff and E. Martin (*Schweiz. med. Wschr.*, 1941, **71**, 490—492).—Hyperglycæmia due to ingestion of glucose is prevented, delayed, or markedly diminished by simultaneous ingestion of fat or oil. The phenomenon is interpreted in terms of delayed phosphorylation of glucose in the presence of fat. A. S.

Causation and diagnostic difficulties of spontaneous hypoglycæmia. L. Michaud (*Schweiz. med. Wschr.*, 1941, **71**, 347—349).—Several cases of spontaneous hypoglycæmia, due to hyperplasia of the Langerhans islets or pituitary disturbance, are discussed. One woman of 47 suffered from internal frontal hyperostosis (Morgagni–Stewart–Morel syndrome). A. S.

VI.—VASCULAR SYSTEM.

Sequence of fractionate contraction at different surface regions on right auricle and ventricles of dog's heart. J. A. E. Eyster and W. J. Meek (*Amer. J. Physiol.*, 1941, **134**, 513—516).—The occurrence of fractionate contraction at different regions of the surface of the dog's heart is coincident with the main peak of the differential potential–time curve recorded from the same region. Differences in time of onset of fractionate contraction in different regions of the heart were apparent. The interval between the first and last regions involved was 0·03 sec. for the right auricle and 0·02 sec. for the ventricles. The first regions entering into fractionate contraction on the surface of the right auricle are those contiguous to the upper part of the sulcus terminalis and from here contraction proceeds in regular fashion to the appendage and downward to the auriculo-ventricular junction. In the ventricles, the first surface contractions appear on the right ventricle contiguous to the inter-ventricular groove. Other regions enter into contraction in a way which fails to show progressive involvement such as exists in the right auricle. In general, the surface of the right ventricle becomes involved before the left, with the exception of the conus of the pulmonary artery which always enters into contraction late. M. W. G.

Effect of temperature on critical oxygen pressure for heart beat frequency in embryos of Atlantic salmon and speckled trout. K. C. Fisher (*Canad. J. Res.*, 1942, **20**, **D**, 1—12).—When intact embryos of speckled trout and Atlantic salmon are exposed to aq. solutions of N_2 and O_2, there is an O_2 partial pressure below which the frequency of the heart beat is not maintained at the normal level characteristic of higher O_2 partial pressures, and it is concluded that a "critical" O_2 partial pressure exists for heart beat frequency. Data for the determination of this val. at 5 temp. are given. The crit. O_2 pressures for the two types of embryos are similar, and increase from 3—5 mm. Hg at 1·5° to 40—50 mm. at 20°. This crit. pressure and its temp. coeff. are characteristic of the intracellular respiratory systems. There is a linear relationship between log crit. partial pressure and 1/temp. J. N. A.

Action of dog's brain tissue on isolated frog's heart. N. A. Koschik (*J. Méd. Ukraine*, 1940, **10**, 1191—1193). M. K.

Ringer's solution and oxygen consumption of eel's heart. A. K. M. Noyons (*Schweiz. med. Wschr.*, 1941, **71**, 448—450).—The O_2 consumption of the eel's heart, perfused with Ringer's solution, was 19·8 c.c. per g. per min., using the author's thermic diaferometer. Addition of 20 mg. of Na citrate diminished the O_2 consumption and force of contraction; subsequent addition of 10 mg. of $CaCl_2$ increased both processes above the pre-citrate level. A. S.

Autonomic nervous regulation of heart rate in walking and running. K. Wachholder (*Schweiz. med. Wschr.*, 1941, **71**, 368—370).—There is an initial increase in heart rate on commencing exercise, followed by a temporary decrease and a secondary increase which is maintained during the exercise (100 or 200 paces per min.). The *Q–T* interval in the e.c.g. remains unaltered; the duration of diastole is shortened. The variations are attributed to fluctuations of vagal tone. A. S.

Unusual case of heart block in thoroughbred gelding. D. T. Barry and J. A. Nicholson (*Vet. Rec.*, 1940, **52**, 848—850).—A 4-year-old gelding with intermittent cardiac arrhythmia showed a double but well formed *P* wave, a small *R* wave, a well marked *S* wave, and a *T* wave inverted in both leads. The *P–R* interval was 0·35—0·6 sec.: the length of the interval was not correlated with the occurrence of block. Prolonged periods of normal rhythm were observed. At autopsy the heart was normal except for the small frail left bundle of His which suggested a congenital defect in conductivity. E. G. W.

Analysis of two hundred normal electrocardiograms in subjects aged 11 to 50 years. R. J. Vakil (*Proc. Indian Acad. Sci.*, 1941, **B**, **14**, 277—309). M. K.

Incidence and nature of fœtal arrhythmias. L. W. Sontag and H. Newbery (*Amer. J. Dis. Child.*, 1941, **62**, 991—999).—Arrhythmias of the fœtal heart are common and are principally of sinus origin. Periods of frequent and cyclic variations of rate were common for almost all fœtuses. Extrasystoles were found in 4 of the 92 fœtuses. The phenomenon appeared about the 60th day before birth, attained its max. frequency about the 30th day, gradually became less frequent, and disappeared about a week before birth. C. J. C. B.

Ligation and chemotherapy in patent ductus arteriosus. G. Bourne, K. D. Keele, and O. S. Tubbs (*Lancet*, 1941, **241**, 444—446).—Two patients with patent ductus arteriosus had signs of infective endarteritis (*Hæmophilus influenzæ* and *Streptococcus viridans* respectively). Both were satisfactorily treated with sulphapyridine and ligation of the ductus arteriosus, after which the blood pressure rose from 130/40 to 155/120 in 1 case and in both there were temporary signs of renal failure. Blood cultures were finally negative in both cases. C. A. K.

Capacity of coronary bed in cardiac hypertrophy. W. Dock (*J. Exp. Med.*, 1941, **74**, 177—186).—Post-mortem perfusion of human hearts with kerosene under pressure gave a measurement of max. coronary flow if vascular rigor is excluded. This is 3·1 c.c. per g. per min. at 100 mm. Hg in normal men under 40. It falls by 35% in hearts over 60 years and in hypertrophied hearts. There is no evidence that the decrease in coronary capacity associated with age or hypertrophy results in inadequate supply of O_2. A. C. F.

[Hepatic vein sphincter mechanism in different species.] E. V. Kolpakov (*J. Méd. Ukraine*, 1940, **10**, 835—856).—A well developed mechanism was found in all species of Canidæ (dog, wolf, jackal fox), Mustelidæ (marten and badger), and Ursidæ (brown bear), not in domestic cats, and poorly developed in goats and swine. It was demonstrated by anaphylactic and histamine reactions. M. K.

Blood pressure of West Indians and Panamanians. B. H. Kean (*Arch. intern. Med.*, 1941, **68**, 466—475).—Systolic and diastolic blood pressures were higher in male West Indians living in Panama than in Panamanians of the same age. Hypotension was commoner in the latter. Similar differences were noted in pregnant women of the two races. C. A. K.

Measurement of venous pressure in man eliminating hydrostatic factor. J. P. Holt (*Amer. J. Physiol.*, 1940, **130**, 635—641).—Venous pressure was determined in normal subjects using a modification of the direct method of Moritz and Tabora in the antecubital vein, with the subject in supine position, the arm lying well below the centre of the body and abducted to 45°. The subject is turned over into prone position and the pressure measured again, with arm well below centre of body and abducted to 45°. All pressures are referred to the level of the spine as zero. The sum of the 2 pressures divided by 2 equals the venous pressure, and the reference point is located at the point in the chest midway between the tops of the 2 columns of saline in the 2 pressure measurements (graph). Venous pressure varied between 7·8 and 14·1 cm. saline with 80% of the cases varying between 7·8 and 12·1 cm. M. W. G.

Direct plethysmographic method for determining blood pressure in unanesthetised rat. S. M. Friedman (*J. Lab. clin. Med.*, 1941, **27**, 240—243).—The apparatus described is suitable for the rat tail. At just below systolic blood pressure blood flows into the tail, but being unable to return the tail expands. 2 rates of expansions occur: the first occurs just below systolic pressure and is very slow and jerky. The second occurs at 15 to 20 mm. H_2O below this and is rapid and fairly smooth. The lower level corresponds to diastolic pressure. C. J. C. B.

Electrical capacitance diaphragm manometer. J. C. Lilly (*Rev. Sci. Instr.*, 1942, **13**, 34—37).—With the apparatus described direct pressure measurements in the arterial blood stream and in other fluid systems are made by the use of a radio-frequency, crystal-controlled oscillator and a pressure-sensitive condenser in the pick-up unit. The potential drop due to the plate current of the oscillator tube flowing through a resistor is amplified, and is observed and photographed by means of a cathode-ray tube. The max. sensitivity is 1 mm. Hg per 1 in. deflexion. Manipulation of the stainless steel needles is described. A. A. E.

Influence of time and volume factors on venous pressure responses to physiological saline injected intravenously. J. J. Lalich and P. H. Lorhan (*J. Lab. clin. Med.*, 1941, **27**, 157—161).—In dogs both the vol. and rate of injection of normal saline injected intravenously affect the venous pressure changes. C. J. C. B.

Mechanism of peripheral circulatory failure. C. J. Wiggers (*Ann. int. Med.*, 1941, **15**, 178—189).—A discussion of the factors probably involved in peripheral circulatory failure. A. S.

Gynæcological and puerperal thrombophlebitis contrasted with phlegmasia alba dolens. J. R. Goodall (*J. Obstet. Gynæc.*, 1941, **48**, 220—234). P. C. W.

Vascular diseases. G. W. Scupham, G. de Takáts, T. R. Van Dellen, and J. H. Jesser (*Arch. intern. Med.*, 1941, **68**, 599—660).—A review of recent literature. C. A. K.

Raynaud's syndrome with spontaneous cold hæmagglutination. T. H. C. Benians and W. R. Feasby (*Lancet*, 1941, **241**, 479—480).—Raynaud's syndrome was found in 2 middle-aged women who also had cold agglutinins in their sera. It is suggested that there may be a causal relationship between the two conditions. C. A. K.

Causative relationship of dermatophytosis to thromboangiitis obliterans. M. Naide (*Amer. J. med. Sci.*, 1941, **202**, 822—831).—30 patients with thromboangiitis obliterans were examined for evidence of dermatophytosis. 28 (93%) had dermatophytosis clinically, severe in 20. Of 30 controls, men between the ages of 20 and 50 without thromboangiitis obliterans, 22 (73%) had dermatophytosis clinically, severe in 9. After 48 hr. 24 of 30 patients were positive to skin tests with trichophytin. Of the 30 controls, men between the ages of 20 and 50, without thromboangiitis obliterans, 6 were positive to trichophytin. C. J. C. B.

Morphological changes in dystrophic period of circulatory failure. F. J. Primak (*J. Méd. Ukraine*, 1940, **10**, 1245—1251).—Organs and tissues of 15 cases of circulatory decompensation revealed histologically different degrees of degeneration of tissue elements together with hydropic swelling and manifestations of histolysis. Atrophic multiplication of the nuclei of œdematous tissues, accompanied by symptoms of true regeneration, suggests importance of regenerative process in convalescence. M. K.

Sigmoidoscopic diagnosis of periarteritis nodosa. J. Felsen (*Ann. int. Med.*, 1941, **15**, 251—264).—Changes typical for periarteritis nodosa were observed by sigmoidoscopy and confirmed by post-mortem examination. A. S.

Coarctation of aorta. E. R. Schwartz and G. M. Tice (*J. Kansas Med. Soc.*, 1939, **40**, 330—332).—Case report. E. M. J.

Hæmodynamic effects of angiotonin in normal man. S. E. Bradley and B. Parker (*J. clin. Invest.*, 1941, **20**, 715—718).—Following administration intravenously of 1—2 c.c. of angiotonin to normal convalescents, the mean arterial pressure and peripheral resistance rose sharply and pulse pressure increased. With one exception, the efficient elasticity modulus rose sharply. Cardiac output fell as a result of a marked bradycardia. There was little change in stroke vol. Response to small single injections and to continuous intravenous infusions differed only in the absence of bradycardia in the latter. Kymoroentgenogram and cardiocairogram [cardiac output determined by the ballisto-cardiograph] studies showed little change in heart size. There was a consistent decrease in amplitude of ventricular waves. Angiotonin acts directly on the musculature of the cardiovascular system, producing arteriolar vasoconstriction and possibly increased "cardiac tone." C. J. C. B.

Unilateral renal tuberculosis associated with hypertension. G. G. Richards (*Ann. int. Med.*, 1941, **15**, 324—328).—The tuberculosis of the kidney showed advanced caseation; there was also arteriosclerosis. The hypertension (up to 210/150 mm. Hg) disappeared after nephrectomy. A. S.

Nephrectomy in unilateral renal disease with hypertension. G. O. Richardson and G. A. Smart (*Lancet*, 1941, **241**, 594—596).—One patient with tuberculous kidney and another with hypernephroma had hypertension which was relieved in both cases by removal of the affected kidney. The first case was diagnosed 2 years previously as essential hypertension, the blood pressure being 200/130. C. A. K.

Capacity of renal vascular bed in hypertension. A. J. Cox, jun., and W. Dock (*J. Exp. Med.*, 1941, **74**, 167—175).—Post-mortem perfusion of the kidneys with kerosene, vascular rigor being avoided, gives perfusion rates nearly 5 times as fast as those obtained with saline. Possible renal blood flow is 2080 c.c. per min. in men of 18—32 years and 1580 c.c. in men of 45—60. These figures are 50—100% greater than those obtained by diodrast clearance but a similar age decrease of 25% occurs in both. Most kidneys from hypertensive patients have a normal vascular bed but there is occasionally marked reduction. Uræmia due to renal sclerosis, glomerulo- or pyelo-nephritis is accompanied by marked reduction in the vascular bed. A. C. F.

VII.—RESPIRATION AND BLOOD GASES.

Device for continuous indication of oxygen saturation of circulating blood in man. E. A. G. Goldie (*J. Sci. Instr.*, 1942, **19**, 23—25).—Light transmitted through the pinna of the ear is measured photo-electrically in two spectral regions, giving a continuous indication of O_2 saturation which is substantially independent of changes in blood quantity. Accuracy is of the order $\pm 2\%$, and it is known that the O_2 saturation of capillary blood in the warmed ear corresponds within 2% with that of arterial blood. A. A. E.

Analyser for 1 ml. of respiratory gas. P. F. Scholander (*Rev. Sci. Instr.*, 1942, **13**, 27—31).—With the apparatus described and figured, consisting of a micrometer burette and reservoirs, CO_2 and O_2 in 1 ml. of air can be determined to $\pm 0{\cdot}01\%$. CO_2 is absorbed with 0·25N-NaOH, and O_2 in $Na_2S_2O_4$ and anthraquinone-2-sulphonate (9 : 1) in 0·25N-NaOH. Samples containing less than 50% of N_2 are diluted with N_2 or air. In quiet weather, atm. O_2 may be reduced from 20·92—20·94 to 20·86—20·88%. A. A. E.

Volumetric microrespirometers. P. F. Scholander (*Rev. Sci. Instr.*, 1942, **13**, 32—33).—Three forms of microrespirometer are described and figured; one is sensitive to about 0·33 cu. mm. per hr., another to about 0·01 cu. mm. per hr., whilst the third is modified for culture respiration. In each the CO_2 produced is absorbed and O_2 is introduced from a micrometer burette so as to keep the vol. const. A. A. E.

Excitability of respiratory centre to varying partial pressures of oxygen and carbon dioxide. R. Margaria (*Schweiz. Med. Wschr.*, 1941, **71**, 287—289).—In subjects less resistant to anoxia, lowering of alveolar O_2 pressure ($p O_2$) brings about a smaller diminution of alveolar CO_2 pressure ($p CO_2$) than in normal subjects, owing to relative insensitivity of the respiratory centre to variations of $p O_2$. If the activity of the respiratory centre is represented by the pulmonary ventilation (V) in l. per min., the differential factor $dV/dp CO_2$ is a measure of the sensitivity of the respiratory centre to variations of $p CO_2$. $dV/dp CO_2$ does not depend on $p O_2$, but only on V; its val. is great for low vals. of V, decreases to a min. for $V = 22$—24 l. per min., and then increases with increasing val. of V. If $p CO_2$ increases, the increase of V is such that alveolar $p CO_2$ is kept const. for val. of V up to 22 l. per min.; beyond this limit alveolar $p CO_2$ increases at a const. rate. Within certain limits of $p O_2$, the sensitivity of the respiratory centre to variations of $p O_2$ ($dV/dp CO_2$) is greater than $dV/dp CO_2$, increases with increases of $p CO_2$, and does not depend on subjects working or resting. I. C.

Gaseous exchange between circulatory system and lungs [elimination of radon]. N. Underwood and J. T. Diaz (*Amer. J. Physiol.*, 1941, **133**, 88—95).—The elimination of Rn directly from the blood stream by way of the lungs obeys an exponential law. The val. of the elimination const. K was determined in dogs (Na pentobarbital). K was not influenced by variations in pulse rate, cardiac output, or by pneumothorax. CO_2 excess increased K by 60%. M. W. G.

Human life and death at high pressures. J. B. S. Haldane (*Nature*, 1941, **148**, 458—460).—A review, under the headings mechanical effects, N_2 intoxication, CO_2 intoxication, O_2 intoxication, after-effects of CO_2, bubble formation during decompression, and cold. E. R. S.

Drug prophylaxis against acute anoxia. I. F. S. Mackay (*Nature*, 1941, **148**, 725).—Pulmonary ventilation was greater after oral administration of 0·4 g. of ethylenediamine-theophylline ("Cardophylin") in the minority of the few subjects investigated, when breathing 11·4% O_2 after air. E. R. S.

Intravenous administration of oxygen. E. E. Ziegler (*J. Lab. clin. Med.*, 1941, **27**, 223—232).—A suitable apparatus is described in detail. Clinically 200—600 c.c. of O_2 are given per hr. C. J. C. B.

Physical and chemical properties of sputum. Factors determining variations in portions from different parts of the tracheobronchial tree. F. P. Basch, P. Golinger, and H. G. Poncher (*Amer. J. Dis. Child.*, 1941, **62**, 981—990).—The tracheobronchial tree of patients with bronchiectasis contains 3 different types of sputum. The secretion from the most dependent portion of the tracheobronchial tree is never coughed up, but is obtainable only by bronchoscopic suction. It has an extremely high viscosity and a high content of org. and inorg. substances. This sputum becomes even thicker after it is removed from the bronchi; it is moved to a higher level both by the tussive squeeze and by the pressure of secretions to form the second portion which is found in the trachea and the larger bronchi. The second portion is a liquefied sputum which has a lower viscosity, a lower dry residue, and a lower % of ash than the 3rd portion. On the top of this secretion, after a rest period, a plug is found which has a moderately high viscosity but a dried residue and % of ash which are even lower. The sputum of patients with massive collapse of the lung shows a decrease in viscosity during the course of the disease in spite of a marked increase in its content of org. and inorg. material. This spontaneous dilution is probably due to bacterial action. C. J. C. B.

Blast injury of lungs. J. N. O'Reilly and S. R. Gloyne (*Lancet*, 1941, **241**, 423—428).—17 cases of blast injury to the lungs are reported. Autopsy and histological studies in 3 of the cases showed patches of intense pulmonary congestion, rupture of capillaries and elastic tissue, and secondary streptococcal bronchopneumonia. The main symptoms were shock, prostration, restlessness, respiratory difficulty, and pain in the chest, with bulging of the chest wall and signs of consolidation. C. A. K.

Natural history of bronchiectasis. A. G. Ogilvie (*Arch. intern. Med.*, 1941, **68**, 395—465).—Detailed clinical and pathological studies of 68 cases of bronchiectasis are reported and the literature is fully reviewed. C. A. K.

VIII.—MUSCLE.

Effect of alcohols and related substances on sensitivity of muscles to acetylcholine. C. W. Meng (*Chinese J. Physiol.*, 1941, **16**, 291—302).—Alcohols increase the sensitivity of toad's rectus muscle to acetylcholine; aldehydes, ketones, and higher alcohols are more, whilst polyhydric, *sec.*, and *tert.* alcohols are less, effective. They cause contracture in the same relative concns. Their action is unaffected by denervation or eserine; they do not inhibit cholinesterase, but increase the sensitivity of the muscle to nicotine. N. H.

Neuro-muscular junction. XXV. Eserine-like actions of aliphatic alcohols and ketones. T. P. Feng and T. H. Li. **XXVI. Changes of end-plate potential during and after prolonged stimulation.** T. P. Feng (*Chinese J. Physiol.*, 1941, **16**, 317—340, 341—372).—XXV. The substances were applied to the cat's soleus or inferior oblique muscle *in situ* by irrigation and to the toad's nerve–sartorius prep. by irrigation or as vapour. Methyl and ethyl alcohol and acetone intensified Wedensky inhibition, and produced a prolonged contracture (prevented by excess of K or Ca) following indirect, but not direct, stimulation, methyl alcohol being effective after a single shock. They increased the sensitivity to acetylcholine of the sartorius and soleus, augmented post-tetanic facilitation of twitches in the latter, caused prolonged negativity following a single volley in the sartorius, and decurarised it by increasing its end-plate potential. The alcohols caused spontaneous twitching of the soleus, and potentiation of twitches accompanied by repeated discharge of the motor nerve endings in all 3 muscles, whilst acetone produced these effects in the soleus only. Higher alcohols were less effective.

XXVI. Oscillograph records were taken of the end-plate potential of indirectly stimulated curarised toad nerve–sartorius preps., with or without eserine, Mg, or Ca. The potential declines during rapid stimulation, especially with Ca; at some stage it fails to respond to every other stimulus, especially with eserine or Mg. The potential during low-frequency stimulation, interposed during or after high-frequency stimulation, is greater than that during high-frequency stimulation and may be greater than that during previous low-frequency stimulation, especially with Mg; with Ca, it is at first decreased. The increase of the potential to single shocks following repeated or single volleys lasts longer at lower temp. and is not affected by eserine or Ca; with Mg, it rises rapidly to a high max. The potential is decreased by direct stimulation. N. H.

Influence of glycine on muscular strength. S. M. Horvath, C. A. Kuehr, and D. B. Dill (*Amer. J. Physiol.*, 1941, **134**, 469—472).—The improvement in grip strength of human subjects (hand dynamometer tests) receiving 6—12 g. of glycine over varying periods was no greater than in those receiving placebos. Neither creatinine nor creatine excretion showed changes due to ingestion of glycine. There was a slight increase in N excretion during the period of glycine ingestion. M. W. G.

Relation between mechanogram and electromyogram in various muscle contractions. M. V. Leinik (*J. Méd. Ukraine*, 1940, **10**, 1239—1244). M. K.

Solubility of muscle-proteins following adrenalectomy. R. Bucher (*Schweiz. med. Wschr.*, 1941, **71**, 360—361).—Solubility of rat's muscle-proteins, determined with Deuticke's method, is diminished following double adrenalectomy in animals surviving more than 3 weeks. A. S.

Interchange of ammonium and potassium ions in muscle and yeast. E. J. Conway, M. F. O'Brien, and P. J. Boyle (*Nature*, 1941, **148**, 662).—Data showing that NH_4^+ (or possibly the associated free base) exerts a sp. effect on the sartorius muscle membrane of the frog are recorded. This effect is not evident with yeast, and NH_4^+ can be made to replace the whole of the K^+ within the cell, after which it can be taken out and the K^+ replaced. Yeast permeability is peculiar in that the rate of replacement with NH_4^+ is negligible unless the yeast mixture is bubbled with CO_2. Bubbling with O_2 is ineffective. Compared with muscle the entrance of NH_4^+ is slow. L. S. T.

Site of action of sympathetic influences on skeletal muscle. L. Asher (*Schweiz. med. Wschr.*, 1941, **71**, 370—372).—Latent period and duration of action potential of intact or previously tetanised rabbit's skeletal muscle, stimulated through its motor nerve, remain unaffected by simultaneous stimulation of sympathetic fibres going to the muscle. The Orbeli phenomenon is explained by an action of the sympathetic on metabolic restitution processes and not on the motor end plate. A. S.

Clinical significance of nerve-muscle chronaxie in late injuries following tri-*o*-tolyl phosphate poisoning. K. M. Walthard (*Schweiz. med. Wschr.*, 1941, **71**, 392—394).—Faradic stimulation of nerves after tri-*o*-tolyl phosphate poisoning may yield normal results when examination of nerve-muscle chronaxie reveals pathological conditions. The changes are due to polyneuritis and independent alterations in the muscles. There is discrepancy between nerve and muscle chronaxie. Histologically, the muscle shows partial primary atrophy. A. S.

Physiology of vertebral musculature. O. Veraguth (*Schweiz. med. Wschr.*, 1941, **71**, 416—417).—The innervation and function of the human vertebral musculature are discussed. A. S.

Synergic muscle activity during walking in man. R. Scherb (*Schweiz. med. Wschr.*, 1941, **71**, 417—419).—The results of the author's "myokinesigraphic" studies are reviewed. A. S.

Functions of muscles with double innervation during walking in man. M. R. Francillon (*Schweiz. med. Wschr.*, 1941, **71**, 419—420).—A review. A. S.

Myositis ossificans progressiva. S. van Creveld and J. M. Soeters (*Amer. J. Dis. Child.*, 1941, **62**, 1000—1013).—Report of a case with full biochemical investigations. (2 photomicrographs.) C. J. C. B.

IX.—NERVOUS SYSTEM.

Evidence of subconducted process in medullated nerve fibres. J. Erlanger (*Schweiz. med. Wschr.*, 1941, **71**, 394—395).—A review. A. S.

Excitation of intraspinal mammalian axons by nerve impulses in adjacent axons. B. Renshaw and P. O. Therman (*Amer. J. Physiol.*, 1941, **133**, 96—105).—For a period of time after transection of the dorsal column in cats, at a level cephalad to the entry of a stimulated dorsal root, impulses in ascending branches of the active fibres directly excite adjacent axons. Impulses in the secondary axons then travel caudally, emerging as a centrifugal discharge in dorsal root fibres adjacent to those which carried the centripetal volley. The secondary impulses are initiated by processes contemporaneous with arrival of primary impulses at the region caudad to the cut, before post-synaptic spinal neurones are active. Subthreshold increases in excitability of tested axons are produced by a primary volley which does not initiate secondary impulses. Excitability increase is greatest a few mm. caudad to the cut. At this locus max. excitability coincides with the time when the conditioning impulses produce the greatest relative negativity. Before section of the dorsal column, the excitability of the tested axons is decreased by impulses conducted in adjacent axons. Transection produces an immediate increase in size of motor discharges evoked by dorsal root volleys. M. W. G.

Characteristic features of electrical activity in nerve. H. Cardot and A. Arvanitaki (*Schweiz. med. Wschr.*, 1941, **71**, 395—397).—Spontaneous rhythmic activity in the pleuro-visceral nerve and visceral ganglion of *Aplysia* recommences some hr. after dissection. In the efferent pathway the amplitude of activity may be subthreshold. A phase of relative positivity appears to follow the wave of negativity in the axon. The rhythmical activity shows potential fluctuations which, periodically, produces a discharge in the efferent neurons. A. S.

Structure of peripheral nervous system and its restitution in adult rabbits. N. A. Putschkivskaja (*J. Méd. Ukraine*, 1940, **10**, 913—936). M. K.

Mechanism of nerve cell activation. R. Gesell (*Schweiz. med. Wschr.*, 1941, **71**, 398—400).—A summary of the author's conception of ganglionic activity (cf. *Ergebn. Physiol.*, 1940, **43**, 477). A. S.

Physiological and pathological significance and mechanism of neurone synchronisation. F. Bremer (*Schweiz. med. Wschr.*, 1941, **71**, 400—402).—A discussion. A. S.

Innervation of heart in birds. B. M. Erez (*J. Méd. Ukraine*, 1940, **10**, 1221—1224). M. K.

Innervation of visceral organs in birds. E. Pustilnik (*J. Méd. Ukraine*, 1940, **10**, 1211—1216). M. K.

Nerves of bladder of frog and turtle. M. T. Mogila (*J. Méd. Ukraine*, 1940, **10**, 891—911). M. K.

Physiopathological and clinical significance of naso-palpebral reflex. A. Glattauer (*Schweiz. Arch. Neurol. Psychiat.*, 1939, **44**, 243—255).—Symmetrical contraction of the orbicularis oculi is elicited in normal individuals after the 2nd year by percussion of the tip of the nose. It is a periosteal-perichondral reflex, is diminished or abolished in peripheral, but normal or increased in central, facial, palsy. 2 out of 7 cases of disseminated sclerosis and 41 out of 83 cases of epilepsy had a diminished or absent reflex. H. L.

Component reflexes of micturition in cat. III. J. F. Barrington (*Brain*, 1941, **64**, 239—243).—Running water through the urethra produced a reflex contraction through a spinal reflex the afferent and efferent paths of which are in the pelvic nerves; the contraction was smaller than the one produced by a hind-brain reflex via pudic and pelvic nerves. H. L.

Action of brain extracts after stimulation of vago-sympathetic nerve on frog's heart. E. Putschkovski and E. Rautman (*J. Méd. Ukraine*, 1940, **10**, 1194—1199). M. K.

Determination of central course of vagus; vagus-supraoptic tract. Hsi-Chun Chang (*Schweiz. med. Wschr.*, 1941, **71**, 380—381).—The vagal-hypophyseal reflex, as established by the Peiping group of workers, consists of 3 neurones: afferent fibres from the nodose ganglion end in the caudal portion of the tractus solitarius; the second neurone, medially situated in the obex region, then turning lateralwards, reaches the hypothalamic supraoptic nucleus from where fibres go through the pituitary stalk to the posterior lobe of the pituitary. A. S.

Vagus-postpituitary reflex. X. Effect of nerves other than vagus. J. J. Huang (*Chinese J. Physiol.*, 1941, **16**, 277—283).—Using the isolated perfused dog's head under chloralosane anæsthesia, a slight rise of arterial pressure, abolished by hypophysectomy, was obtained on central stimulation of the olfactory, optic, lingual, vestibular, glossopharyngeal, or hypoglossal nerves. N. H.

Clinical anatomy of veins with special reference to the spinal veins. H. A. Harris (*Brain*, 1941, **64**, 291—300).—Cases of thrombotic and carcinomatous metastases are explained in terms of long-established facts concerning the veins of the spine, spinal cord, and meninges. H. L.

Vasodilators in trigeminal neuralgia. W. E. Adams and W. Robinson (*Lancet*, 1941, **241**, 555—556).—In 7 cases of trigeminal neuralgia nicotinic acid in doses of 100—300 mg. daily gave considerable relief of pain. Amyl nitrite was effective in 2 cases. In 3 cases attacks were provoked by adrenaline or benzedrine. C. A. K.

Motor centres in circulatory insufficiency. E. Simonson and N. Enzer (*Arch. intern. Med.*, 1941, **68**, 498—512).—The max. frequency of movements of the middle finger was automatically recorded for periods of 1 min. In patients with hypertension or heart disease the frequency was decreased, owing, it is suggested, to fatigue of the motor centres from anoxia. C. A. K.

Intercellular electric fields and brain function. R. W. Gerard (*Schweiz. med. Wschr.*, 1941, **71**, 397—398).—Access to the uninjured ventricular surface was gained by amputation of the occipital pole of the frog's cerebral hemisphere and a capillary electrode was inserted. There was no injury potential between the ventricular electrode (V) and an electrode on the pial surface (P); there is a regular PV potential of 2—3 mv., sometimes 10 mv. or more; P is negative to V. The waves, manifest after soaking the isolated brain for 2—3 min. in a 0·5% solution of caffeine, are simpler in form, due to the elimination of diphasic effects associated with their propagation, and of greater magnitude if led from PV electrodes instead of 2 surface electrodes. The potential sign of the caffeine wave inverts sharply as a micro-electrode is progressively thrust into the pallium. Const. polarising currents across the pallium affect the caffeine waves as electrotonus does the nerve impulse; the sign, referred to the outer brain surface, is reversed since the polarised layer is negative outside. Polarising currents, through the wall of the hemisphere, of 0·01—0·02 ma. with P positive to V, will initiate caffeine waves in a prep. which has become inactive or the site of origin of caffeine waves already present will be moved from some other part of the hemisphere to the depolarised region. Polarisation will also increase, decrease, or reverse

the pre-existing *PV* potential. The sign of the caffeine wave follows that of the *PV* potential and becomes reversed with it (spontaneous and induced potential shifts). The experiments demonstrate the existence in the brain of steady potential fields of considerable magnitude. A. S.

Cerebral electrical changes in experimental concussion. D. Williams and D. Denny-Brown (*Brain*, 1941, **64**, 223—238).—Local and general cerebral trauma was produced in cats under light anæsthesia. Continuous electro-encephalograms were recorded throughout the experiments from points in both hemispheres by means of electrodes fixed into the skull, in contact with the dura mater. Blows resulting in concussion always caused instantaneous diminution or cessation of the electrical activity of the whole of both cerebral hemispheres, followed by abnormally slow waves which may represent a stage in recovery. Local trauma caused identical changes limited, however, to the injured area. No relationship was found between these changes and cardio-respiratory or reflex disturbance. It is inferred that concussion is the direct result of mechanical violence to cerebral cells and does not depend on secondary changes, such as œdema, anoxia, or hypoglycæmia. H. L.

Diagnostic significance of optokinetic after-nystagmus in cerebral concussion and other diencephalic disturbances. A. M. Meerloo (*Schweiz. Arch. Neurol. Psychiat.*, 1939, **44**, 295—304).—Optokinetic nystagmus is usually present in concussion and is sometimes the only objective sign in late stages. It was also observed in Parkinsonism and following lumbar puncture. H. L.

Brain of highly talented individuals. K. Schaffer (*Schweiz. Arch. Neurol. Psychiat.*, 1939, **44**, 347—352).—The hypothesis of the significance of the frontal and parieto-temporal association centres is discussed on the basis of M. Rose's study of J. Pilsudski's brain. H. L.

Epileptic attacks and autonomic disturbances. F. Braun (*Schweiz. med. Wschr.*, 1941, **71**, 388—389).—A discussion. A. S.

Convulsive discharges in nervous system. E. D. Adrian (*Schweiz. med. Wschr.*, 1941, **71**, 402—403).—Local application of convulsant drugs to the motor cortex produces high-frequency discharges in the pyramidal tract, each conducting unit showing outbursts of 10—20 or more impulses at a rate of 500—1000 per sec. at intervals of 0·5 sec. or more. Single large potential waves can be found on the surface of the cortex. Similar high-frequency outbursts can be observed in the afferent fibres to the cortex when strychnine is injected into the thalamus. A. S.

Pathological anatomy of epilepsy with special reference to cornu Ammonis, inferior olives, and choroid plexus. S. Baumatz (*Schweiz. Arch. Neurol. Psychiat.*, 1939, **44**, 209—228).—It is confirmed that degenerative lesions of the cornu Ammonis (usually unilateral, affecting Sommer's sector and the hilus of the dentate fascia) and of the inferior olives (dorsal and lateral parts) are relatively common in epilepsy; slight regressive changes of the choroid plexus are sometimes met with. These lesions are not sp. and are not interrelated with each other. H. L.

Cerebral and psychopathological symptoms in industrial poisoning with inorganic substances. H. Steck (*Schweiz. Arch. Neurol. Psychiat.*, 1940, **45**, 248—269).—A review (Hg, Pb, Mn, Tl). H. L.

Industrial poisons and nervous system. F. Fleury (*Schweiz. Arch. Neurol. Psychiat.*, 1940, **45**, 146—158).—A lecture. H. L.

Co-ordinating action of higher centres on muscular functions of invertebrates. H. J. Jordan (*Schweiz. med. Wschr.*, 1941, **71**, 403—406).—A review of experiments of the author and his collaborators. A. S.

Does sensory control play constructive rôle in development of motor co-ordination? P. Weiss (*Schweiz. med. Wschr.*, 1941, **71**, 406—407).—If the arrangement of the leg muscles in amphibia is reversed, even in the embryonic stage, the animals walk in reverse. In spite of wrong sensory information the motor pattern is not changed. Re-education was also absent when the tendons of antagonistic leg muscles in the rat were crossed; all foot movements were carried out in reverse. The spinal ganglia of *Rana catesbiana* tadpoles were extirpated; the motor innervation of the limbs developed normally and motility was fully co-ordinated in swimming, jumping, righting, and turning. It is concluded that sensory innervation is no prerequisite for the development of co-ordinated limb function and that the sensory influx plays no constructive part in motor co-ordination, the basic patterns of motor co-ordination being products of self-differentiation of the centres. A. S.

Extrapyramidal motor function of substantia reticularis. M. Monnier (*Schweiz. med. Wschr.*, 1941, **71**, 407—409).—Anatomy and developmental embryology of midbrain and medullary substantia reticularis are discussed. In cats and apes, a tegmental motor reaction is described, consisting of bending of head, neck, and trunk towards the side of stimulation, homolateral flexion and contralateral extension of the anterior limbs, and complex movements of the hind legs. Excitation of the ventral medullary substantia reticularis produces inspiratory apnœa through diaphragmatic tetanus, comparable with the effects of stimulation of the central end of the vagus. If the substantia reticularis is destroyed at the level of the peduncles or in the medulla, head, neck, and trunk are bent towards the opposite side with postural hypertonia on the ipsilateral side. Automatic rhythmical movements were observed in the legs. The substantia reticularis tegmenti forms a functional entity with the vestibular-cerebellar extrapyramidal system. A. S.

Visual disorientation with special reference to lesions of right cerebral hemisphere. W. R. Brain (*Brain*, 1941, **64**, 244—272).—3 cases are reported showing defect in visual localisation of objects in homonymous half-fields, resulting from a lesion of the opposite parietal lobe. 3 cases are described of massive lesion of the right parietal lobe causing inability to follow familiar routes owing to selection of right instead of left turnings in error, attributed to an inattention to the left half of external space. 2 cases are reported of apraxia for dressing and the relation of this symptom to disorder of the body scheme is discussed. Visual disorientation is considered in relation to the dominance of one cerebral hemisphere and the nature and classification of the various forms are discussed. H. L.

Phantom limbs and body shape. G. Riddoch (*Brain*, 1941, **64**, 197—222).—A lecture. H. L.

Disturbances of sleep in schizophrenics. M. Boss (*Schweiz. med. Wschr.*, 1941, **71**, 390—391).—Sleeplessness is a frequent disturbance in acute schizophrenia. Liberal use of hypnotics is indicated as the duration of the acute process is reduced if the chronic disturbance of sleep is prevented. Some patients are very sensitive to small doses, others are most resistant even to largest doses of hypnotic drugs. A. S.

Changes in reflex activity in insulin coma. S. Lups and F. Kramer (*Schweiz. Arch. Neurol. Psychiat.*, 1940, **45**, 213—229).—Absent corneal reflex, increased knee and ankle jerks (sometimes with clonus), and positive Babinski response are signs of deep coma; the abdominal reflexes are diminished in the precomatous stage and absent in deep coma. H. L.

Cytotoxic antireticular serum in treatment of schizophrenia. B. M. Berlin (*J. Méd. Ukraine*, 1940, **10**, 1297—1304).—Improvement was obtained in 9 out of 12 early cases, but not in 23 chronic cases, of which 11 belonged to the paranoid form. M. K.

Treatment of schizophrenia with antireticular cytotoxic serum. E. M. Salkind (*J. Méd. Ukraine*, 1940, **10**, 1293—1295).—A discussion. M. K.

Treatment of schizophrenia with antireticular cytotoxic serum. A. A. Bogomoletz, J. P. Frumkin, R. B. Gragerova, and J. A. Misruchin (*J. Méd. Ukraine*, 1940, **10**, 781—791). M. K.

Mechanism of insulin effect on central nervous system. V. P. Komisarenko (*J. Méd. Ukraine*, 1940, **10**, 995—1003).—A review and discussion. M. K.

Effect of large doses of insulin on glycolytic activity of brain tissue. V. P. Komisarenko and R. J. Martschuk (*J. Méd. Ukraine*, 1940, **10**, 1134—1143).—Dogs were decapitated during convulsions or coma 2 hr. after injection of 10 units of insulin per kg.; glycolytic activity of brain tissue was increased. Muscle tissue of these dogs shows decreased glycolytic activity; there was no change in lactic acid in liver. Lactic acid in brain of insulinised dogs is less than in controls, that in muscle is greater, while in liver tissue the increase is insignificant. M. K.

Effect of large doses of insulin on metabolism of brain tissue. V. P. Komisarenko and I. P. Mashevskaja (*J. Méd. Ukraine*, 1940, **10**, 1144—1152).—Brain tissue of rabbits decapitated during convulsions 2½ hr. after injection of insulin (10 units per kg. wt.) shows slower reduction of methylene-blue than controls. This does not apply to brain tissue of rabbits decapitated prior to appearances of convulsions 2½ hr. after insulin. O_2 consumption by brain tissue of insulinised rabbits is subnormal. M. K.

Chronic alcoholism with cortical laminar sclerosis resembling clinically "general pseudo-paralysis." F. Morel (*Schweiz. Arch. Neurol. Psychiat.*, 1939, **44**, 305—308).—4 cases are reported showing diffuse symmetrical glial proliferation of the 3rd cortical layer, especially in the frontal and parietal lobes. H. L.

Amyotrophic lateral sclerosis. L. Rubinstein (*Schweiz. Arch. Neurol. Psychiat.*, 1939, **44**, 320—346).—Atypical cases are described thought to represent an exogenous form due to infectious arthritis or trauma. H. L.

Akinetic mutism with epidermoid cyst of the 3rd ventricle. H. Cairns, R. C. Oldfield, J. B. Pennybacker, and D. Whitteridge (*Brain*, 1941, **64**, 273—290).—A case is reported. The electroencephalogram showed slow waves with bursts of sinusoidal waves; after aspiration of the cyst it returned to normal simultaneously with the disappearance of the clinical symptoms. The latter are attributed to interruption of afferent impulses related to exteroceptive, somatic proprioceptive, and visceral sensibility. H. L.

Macroglia in brain tumours. A. D. Dinaburg (*J. Méd. Ukraine*, 1940, **10**, 875—889). M. K.

Genetic uniformity of various types of clinically uncomplicated mental deficiency. C. Brugger (*Schweiz. Arch. Neurol. Psychiat.*, 1940, **45**, 140—145).—Data are given indicating that different degrees of uncomplicated mental deficiency have a common genetic basis. H. L.

Third ventricle tumours. A. Jentzer (*Schweiz. Arch. Neurol. Psychiat.*, 1939, **44**, 256—287).—A review (classification, diagnosis, access, surgical and radiological results). H. L.

Chronic internal hydrocephalus due to Arnold-Chiari type of cerebellar malformation. H. Krayenbühl (*Schweiz. med. Wschr.*, 1941, **71**, 414—416).—2 cases are described. One patient suffered from spastic, ataxic, and bulbar symptoms; the other patient showed epilepsy. There were no signs of increased c.s.f. pressure. The ventriculogram showed marked internal hydrocephalus and operation revealed a conic cerebellar protrusion into the foramen magnum and the vertebral canal. Both patients improved considerably. A. S.

Sodium chloride content of cerebrospinal fluid in circulatory failure. M. L. Aviosor (*J. Méd. Ukraine*, 1940, **10**, 1329—1339).—C.s.f.-Cl' was increased. M. K.

Autonomic hypersensitivity and allergic diatheses. E. Hanhart (*Schweiz. med. Wschr.*, 1941, **71**, 373—375).—A review. A. S.

Physiology and pathology of hypothalamus and central regulation of autonomic functions. M. Minkowski (*Schweiz. med. Wschr.*, 1941, **71**, 381—384).—Physiological and anatomical findings with regard to autonomic centres in the hypothalamus and their involvement, especially in cases of concussion, are reviewed. Possible connexions of hypothalamic nuclei with cerebral cortex, grey matter around the 3rd ventricle, and other regions are discussed. A. S.

Critical discussion of technique of puncture of temperature-regulating centre. F. Bruman (*Schweiz. med. Wschr.*, 1941, **71**, 384—385).—The method of raising body temp. in studies on temp.-regulation by puncturing the temp.-regulating centre is discarded because of gross injury to the centre and adjacent structures. A. S.

Caffeine—a synaptic poison to parasympathetic. H. Fredericq (*Schweiz. med. Wschr.*, 1941, **71**, 368).—Caffeine in small doses (0·5 mg.) potentiates the effects of stimulation of the peripheral end of the vagus on the tortoise heart by sensitising cardiac muscle to acetylcholine. In doses of 5 mg., caffeine blocks transmission in the intracardiac ganglia of the vagus. Caffeine, in all doses, antagonises the effects of postganglionic and preganglionic stimulation on the cat's nictitating membrane. A. S.

X.—SENSE ORGANS.

Ear and [central] nervous system. A Güttich (*Z. ges. Neurol. Psychiat.*, 1939, **165**, 148—174).—A survey. H. L.

[Internal] ear and [central] nervous system. V. von Weizsäcker (*Z. ges. Neurol. Psychiat.*, 1939, **165**, 132—145).—A lecture. H. L.

Unconscious vestibular action. P. Christian (*Z. ges. Neurol. Psychiat.*, 1939, **165**, 214—219).—When an individual is rotated in a dark room through an arc of 10—20° per sec., he does not perceive the rotation but if a fixed source of light is attached to the rotation chair at 150 cm. horizontal distance from the eyes in the medial plane of the body, he perceives his own movement as a movement of the light. The phenomenon is absent in individuals with non-functioning or absent labyrinths. It is not due to reflex ocular movements or to tonus changes. H. L.

Ear and flying. H. Frenzel (*Z. ges. Neurol. Psychiat.*, 1939, **165**, 236—243).—The following conditions are incompatible with flying duties: spontaneous vestibular nystagmus (to be looked for in the 5 main ocular positions, with non-fixating eyes, and after stooping and shaking of the head); gross differences in caloric or rotatory nystagmus between right and left eye, or gross bilateral hypoexcitability; coarseness or abnormal frequency of oscillations in caloric nystagmus, or abnormal course of nystagmus (*e.g.*, abnormal duration); vomiting, pallor, profuse perspiration, collapse following rotatory stimulation (10 rotations in 20 sec.). H. L.

New findings regarding vestibular function. S. Unterberger (*Z. ges. Neurol. Psychiat.*, 1939, **165**, 224—235).—Forced bending and rotation of the head towards the side of the lesion was observed in cases of brain-stem lesions involving the vestibular nucleus or its immediate neighbourhood. In 3 cases in whom labyrinthine stimulation failed to elicit nystagmus but produced past pointing, tendency to fall, and deviation to one side on walking, lesions were found in the posterior longitudinal bundle. The impulses from the vestibular to the ocular nuclei are therefore held to be conducted along, or relayed within, this bundle. To exclude compensation of tonus disturbances by the "floor-sense" which may be effective when the patient is tested while standing with feet together and closed eyes, it is recommended to carry out the test with the patient "marking time," a turning around the body axis by 90° or more being then the normal response to caloric (cold) stimulation of the labyrinth. H. L.

Ocular complications in hyperemesis gravidarum. A. J. Ballantyne (*J. Obstet. Gynæc.*, 1941, **48**, 206—219).—The earliest ocular disturbance is retro-bulbar optic neuritis associated with a central defect in the field and without visible ophthalmoscopic changes. This is succeeded by œdema of the optic nerve and later by peripapillary retinal hæmorrhage. There may be total blindness which is capable of complete recovery. Indications differentiating the condition from ocular signs of other diseases are given. 6 cases are detailed and deficiency of vitamins-B_1 and -C is regarded as an important causal factor. P. C. W.

Epidermal papillæ and dermal bones of chick sclerotic. P. D. F. Murray (*Nature*, 1941, **148**, 471; cf. Westoll, A., 1942, III, 227).—14 epidermal papillæ develop in the conjunctiva at 7 days of incubation. Later these thicken and project downwards into the underlying mesenchyme, which condenses around the projection and forms the anlage of the future scleral bone. Staining with azan reveals very delicate blue-staining collagen fibres running from the projection and its basement membrane into the mesenchyme condensation. Up to the 10th day the projections degenerate and disappear, while the papillæ are transformed into a hollow filiform structure containing mesenchyme cells and projecting out of the epidermis. The mesenchyme condensation becomes a flat sheet of cells and collagen fibrils of the developing bone are deposited among them, which become osteoblastic in character. The delicate collagen fibres maintain connexion with the papillæ, which disappear before hatching. E. R. S.

Energy at threshold of vision. S. Hecht, S. Shlaer, and M. H. Pirenne (*Science*, 1941, **93**, 585—587).—Measurements were made on men after 30 min. in the dark, with a circular retinal area subtending 10′ of arc situated 20° temporally on the horizontal axis of the retina, using homogeneous light (510 mμ.) in a 1/1000-sec. flash. For 6 observers the min. energy necessary for vision was $2{\cdot}2 \times$ to $5{\cdot}7 \times 10^{-10}$ erg at the cornea, or 58—148 quanta of blue-green light. 3 corrections are applied to obtain the val. at the retina: 4% is reflected by the cornea, 50% is absorbed by the ocular media, not more than 20% is absorbed by the visual purple of the retinal rods. The upper limits of the absorption at the retina are 5—14 quanta, and for vision 1 mol. of visual purple needs to react in each of 5—14 rods. The energy calibration of the flash gives the average no. of quanta per flash; the actual no. has a Poisson distribution. Curves are given of probabilities of n or more $h\nu$ per flash against log of average no. of $h\nu$ per flash for $n = 1$ to 10, where n is no. of quanta required by the retina for vision. 6 different intensities, 50 flashes each in random sequence, were presented to 3 observers to report seeing or not seeing. The derived frequency curves were compared with the previous ones and n found to be 5, 6, and 7, other values being excluded. Biological variation reduces the true n slightly; if variation is 5—9 quanta for vision n is calculated to be 5 or 6. E. R. S.

Vitamin-B complex deficiency as a cause of retrobulbar neuritis and peripheral neuritis in a chronic alcoholic and pipe smoker. B. Gottlieb (*Brit. J. Ophthal.*, 1941, **25**, 556—564).—The patient, a publican aged 46, was treated with vitamin-B_1 intramuscularly and -B complex by mouth. He improved despite continued heavy smoking. W. T. A.

Monocular diplopia occurring in cases of squint. E. E. Cass (*Brit. J. Ophthal.*, 1941, **25**, 565—577).—70 patients with squint and abnormal correspondence were tested for monocular diplopia by stimulating either the eccentric corresponding point or the macula of the squinting eye by fluctuation of the light of the synoptophore. Diplopia was found in 33 cases, in 17 on stimulating the false corresponding point, in 5 on stimulating the macula, and in 11 on stimulating both. The condition is caused by bringing to consciousness simultaneously the congenital and acquired space vals. of a retinal point. It can be demonstrated in patients who have squinted from birth. W. T. A.

Growth *in vitro* of elements of preserved cornea. M. A. Bashenova (*J. Méd. Ukraine*, 1940, **10**, 1359—1365). M. K.

XI.—DUCTLESS GLANDS, EXCLUDING GONADS.

Effect of visible light on endocrines. Y. Ueda (*Japan. J. Obstet. Gynec.*, 1940, **23**, 290—293).—Rats with regular œstrous cycles became irregular or sexually quiescent during daily irradiation with white light after injection with eosin. The thyroid was hypoplastic; the adrenal cortex became smaller and the medullary cells became swollen and more numerous; corpus luteum formation was depressed and atretic follicles were increased; interstitial cells in the waves increased; pituitary basophils and chromophobes increased; the islets of Langerhans hypertrophied. The opposite effects were found in rats with irregular œstrous cycles irradiated daily with white light after the injection of methylene-blue. P. C. W.

Endocrine glands during pregnancy studied by colchicine reaction. C. Cavallero (*Arch. int. Méd. exp.*, 1939, **14**, 125—135).—Colchicine injections in pregnant guinea-pigs showed increased mitotic activity in anterior pituitary, thyroid, parathyroids, adrenal cortex, corpus luteum, and islets of Langerhans, and also in the kidneys and exocrine pancreas. The liver, intermediate and posterior lobes of the pituitary, and the adrenal medulla showed no increase. The increased activity mainly affected chromophobe cells of anterior pituitary, islets of Langerhans, zona fasciculata of adrenal cortex, and parathyroids. The increased activity is max. at the onset of pregnancy in the endocrine organs (except the corpus luteum) and in the later stages in the other organs. P. C. W.

Endocrine reactions to carbon tetrachloride poisoning studied by colchicine method. C. Cavallero (*Arch. int. Méd. exp.*, 1939, **14**, 15—22).—The endocrine glands of the animals used in the preceding abstract were studied. CCl_4 treatment did not affect the sensitivity of the thyroid, testes, or thymus to the action of colchicine. The parathyroid glands showed fewer mitoses and the adrenal cortex, hypophysis, and pancreatic islet tissue an increase. This chiefly affected the chromophobe cells of the anterior pituitary and did not persist for more than 7 days. P. C. W.

Correlation between sex, thyroid, and adrenal-cortical hormones. V. Korenchevsky and K. Hall (*Nature*, 1941, **147**, 777).—Administration of desiccated thyroid (90—480 mg. weekly) or thyroxine Na (1—3 mg. weekly) increased the wt. of liver, kidneys, and heart in ovariectomised rats. Greater increases were produced by injection of androsterone or œstrogen at the same time. Œstrogen injected alone produced slight increases. Other relations between the effect of combined or single treatment with androgens, œstrogens, deoxycorticosterone acetate, and thyroid on other organ wts. in male and female gonadectomised rats are stated without experimental data. P. C. W.

Therapeutic studies in hyperthyroidism. P. Starr and H. Pomerenze (*Ann. int. Med.*, 1941, **15**, 226—243).—Administration of desiccated thyroid, thyrotrophic anterior pituitary hormone, testosterone propionate, or vitamin-*A* and -*C* in patients suffering from hyperthyroidism was ineffective. Beneficial results were obtained in a no. of cases with chorionic gonadotrophin. A. S.

Therapeutic effect of antithyroid cytotoxic serum in goitre patients. F. J. Primak (*J. Méd. Ukraine*, 1940, **10**, 953—967).—No therapeutic effect of cytotoxic antithyroid serum on myxœdema or severe forms of chronic hypothyroidism was observed. In goitre patients with lowered and disturbed thyroid function, antithyroid cytotoxic serum increased basal metabolism and cardiac activity and improved the general condition. The therapeutic effect lasts for 4—6 months. M. K.

Effect of antireticular cytotoxic serum on metabolism and blood of hypothyroid patients. N. D. Judina (*J. Méd. Ukraine*, 1940, **10**, 943—952).—Intravenous injection of 0·1 c.c. of antireticular cytotoxic serum has a sp. stimulating action on the tissue of the thyroid gland as well as on erythropoetic function in these cases. M. K.

Effect of thyrotoxic serum on patients with disturbed thyroid function. M. P. Fedjuschin (*J. Méd. Ukraine*, 1940, **10**, 965—979).—0·1 c.c. of thyrotoxic serum was injected intravenously in 12 patients (aged 20—50) with lowered and disturbed thyroid gland function, in 7 of whom a pronounced goitre was present. 4 patients received 2 injections each, 8 3 injections. 6 of the 12 patients showed reduction of the heart size. The cancerolytic coeff. which is below normal in goitre patients remained unchanged or rose slightly after thyrotoxic serum, without reaching the normal figure. M. K.

Action of potassium and sodium in experimental hyperthyroidism. I. Abelin (*Schweiz. med. Wschr.*, 1941, **71**, 353—354).—K is a synergist, Na an antagonist, to thyroxine. Rats kept on a K-rich diet react violently to thyroxine. The phenomenon is characterised by considerable loss of wt. (50—87 g. in 7—10 days), anorexia, diarrhœa and sweating, nervous hyperexcitability, and rapid death. A. S.

Nature of disturbed calcium metabolism in thyrotoxicosis and myxœdema. J. D. Robertson (*Nature*, 1941, **148**, 724).—In thyrotoxicosis excessive thyroxine secretion stimulates the kidneys directly to increase the Ca output, by lowering the renal threshold. The fall in serum-Ca produced leads to increased mobilisation of Ca from the bones. In myxœdema the diminished thyroxine secretion raises the renal threshold for Ca, lowering the Ca output. E. R. S.

Co-enzyme I content of rat tissues in experimental hyperthyroidism. E. Katzenelbogen, A. E. Axelrod, and C. A. Elvehjem (*J. Biol. Chem.*, 1941, **141**, 611—617).—When hyperthyroid rats are fed a ration low in nicotinic acid there is a marked decrease in the amount of co-enzyme-I in the liver and kidney cortex. Addition of 20 mg. of nicotinic acid per 100 g. of ration restores the normal amount of co-enzyme, but the rates of growth of control and hyperthyroid animals are not increased. J. N. A.

Problem of endemic goitre in Yunnan Province. R. C. Robertson (*J. clin. Endocrinol.*, 1941, **1**, 285—292).—A description and discussion of the incidence of goitre in Yunnan, of the practical difficulties in the iodisation of locally produced salt, and of other possible methods of increasing the I content of the local diet. P. C. W.

Skin capillaries and endemic goitre. J. Eugster and De Quervain (*Schweiz. med. Wschr.*, 1941, **71**, 351—353).—Normal skin capillaries were found in 41% of subjects living in goitre-free districts, compared with only 10% in districts with endemic goitre. Gross variations, however, were observed in equal no. in both groups. Marked alterations of skin capillaries are non-sp., as they were absent in many families where each member suffered from goitre, and present in goitre-free families. A. S.

Congenital struma diffusa colloides. C. Wegelin (*Schweiz. med. Wschr.*, 1941, **71**, 350—351).—The wt. of the thyroid of the newborn infant was 10·3 g. The mother used cooking salt containing 0·65 mg. of KI per kg. ($\frac{1}{10}$th of the recommended I content). A. S.

Experimental goitre. I. Effect of brassica seed diets on rats. T. H. Kennedy and H. D. Purves (*Brit. J. exp. Path.*, 1941, **22**, 241—244).—Diets including 45% of ground seeds of *Brassicæ* (rape, swede, soft turnip, hard turnip, chou mœiller) produced thyroid hyperplasia in rats. The hyperplasia was not prevented by 1·3 mg. of KI per rat daily. The thyroid proliferated rapidly during the 2nd and 3rd weeks of the diet and then its growth paralleled the growth of the rat. The diet also caused hypertrophy of the renal cortex, delay in the development of the ovaries in immature females, and histological changes in the pituitary. F. S.

Thyroid hormone in blood. J. F. McClendon and W. C. Foster (*Endocrinol.*, 1941, **29**, 653—654).—A large part of the thyroid hormone of blood is non-dialysable and insol. in methyl alcohol or acetone, and is therefore not free thyroxine. V. J. W.

Extrathyroidal iodine metabolism. A. Chapman (*Endocrinol.*, 1941, **29**, 686—694).—Normal and thyroidectomised rats were given diets containing a small amount (15 μg. per kg.) of I, or the same diet + 30 μg. of I as KI per day. During 65 days no differences were observed between the normal rats on the two diets, but, in the thyroidectomised rats, those receiving KI had greater wt., surface area, food and water intake, and basal metabolic rate than the others. It is suggested that, in these rats, I may produce a thyroxine-like substance in the tissues. V. J. W.

Physiologically inactive and active isomerides of thyroxine.—See A., 1942, II, 94.

Growth response of thyroidectomised goats to artificially formed thyroprotein. E. P. Reineke and C. W. Turner (*Endocrinol.*, 1941, **29**, 667—673).—Goats thyroidectomised in the 1st month of life cease to grow at 2 months and become cretinous. Growth is resumed and appearance becomes normal if they are given " thyrolactin," a prep. made by combining skimmed milk proteins with I (method not given). V. J. W.

Hamilton–Schwartz test and hyperparathyroidism in various diseases. N. J. Winer (*Amer. J. med. Sci.*, 1941, **202**, 642—650).—The test (*J. clin. Invest.*, 1930, **15**, 99) detects excessive amounts of circulating parathyroid hormone. Where the test proved positive, blood Ca and P were usually normal; in most instances of histological evidence of parathyroid gland activity, the test was previously positive. Conversely, in all instances of positive tests with subsequent histological study, the parathyroid gland proved to be hyperactive. C. J. C. B.

Serum-calcium and -inorganic phosphorus in parathyroid tetany. J. D. Robertson (*Lancet*, 1941, **241**, 795—798).—The effects of various agents in 7 cases of parathyroid tetany of 3½—11 years' duration were studied. Thyroid feeding depressed serum-Ca but did not alter -inorg. P. Serum-phosphatase was raised to normal. Ingestion of 3 g. of Ca daily as lactate, chloride, or phosphate for 2 weeks produced no significant changes in serum-Ca or -inorg. P., but 2 hr. after ingestion of Ca lactate or $CaCO_3$ the serum-Ca was significantly raised. NH_4Cl, 3 g. daily for 2 weeks, had no effects beyond a mild acidosis. Vitamin-*D* (calciferol), 100,000 i.u. daily for 2 weeks, produced a very significant rise in serum-Ca and no change in -inorg. P. There is evidence that temporary parathyroid deficiency with subsequent regeneration may occur after thyroid operations. C. A. K.

Calcium appetite of parathyroidectomised rats [rôle of vitamin-*D*]. C. P. Richter and J. R. Birmingham (*Endocrinol.*, 1941, **29**, 655—666).—Parathyroidectomised rats have increased appetite for Ca lactate solution when it is available to them. This appetite is reduced to normal by oral administration of purified vitamin-*D*. Cod-liver oil could not be administered in sufficient quantity to produce this result, and parathyroid extract was only effective in toxic doses. V. J. W.

Changes in plasma-inorganic phosphate associated with endocrine activity in *Xenopus laevis*. IV. Parathyroid injections in normal and hypophysectomised animals. V. Thyroid removal and injection in normal and hypophysectomised animals. V. Schrire (*S. Afr. J. Med. Sci.*, 1941, **6**, 1—5, 6—10; cf. A., 1939, III, 1050).—IV. Parathyroid injections produce an initial fall followed by a rise above pre-injection level of the plasma-inorg. PO_4''' in females.

Repeated injections produce an elevated level which persists for 48 hr. after the final injection. The effects are the same in hypophysectomised and normal animals.

V. Thyroidectomy produces no effect up to 7 months after operation. Injection of thyroxine Na (0·1 mg.) produces a fall in normal animals with subsequent return to normal val. Repeated injection produces an increase which persists for more than 48 hr. after the last injection. Hypophysectomy has no effect on the response to thyroxine injection. P. C. W.

Treatment of successive generations of rats with thymus extract and related substances. A. Segaloff and W. O. Nelson (*Endocrinol.*, 1941, **29**, 483—491).—No acceleration of growth or development was produced in 4—6 generations of several strains of rats which received Hanson's thymus extract or 1 mg. daily of glutathione with or without 1·5 mg. of ascorbic acid. V. J. W.

Case of pinealoma. H. Sato (*Gann*, 1941, **35**, 351—353). E. B.

1 : 500 adrenaline in gelatin. S. D. Lockey (*J. Allergy*, 1941, **12**, 592—598).—The prep. was heated in a water-bath at 30°, liquefied, and given intramuscularly in a heated syringe. Its action, advantages, and disadvantages are discussed. C. J. C. B.

Recovery of adrenaline injected intravenously and subcutaneously. S. S. Bullen and W. R. Bloor (*J. Allergy*, 1941, **12**, 564—571).—Adrenaline solutions which had become brown with age had lost ½ of their strength. Following intravenous injection in dogs, adrenaline recovery from the venous blood was 25% after 1 min., 21% after 5 min., and 14% after 20 min. Half the samples contained no adrenaline after 20 min. After subcutaneous injection the venous recovery rate was 7% after 5 min., 5% after 10 min., and 1·5% after 20 min. C. J. C. B.

Deamination of *dl*-alanine in adrenalectomised rat. G. Evans (*Endocrinol.*, 1941, **29**, 737—739).—On the 3rd day after adrenalectomy renal vessels of rats were tied and 75 mg. per 100 g. body-wt. of *dl*-alanine, two thirds neutralised, was injected intravenously. Up to 90 min. thereafter blood-amino-acid-N, -amino-N, and -urea-N did not differ significantly from those of controls. V. J. W.

Effect of adrenalectomy on carbohydrate metabolism. G. Evans (*Endocrinol.*, 1941, **29**, 731—736).—Adrenalectomised rats (on NaCl maintenance) compared with controls lose more carbohydrate in early hours of fasting and store less glycogen after intravenous glucose or glucose + insulin. Ther intravenous glucose tolerance is normal. V. J. W.

Adrenal cortex. A. B. Corkhill (*Med. J. Austral.*, 1941, II, 324—326).—A review with reference to relationship to carbohydrate metabolism and traumatic shock. F. S.

Adrenal cortex in relation to virilism. N. Mintz and S. H. Geist (*J. clin. Endocrinol.*, 1941, **1**, 316—326).—Details are given of 6 cases of adrenocortical syndrome with carcinoma of the adrenal, of 2 cases of adenoma of the adrenal, of 1 case with symptoms of virilism in which the only lesion found was hæmorrhage in the adrenal, and of 1 case clinically suggestive of pituitary lesion in which the virilism symptoms were alleviated by *X*-irradiation of the pituitary. P. C. W.

Deoxycorticosterone is the adrenal cortex hormone. F. Verzár (*Schweiz. med. Wschr.*, 1941, **71**, 358—360).—Cats survived double adrenalectomy indefinitely if treated with daily injections of 10 mg. of deoxycorticosterone acetate; this dose can be reduced some weeks after the operation to 1 mg. per kg. body-wt. The animals gain wt. and are normal in all respects. Deficiency crises can be produced at will by withholding the hormone; the first symptoms then appear in 1—2 days; the animals recover if treated with 10—20 mg. of the hormone per day. There is no evidence to assume separate adrenal hormones regulating salt, water, and carbohydrate metabolism. A. S.

Effects of adrenalectomy and deoxycorticosterone substitution therapy on castrated rat prostate. E. Howard (*Endocrinol.*, 1941, **29**, 746—754).—In rats castrated at 3 weeks of age there has been shown to be some maintenance of prostate and vesicles (A., 1939, III, 42; 1940, III, 126). This maintenance does not occur if the animal is adrenalectomised, even though its growth rate is maintained by deoxycorticosterone. V. J. W.

Effect of deoxycorticosterone acetate and blood serum transfusions on circulation of dog. W. W. Swingle, W. M. Parkins, and J. W. Remington (*Amer. J. Physiol.*, 1941, **134**, 503—512).—Potent adrenal cortical extracts do not raise blood pressure above normal levels in intact or adrenalectomised dogs. Deoxycorticosterone acetate causes a persistent rise above normal of both blood pressure and plasma vol. of the adrenalectomised dog; the maintenance dose of the acetate was 0·25—0·5 mg. per dog per day. Transfusion of serum of normal into other normal and adrenalectomised dogs (on maintenance doses of cortical extract or the acetate) does not induce any symptoms. Adrenalectomised dogs transfused without extract or the acetate therapy show circulatory collapse accompanied by œdema. Injection of extract causes disappearance of œdema, the blood pressure rises to normal slowly, and all symptoms disappear. Adrenalectomised dogs with lowered blood pressure can be transfused with serum without circulatory embarrassment or œdema if given cortical extract or deoxycorticosterone acetate before transfusion. It appears that the permeability of the capillaries is markedly increased in the adrenalectomised dog not receiving extract and that cortical hormones restore the permeability of these vessels to normal. M. W. G.

Efficacy of deoxycorticosterone acetate as replacement therapy in adrenalectomised dogs. J. W. Remington, W. M. Parkins, W. W. Swingle, and V. A. Drill (*Endocrinol.*, 1941, **29**, 740—745).—By use of this substance serum-electrolytes can be maintained within normal limits; blood-urea-N is lowered; body-wt. is raised; blood pressure is raised and blood-sugar lowered with occasional sudden hypoglycæmia. V. J. W.

Deoxycorticosterone acetate requirement of adrenalectomised dog. R. A. Cleghorn, J. L. A. Fowler, J. S. Wenzel, and A. P. W. Clarke (*Endocrinol.*, 1941, **29**, 535—544).—In 7 dogs the min. maintenance daily dose was 0·365 mg. when the diet contained 2% of NaCl, and 1·56 mg. when it contained 1% of NaCl. 3 of the dogs died under these conditions. V. J. W.

Production of glycosuria in normal rat by 17-hydroxy-11-dehydrocorticosterone. D. J. Ingle (*Endocrinol.*, 1941, **29**, 649—652).—Rats on a liquid high-carbohydrate diet, and receiving 5 mg. daily of this compound subcutaneously, developed hyperglycæmia, glycosuria, increased urinary non-protein-N, loss of wt., and atrophy of testes and thymus. V. J. W.

Chemical determinations of adreno-cortical hormones in heart muscle of rat. W. Raab (*Endocrinol.*, 1941, **29**, 564—573).—Adrenaline + cortical sterone content was determined by method already described (A., 1941, III, 348) and results are tabulated. It is increased by exercise, cooling, insulin, or strophanthin, and decreased by adrenalectomy. V. J. W.

Insulin concentration in blood of normal and depancreatised dogs. E. Gellhorn, J. Feldman, and A. Allen (*Endocrinol.*, 1941, **29**, 849—851).—Blood of normal fasting dogs contains 0·0001 unit of insulin per c.c. Blood of depancreatised dogs contains none. (For determination cf. A., 1941, III, 757.) V. J. W.

Survey of 155 deaths in diabetic patients. L. Zisserman (*J. clin. Endocrinol.*, 1941, **1**, 314—315).—There was no difference between the incidence of diabetes in Jews and non-Jews. The mortality among female diabetics was twice as frequent as among males. The primary causes of death were: gangrene of the leg (21%), myocardial degeneration (12%), cerebral vascular disease (10%), bronchopneumonia (10%), acute coronary occlusion (5%), lobar pneumonia (4·5%), diabetic coma (4%), and nephritis with uræmia (4%). Cholelithiasis was found at autopsy in 28% of cases compared with 11% in general medical deaths. P. C. W.

Stimulation of gonads associated with hyperinsulinism in an infant. M. C. Benner (*Arch. Path.*, 1941, **32**, 818—824).—In the case described there was histological evidence of gonadotropic stimulation as well as hyperfunction of the islands of Langerhans in an infant born to a diabetic woman. C. J. C. B.

Island hyperplasia in partly depancreatised rat. N. B. Friedman and A. Marble (*Endocrinol.*, 1941, **29**, 577—582).—In rats partly depancreatised at an age of 1 month proliferation of islet cells occurs, without any of the degenerative changes to be observed in dogs. Hyperplasia is not correlated with impairment of sugar tolerance. V. J. W.

Attenuation of insulin by adsorption. J. M. Johlin (*Endocrinol.*, 1941, **29**, 574—576).—Zn insulin shaken up with $CHCl_3$ in solution loses much of its activity for mice, rabbits, and dogs after 4 hr. although its effects are prolonged. After 24 hr. it loses all of its activity for dogs, though retaining some for mice and rabbits. V. J. W.

Changes in insulin tolerance and body-weight during insulin shock treatment in schizophrenics. P. Plattner (*Z. ges. Neurol. Psychiat.*, 1939, **166**, 136—148).—In 87 cases increased insulin sensitivity developed mainly when insulin tolerance was initially high and when treatment was given for a long period. In these cases epileptic fits were more frequent and the result of the treatment was less frequently satisfactory than in cases showing gradual increase in tolerance. In amenorrhœic women increase in tolerance was common but without prognostic significance. In 100 cases treated for at least 5 weeks, mental improvement at the end of the treatment seemed correlated to increase in body-wt. during its course. H. L.

Formation of lanthionine on treatment of insulin with dilute alkali. V. du Vigneaud, G. B. Brown, and R. W. Bonsnes (*J. Biol. Chem.*, 1941, **141**, 707—708).—Amorphous insulin and 2% aq. Na_2CO_3 at 100°, or 0·03N-NaOH at 38°, give about 90% destruction of cystine, and hydrolysis (HCl) affords *meso*-lanthionine. A. T. P.

Tumour of pituitary stalk. T. Oda (*Gann*, 1941, **35**, 353—357).—Case in a woman of 33. E. B.

Clinical experience of *X*-irradiation of hypophysis. H. Fujimoro and K. Nizuno (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 6—10).—

X-Irradiation of the hypophysis (2 doses of 150—200 r. at an interval of 2—3 weeks) produced satisfactory clinical effects in 83% of 126 cases of amenorrhœa, in 85% of 54 cases of dysmenorrhœa, in 45% of 11 cases of metropathia hæmorrhagica, in 68% of 92 cases of menopausal symptoms, and in 21% of 28 cases with faulty milk secretion. P. C. W.

Hormonal action of toad hypophysis on mammals. V. G. Foglia (*Endocrinol.*, 1941, **29**, 503—513).—The anterior pituitary of *Bufo arenarum* contains hormones affecting mammals in the following order of decreasing intensity: diabetogenic, growth, thyrotropic, adrenotropic, those causing increased wt. of thymus and spleen, and prolactin. Gonadotropin is absent. The neuro-intermediary lobe contains hormones for growth and trophic hormones for adrenal and spleen, but not for gonads. V. J. W.

Effects of pituitary implants on organ weights of starved and underfed rats. M. G. Mulinos and L. Pomerantz (*Endocrinol.*, 1941, **29**, 558—563).—In underfed rats, weighing originally about 200 g., these implants from rats caused decrease in thymus wt. provided that the gonads were present, but no change in thyroid or spleen. Ovaries, testes, and accessory sex organs were increased. In normal rats œstrous cycles ceased; in underfed rats vaginal smears became cyclical instead of anœstrous; in starved rats there followed continuous œstrus. In normal rats the adrenals were unaltered; in underfed ones they increased in wt., and in starvation they increased beyond normal limits. V. J. W.

Histology and physiology of pituitary of rats treated with progesterone. E. Cutuly (*Endocrinol.*, 1941, **29**, 695—701).—Daily injections of 0·5—3 mg. did not prevent castration changes in the pituitary. In parabiotic pairs, one rat being castrated and the other hypophysectomised, the stimulant effect of castration on the pituitary causing gonadotropin output was slightly inhibited by daily injections of 3—6 mg. of progesterone so that less gonadal growth occurred. Tubular and interstitial elements of the testis were always modified equally. V. J. W.

Experimental goitre. II. Changes in anterior pituitary of rat, produced by brassica seed diet. W. E. Griesbach. **III. Effect of goitrogenic diet on hypophysectomised rats.** W. E. Griesbach, T. H. Kennedy, and H. D. Purves (*Brit. J. exp. Path.*, 1941, **22**, 245—249, 249—254; cf. A., 1942, III, 306).—II. The changes consist of a rapid increase in basophil cells with hyalinisation, vacuolation, formation of "signet ring" cells, and a numerous loss of acidophils. After the max. change at 56 days there is a return to a more normal appearance coinciding with a reappearance of colloid in the hyperplastic thyroids. The results are consistent with the hypothesis that the basophils are the source of thyrotropic hormone. (18 photomicrographs.)

IV. Rape seed diet produced no activation of the thyroid in completely hypophysectomised rats, and thyroid hyperplasia, previously produced, rapidly regressed after hypophysectomy despite the continued administration of the diet. The active goitrogenic principle of brassica seeds therefore requires the mediation of thyrotropic hormone which, it is suggested, is secreted in abnormal amounts by the pituitary. (4 photomicrographs.) F. S.

Relation of thyroid and pituitary to iodine metabolism. A. Chapman (*Endocrinol.*, 1941, **29**, 680—685).—In normal and hypophysectomised rats on a low-I diet the thyroid hypertrophies, showing increase of wt. and vascularity with increased height of epithelium. No differences were seen in the two groups. V. J. W.

Effect of thyroid and thyrotropic hormones on oxygen consumption of thyroid of guinea-pig. C. Galli-Mainini (*Endocrinol.*, 1941, **29**, 674—679).—Slices of guinea-pig thyroid were immersed in human serum in a Warburg apparatus. O_2 consumption is increased by addition of thyrotropic hormone and reduced by thyroid hormone, which can abolish the thyrotropic hormone effect if present in adequate amount. V. J. W.

Strain difference in responsiveness of chick thyroid to thyrotropin, and a step-wise increase during three years in thyroid weights of Carneau pigeons. R. W. Bates, O. Riddle, and E. L. Lahr (*Endocrinol.*, 1941, **29**, 492—497).—2 different strains of White Leghorn chicks showed a 4-fold difference in their responses to thyrotropic hormone. In a strain of pigeons observed from 1936 to 1941, the thyroid at 7—8 weeks of age increased in average wt. from 40 to 179 mg. and wts. in winter were about double those in summer, so that these birds are not suitable for assay. V. J. W.

Detection of thyrotropin in urine. P. Bastenie (*Arch. int. Méd. exp.*, 1939, **14**, 111—122).—Urine after concn. to 1/10th vol. and having been extracted with ether to remove sex hormones was injected daily for 3 days (2 ml. per day) into guinea-pigs. Colchicine (25 μg. per 30 g. body-wt.) was injected on the 4th day and the no. of mitoses in the thyroid estimated 9 hr. later. The no. was increased with the urine from 5 cases of myxœdema but not with that from treated cases of myxœdema, hypothyroidism of pituitary origin, or other control conditions. P. C. W.

Effect of pituitary and thyroid on growth of rats. E. Laqueur, E. Dingemanse, and J. Freud (*Schweiz. med. Wschr.*, 1941, **71**, 355—358).—Thyroid extracts (thyranon pro injectionem) promote growth in hypophysectomised mice which is not less than that effected by growth-promoting anterior pituitary extracts (crescormon). Growth of thyroidectomised mice after treatment with pituitary extracts is less than after thyroid extracts. Slight growth was observed when thyroidectomised–hypophysectomised animals were treated with crescormon and thyranon. Tail length and body-wt. changes and histological examination of the tail vertebræ were the criteria of growth. A. S.

Cretinism. Lack of response to anterior pituitary growth hormone. E. E. Beard (*J. clin. Endocrinol.*, 1941, **1**, 293—296).—The effects on a 16-year-old female cretin of anterior pituitary growth extract, of thyroid, or of combining the 2 treatments are described. The anterior pituitary treatment did not affect height, wt., skeletal development, or serum-cholesterol nor did it increase the effects of thyroid medication. P. C. W.

Metabolic changes by anterior pituitary extracts in primary-pituitary and non-pituitary dwarfs. J. A. Greene and G. W. Johnston (*J. clin. Endocrinol.*, 1941, **1**, 327—330).—3 pituitary dwarfs and 3 patients dwarfed secondary to non-pituitary diseases were treated with pituitary growth hormone (30 r.u. of "Antuitrin-G" every other day for 30 days followed by 30 r.u. twice weekly). In the majority of cases there was at first a loss of N, S, Ca, and F followed later by retention. There was no relation between retention and growth effect. There were no consistent changes in serum-Ca, -P, or -phosphatase, basal O_2 consumption, or glucose tolerance. Additional thyroid therapy initiated growth in 2 cases and led to diminished glucose tolerance in 1 case. P. C. W.

Hypophysis–diencephalon system and carbohydrate metabolism. J. Kosakae and S. Sakaguti (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 42—43).—Destruction of the hypophysis in the rabbit caused a fall in blood-sugar and increased insulin sensitivity. Injury of the tuber cinerium produced a rise in blood-sugar. P. C. W.

Annual variation in response of crop-sacs and viscera of pigeons to prolactin. R. W. Bates and O. Riddle (*Endocrinol.*, 1941, **29**, 702—709).—Crop-sac wt. increase produced by 2 mg. of prolactin varies markedly with the season. It is max. from January to March and falls during April and May, rising again to a smaller max. during summer and falling to a second min. in October and November. This may cause a 3-fold error in assay. Injected pigeons showed increases of 4% in body-wt., 26% in the pancreas, 29% in the liver, and 36% in the intestine. Testes, thyroid, adrenals, and heart were not affected. V. J. W.

Effect of thyroid glands on function of gonadotropic hormone. O. Matumoto (*Japan. J. Obstet. Gynec.*, 1940, **23**, 170—171).—Thyroidectomy was performed in mature and immature rabbits. One ovary was removed 30, 60, 90, or 120 days after the operation and 1 day later chorionic gonadotropin injected. In the mature animals 30 days after operation the gonadotropic response was increased but in the later groups it was diminished or absent. In the immature rabbits the max. response was obtained in the 60-day group but after the response was also small. Thyroid injections did not prevent this decreased response. P. C. W.

Effect of pituitary gonadoptropin on capillaries of menopausal women. E. Yogo (*Japan. J. Obstet. Gynec.*, 1940, **23**, 175).—In some cases the capillary blood flow under the nails became more steady, in others more unsteady. Dosage was 100 r.u. per day for 10 days. P. C. W.

Assay of melanophore-dispersing hormone during development of chick pituitary. H. Rahn and G. A. Drager (*Endocrinol.*, 1941, **29**, 725—730).—Anterior pituitary extracts of chick embryos were assayed on hypophysectomised *Anolis* lizards. The hormone first appears at the 5th day and increase per unit vol. is greatest during the 2nd half of incubation, reaching max. concn. at hatching. V. J. W.

XII.—REPRODUCTION.

Egg-laying of ducks as enforced relaxation oscillation. H. Kalmus (*Nature*, 1941, **148**, 626—627).—A duck's egg-laying activity combines a sinoidal 24-hr. rhythm with a relaxation oscillation. The eggs of a clutch decrease in wt., more rapidly when there is a pause between clutches. More and heavier eggs are laid as the year progresses to summer. Egg production by ducks bears a close formal resemblance to electrophysiological phenomena, such as heart and muscle action, and to related biorhythmic processes. E. R. S.

Oogenesis in mice and starlings. W. S. Bullough and H. F. Gibbs (*Nature*, 1941, **148**, 439—440).—A very sharp peak in the mitotic activity of the germinal epithelia of mice is characteristic of the period immediately following ovulation; there are also slight increases in the no. of mitoses in pre-ovulation œstrus and metœstrus. There is a sharp peak in the mitotic activity of the germinal epithelia of starlings in early May, and a less sharp peak in early June (in birds older than 2 years), and these peaks correspond with immediate post-ovulation period. In this respect max. mitoses in germinal

epithelia during limited periods) the short reproductive cycle of the polyœstrous mammal is comparable with the yearly cycle of the bird. It is probable that mitosis is stimulated by a hormone, which has a max. effect during the post-ovulation period. E. R. S.

Start of sex cycle in rats. K. Sakanoue (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 26—27).—The average wt. at which œstrus first appeared in 52 rats was 98 g. 69% had regular cycles, 6% had irregular cycles which became regular, and 19% had irregular cycles throughout (average wt. at first œstrus in latter group was 111 g.); 8% did not develop œstrus. P. C. W.

Activities of Food and Drug Administration in field of sex hormones. J. M. Curtis and E. Witt (*J. clin. Endocrinol.*, 1941, **1**, 363—365).—The activities of the Food and Drug Administration are described in testing manufacturers' claims for the activities of œstrogens, progesterone, and gonadotropins bought through the ordinary channels. P. C. W.

Statistical study of true corpus luteum. S. Yokoyama (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 31—32).—The no. of true corpora lutea corresponded with the no. of fœtuses in 40 of 60 pregnant rabbits examined. In the other 20 rabbits the majority had more true corpora than fœtuses. P. C. W.

Normal ovarian function in case of cystic Reclus' disease [of breasts]. P. Mocquot, R. Moricard, and J. Mathey (*Ann. d'Endocrinol.*, 1939—40, **1**, 423—427).—Uterine biopsies in a typical case of Reclus' disease showed no evidence of hypersecretion of œstrogen. P. C. W.

Determination of œstrogenic hormones in urine. T. Koller and F. Leuthardt (*Schweiz. med. Wschr.*, 1941, **71**, 362—363).—The œstrogenic effect of putrefying pregnancy urine increases from 670 to 6700 rat units per l. within 53 days. 1 rat unit using the Allen–Doisy test on the adult ovariectomised animal is equiv. to 1·5 μg. of œstrone, 0·2 μg. of œstradiol, or 3—4 μg. of œstriol. Urinary hormone excretion during the last months of human pregnancy is most marked in an afternoon or evening sample. Hormone concn. and sp. gr. of urine run parallel. A. S.

Metaplasia of uterine epithelium produced in rats by prolonged administration of œstrin. C. S. McEuen (*Amer. J. Cancer*, 1936, **27**, 91—94).—Intrauterine or subcutaneous injection of a solution of œstrone in oil frequently causes squamous metaplasia of uterine epithelium in castrated female rats. No such metaplasia occurs after direct application of coal tar, dibenzanthracene, or pregnanediol. Metaplasia of the sex-gland epithelium in male rats is not produced by injection or direct application of œstrone. CH. ABS. (*el*)

Œstrogen treatment in female eunuchoid. M. A. Goldzieher and M. S. Adler (*J. clin. Endocrinol.*, 1941, **1**, 349—351).—A successful case is recorded. P. C. W.

Recurring ulcerative stomatitis and vulvitis successfully treated by œstrogen administration. V. Moseley (*J. clin. Endocrinol.*, 1941, **1**, 346—348).—Oral œstrogen therapy (œstriol glucuronide) was successful in a case where other methods of treatment had failed. P. C. W.

Side reactions of stilbœstrol. M. Itoh and N. Kasiwabara (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 24—25).—Subcutaneous implantation of stilbœstrol tablets (20 mg. + 30 mg.) in capons resulted in temporary blindness and nervous symptoms 2 months later. At autopsy blood clots were found in the vermis of the cerebellum and hæmorrhage in the thyroid. Similar symptoms and autopsy findings were recorded in 2 of 3 birds. P. C. W.

Influence of synthetic œstrogen (triphenylethylene) on growth and egg-laying capacity of poultry. A. Schönberg and A. Ghoneim (*Nature*, 1941, **148**, 468—469).—The mean wt. of 25 white native (Baladi) hens receiving 0·7 g. of triphenylethylene each (added to the ration in aliquots 3 times a week for 4 weeks in March–April) was increased by 74% over 15 months. 26 similar hens, of the same initial mean wt. (939 g.) and age (4 months and 10 days), served as controls and the mean wt. increased by 64% over 15 months. Egg wt. and no. of eggs were practically the same for both groups. Mean wt. of male turkey chicks was unaffected by 3·9 g.; that of female chicks was increased by 310% by 2·73 g. of triphenylethylene during 6 months; control females showed an increase of 245%. E. R. S.

Indications, clinical use, and toxicity of 4 : 4′-dihydroxydiethylstilbene. M. E. Davis and M. W. Boynton (*J. clin. Endocrinol.*, 1941, **1**, 339—345).—The results of diethylstilbœstrol therapy in over 600 patients observed for 6—21 months are summarised. No injury was found in the liver examined at post-mortem in 3 cases of malignancy treated with large doses nor was there any abnormal change in the icteric index in 56 patients receiving 30—625 mg. Blood studies on 301 patients showed no change in white cell count but the hæmoglobin was significantly altered in 186; it was increased in 137 and decreased in 49. Transient nausea and vomiting occurred in 15% of patients but was severe or persistent in only 19 cases. No dermatitis or neurological symptoms were noted. 1 mg. per day gradually reduced over a year to 0·5 mg. twice weekly is the recommended dosage for menopausal patients. 0·5 mg. in vaginal suppositories daily for 6—8 weeks cured post-menopausal vaginitis but the response to therapy in cases of chronic atrophic dermatitis was disappointing. Marked pigmentation of the areolæ and nipples occurred in a case of primary amenorrhœa treated with 1 mg. daily for 18 months. Lactation was suppressed by 5 mg. daily for 8—10 days without any side effects. The compound is effective in selected cases of dysmenorrhœa with infantile genitalia. P. C. W.

Effect of stilbœstrol on sex differentiation in toads. J. P. Chu (*Chinese J. Physiol.*, 1941, **16**, 285—290).—Toads, two months after metamorphosis, were injected with 160 μg. of œstradiol benzoate or stilbœstrol over 25 days. The sex ratios were: controls, 11 ♀, 15 ♂, 1 uncertain; stilbœstrol, 4 ♀, 1 ♂, 2 intersexes, 1 uncertain; œstradiol, 3 ♀, 2 ♂, 4 intersexes, 1 uncertain. N. H.

Synthesis of four homologues of equilenin.—See A., 1942, II, 104.

Co-operative action of anterior pituitary hormone and follicular hormone. J. Kosakae and K. Sakanoue (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 40—41).—The increases in uterine wt. in castrate rats are compared when œstrone (1—50 μg.) is administered percutaneously or subcutaneously either alone or when combined with anterior pituitary hormone ("præhormone"). P. C. W.

Effect of ultra-violet rays on follicular hormone. S. Ito (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 1, 6—15).—The biological activity of œstrone is abolished by ultra-violet irradiation and the decrease is paralleled by the decrease in the colour developed with H_2SO_4 (Kober's test). The selective absorption bands of œstrone (280—285 mμ.) also disappear under this treatment. The λ of the ultra-violet light was 290 mμ. and the carbonyl group is the part of the mol. affected. P. C. W.

Transport of ovum through Fallopian tube. E. Anderes (*Schweiz. med. Wschr.*, 1941, **71**, 364—366).—Strong peristaltic waves move the contents of the tube from the uterus towards the ampulla. During salpingography the opaque substance is never shifted towards the uterus. The tone of the tubal smooth muscle fibres is increased up to the time of rupture of the Graafian follicle; the tube relaxes under the influence of progesterone and the ovum is transported towards the uterus by the cilia. Maize granules were intraperitoneally injected into rabbits; animals treated with follicle hormone (ovocyclin) showed most of the granules in the tubes; those previously treated with corpus luteum hormone (lutocyclin) had no granules in the tubes, but many in the uterus. A. S.

Relation of vitamins-*A* and -*D* to erosion of cervix of uterus. M. Ohkusa (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 39—40).—Local application of the vitamins to the eroded cervix followed by caustic destruction of the eroded surface was successful in 20 of 23 cases. The treatments had to be repeated 17—29 times. P. C. W.

Epithelialisation of vaginal mucous membrane in [immature] rabbit. K. Honda (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 22—23).—Slight cornification of the infra-urethral part of the vaginal mucosa was noticed in the 7-day-old rabbit. The supra-urethral part of the mucosa showed slight mucus formation, and folding. These appearances were not so marked as in adult rabbits. P. C. W.

Epithelium of vaginal mucosa in castrate rabbit. K. Honda (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 23—24).—The effects of castration on the appearance of the vaginal mucosa in rabbits (cf. preceding abstract) were variable. There was not much effect for over a year in some cases. The supra-urethral part of the mucosa was most affected. P. C. W.

Simplified technique of hysterosalpingography. K. Hirata (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 30—31).—Satisfactory results were obtained using a 30-ml. rectal syringe. P. C. W.

Hysterosalpingography. III. Morphological changes produced in rabbit uterus injected with iodised oil. IV. Effects on pelvic cavity. V. Injection of iodised oil intravenously. VI. Summary. VII. Effect on the blood. Y. Hukata (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 1, 24—25, 26, 27—28, 28—29, 30—32; cf. A., 1941, III, 1011).—III. Iodised oil had no effect normally when injected into the uterus of rabbits. It increased the œdema of the uterus produced by ligation.

IV. When iodised oil was injected intra-abdominally adhesions of the uterus occasionally developed.

V. Iodised oil injected into inflamed or damaged uteri did not penetrate into the veins; it did in relaxed uteri. Intravenous injection of 0·5—0·75 ml. of iodised oil (40% "mohiodol") was harmless but 2 ml. were fatal.

VII. Increase in the sedimentation rate was greater when iodised oil was injected into the abdominal cavity and uterus at laparotomy than when laparotomy alone was performed; the increases in erythrocytes, hæmoglobin, and pseudo-eosinophils and decreases in lymphocytes, eosinophils, and basophil leucocytes were also greater. P. C. W.

Fibroid tumours of uterus. N. P. Mahfous and I. Magdi (*J. Obstet. Gynæc.*, 1941, **48**, 293—322).—A review of the literature and of the results of 931 cases treated by myomectomy and hysteromyomectomy. Total mortality was 2·5%. P. C. W.

Chronic cornual disease : symptomatology and pathology. J. R. Goodall and J. E. Ayre (*J. Obstet. Gynæc.*, 1941, **48**, 73—77).—4 cases are described with abdominal pain becoming intense at menstruation; there was previous history of appendectomy in 2 cases and of operation for ectopic pregnancy in the other 2. Small necrotic tumours (not fibroids) were found in the uterus in each case. P. C. W.

Uterine fibroids. F. B. Block (*Amer. J. med. Sci.*, 1941, **202**, 902—913).—A review. C. J. C. B.

Potassium ion changes in rabbit uterus and Locke's solution. K. Hisamoto (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 29—30).—Excised portions of rabbit uterus were placed at 0° in Locke's solution containing different concns. of K. During the 1st hr. the K content of the uterus increased and slightly increased during the 2nd hr. At the 4th hr. the amount of K in the uterus decreased below its original val. P. C. W.

Case of retroperitoneal cyst containing ovarian remnants. S. Way (*J. Obstet. Gynæc.*, 1940, **47**, 553—556).—No menopausal symptoms (apart from cessation of menstruation) had occurred after a previous radical hysterectomy but were experienced after the removal of the cyst at the present operation. The cyst contained ovarian tissue with intact blood supply. P. C. W.

Substances affecting histidine reaction [for pregnancy]. Y. Asitaka, H. Hudii, and M. Matuyama (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 27—28).—The Kapeller-Adler histidine reaction for pregnancy urine is weak in vitamin-*B* or -*C* deficiency, and is strengthened by administration of the vitamins. The reaction is intensified by administration of histidine, anterior pituitary hormone, or progesterone. Following santonin administration the colour development is confused but the two colours developed can be distinguished by making the urine alkaline. Substances of the quinine group develop a green colour. P. C. W.

Comparison of efficiency of methods of diagnosing equine pregnancy, with special reference to mucin test. F. T. Day and W. C. Miller (*Vet. Rec.*, 1940, **52**, 711—716).—The mucin test consists in the examination of stained smears of vaginal mucus of mares for globules of mucous secretion, " pregnancy cells " (columnar cells from the cervix), and staining intensity of the mucin. The test was carried out 765 times on 545 mares in various stages of pregnancy and the results indicate that it is of wider application than the examination of serum for gonadotrophic hormone (useful between 40 and 120 days after service) or of urine for œstrogens (useful from 120 days until towards the end of pregnancy). The mucin test gave positive results as early as 20 days after service and was most effective at about the 80th day. E. G. W.

Successive injection of pregnancy urine and ovarian reaction. K. Honda (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 1, 19).—Many successive injections of small doses of pregnancy urine in rabbits (0·1—0·2 rabbit units) abolish the ovarian reaction to subsequent injections of large amounts (600 rabbit units), owing to the production of antihormone. Antihormone is also produced in castrate rabbits. P. C. W.

Effect of vitamin-B_2 deficiency on pregnancy. K. Tokuhisa (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 40).—Vitamin-B_2 deficiency resulted in abortion in rats. P. C. W.

Effect of eclamptic blood on kidney and liver of rabbit. K. Kubo and T. Kikuti (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 29).—Citrated blood from eclamptic patients was injected intraperitoneally in rabbits. No albuminuria developed but there was necrosis of the kidneys with cloudy swelling of the tubules; some of the liver nuclei were unstained. P. C. W.

Histidine metabolism in normal and toxæmic pregnancy. Urinary excretion of histidine in normal and toxæmic pregnancy. R. Kapeller-Adler (*J. Obstet. Gynæc.*, 1941, **48**, 141—154).—57 women with toxæmic symptoms ranging from hyperemesis gravidarum to severe pre-eclamptic toxæmia were examined for the presence of histidine in the urine. The normal excretion of 15—50 mg.-% was not affected in mild pre-eclampsia, was diminished in serious pre-eclampsia, and was absent or only present in traces in severe cases. P. C. W.

Significance of isolation of histamine from urine in toxæmia of pregnancy. R. Kapeller-Adler (*J. Obstet. Gynæc.*, 1941, **48**, 155—160; cf. A., 1941, III, 359).—Histamine was isolated from the urine of 4 cases of pre-eclamptic toxæmia but not from the urine of normally pregnant women. P. C. W.

Case of late post-partum eclampsia. E. M. Whapham and J. S. Hogg (*J. Obstet. Gynæc.*, 1941, **48**, 249—250).—A case is reported in which an eclamptic fit occurred 17 days post-partum. P. C. W.

Effect of urinary fistula on fertility in rabbit. T. Ogura (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 34).—Fertilisation, nidation, and fœtal development were hindered in rabbits with urogenital fistula. P. C. W.

Relation between supernumerary breasts and labour. T. Shinkai, M. Ohgusa, and Y. Miyasaki (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 34—35).—Sterility among 1500 women was twice as frequent among those with normal breasts as among those with supernumerary breasts. P. C. W.

Uroselectan *B* as method of inducing labour. P. L. Playfair (*J. Obstet. Gynæc.*, 1941, **48**, 41—59).—Intra-amniotic injection of 10 ml. of Uroselectan *B* successfully induced labour in 96% of 115 patients. The corr. fœtal mortality was 3·6%. The % of positive results was greater than that with posterior pituitary therapy. Labour starts 30 hr. after the injection, which is given under local anæsthesia. P. C. W.

Treatment of double cryptorchid colt with chorionic gonadotrophin. D. L. O'Brien (*Vet. Rec.*, 1940, **52**, 733).—After 5 weekly doses of 500 r.u. of chorionic gonadotrophin (" antuitrin *S* ") both testicles of a yearling colt descended into the scrotum. E. G. W.

Decreased ovarian response to chorionic gonadotropin following hypophysectomy in mouse. A. Palmer and L. Fulton (*Nature*, 1941, **148**, 596).—Groups of 5 21-day-old mice were injected with 5 or 10 i.u. of chorionic gonadotropin and killed 96 hr. later. No corpora lutea were formed if the mice were hysterectomised one day before the injection and the œstrous response was less marked. P. C. W.

Rare case of malignant ectopic chorion epithelioma with corpus luteum cysts of both ovaries. K. Adachi (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 32). P. C. W.

Malignant chorionepithelioma with metastases in lung and brain. H. Izuka and K. Eguti (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 1, 47—48).—A case report. P. C. W.

Sterility. I. Investigation of spermatozoa in female genital tracts. H. Hori, K. Kawamoto, and I. Utiho (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 1, 2—5).—2500 examinations carried out on 1950 patients after intercourse showed motile spermatozoa commonly in the cervix and rarely in the vagina. Motile spermatozoa were found in the vagina up to 37 hr. after intercourse and in the cervix up to 10—30 days in 5 cases and up to 3 days in 20% of cases. P. C. W.

Normal menopause. H. C. McLaren (*J. Obstet. Gynæc.*, 1941, **48**, 1—22).—The physiology and anatomy of the genital tract were examined in 74 menopausal patients. 50% had flushing before the menopause and it was marked in 9%; flushing was severe in only 16% of cases after the menopause. Atrophy of the genitalia was variable but was more marked in the older patients. Vaginal atrophy preceded atrophy of the external genitalia. Vaginal p_H is usually alkaline but there are exceptions (4 of 50 patients had a p_H of 4·9). Pure growth of Döderlein's bacilli was found in 28% of cases. The vaginal smear showed normal grade III smears (predominance of squamous cells) in 78% of cases and biopsy of the vaginal mucosa gave normal results in 65%. Glycogen was present in all the vaginal sections examined. P. C. W.

Induced menopause. H. C. McLaren (*J. Obstet. Gynæc.*, 1941, **48**, 23—40).—214 patients in whom the menopause was induced by Ra or surgery were examined. Flushing affected half the cases and was more frequent than in the normal menopause. Stenosis of the upper vagina was common in the Ra group. Atrophy of the vaginal mucosa was present in 14% of the Ra group, 28% of the castrate group, and in only 3% of the cases in which hysterectomy was performed leaving ovarian tissue *in situ*. There was no relation between the severity of the menopausal symptoms and the type of vaginal smear or mucosa. P. C. W.

Placental blood in amenorrhœa. J. Halbrecht (*Lancet*, 1941, **241**, 630).—18 of 34 patients with amenorrhœa lasting 4 months—15 years menstruated 5—35 days after intravenous transfusions of placental blood or plasma. 6 of 11 patients with atrophy of the endometrium had normal endometrium after 5—6 intravenous transfusions of 150—200 c.c. of placental blood or plasma. These results suggest that placental blood is rich in gonadotropic substances. C. A. K.

Control of placental function. A. St. G. Huggett (*Schweiz. med. Wschr.*, 1941, **71**, 363—364).—A review. A. S.

Bovine sterility. S. L. Hignett (*Vet. Rec.*, 1940, **52**, 361—368).—A general account of sterility in dairy herds. Endometritis is the most common cause; the second in order of importance is ovarian derangements. E. G. W.

Collection of semen and artificial insemination in bovines. S. L. Hignett (*Vet. Rec.*, 1940, **52**, 571—575).—A detailed description of the technique, with illustrations. E. G. W.

Stallion and fertility ; technique of sperm collection and insemination. F. T. Day (*Vet. Rec.*, 1940, **52**, 597—602).—A detailed description of the technique. Details are given in tabular form of the ejaculate of 5 stallions and their fertility record. The use of the artificial vagina was uniformly successful. Fertility of the stallion was good when the total sperm count in the ejaculate was 4000—10,000 million, the sperm active, and the interval between services 6 hr.—1 week. Fertility declined when the no. of sperm fell to 2000 million. The amount of vesicular fluid present in the ejaculate was variable. Sperm can live in the reproductive tract of the mare for

longer than 72 hr.; 2 of 3 mares mated at this interval before ovulation became pregnant. E. C. W.

Effect of progesterone on normal human menstrual cycle. J. Gillman (*J. clin. Endocrinol.*, 1941, **1**, 331—338).—10—15 mg. of progesterone given in a single dose on the 8th day of the cycle or in divided doses on the 8th and 10th days of the cycle did not upset the menstrual cycle in 4 normal women. 20 mg. injected on the 8th day caused bleeding 48 hr. later, followed by a second bleeding at the normal time in 1 woman; it lengthened the cycle by 11 days in another woman. 4 women were given 10 mg. on the 8th and 10th, 11th, or 12th days of the cycle; the cycle was lengthened in 2 cases; in 1 case there was premature bleeding 72 hr. after the second injection and in the other woman (injected on 8th and 12th days) there was no effect. 30 mg. injected in 3 doses on alternate days starting on the 8th or 9th day caused bleeding in 4 normal women 2—3 days after the last injection, followed by a cycle of normal length in 3 cases and by a second menstruation at the normally-expected time in the 4th woman. The results are discussed and compared with experimental findings in the baboon, which is more sensitive to progesterone. P. C. W.

Rate of excretion of urinary androgens after administration of testosterone by various routes. R. I. Dorfman and J. B. Hamilton (*J. clin. Endocrinol.*, 1941, **1**, 352—358).—The urinary androgen excretion following single oral and intramuscular (in oil) administrations of testosterone propionate (20—240 mg.) was compared in 2 castrate men. The intramuscular injection caused a more prolonged excretion and 20 mg. is the min. dose required to give androgen excretion similar to that in young adult men; the increase is sustained for up to 7 days with the larger doses with a temporary rise above the normal range. With subcutaneous implantation of 90- or 180-mg. tablets the urinary androgenic activity is similar though only the larger dose gave satisfactory clinical effects. With oral administration a rise in urinary androgens is found within 2 hr. but the major increase does not last more than 10 hr. and pre-treatment vals. were obtained after 48 hr. P. C. W.

Inhibitory effect of starvation on œstrus and effect of anterior pituitary hormone, glucose, and visible light. K. Menju (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 43).—Œstrous cycles were eventually inhibited by decreasing the food intake of female mice. Anterior pituitary hormone, glucose, and irradiation with red light caused sexual stimulation in such mice. P. C. W.

Treatment of unsatisfactory lactation by ultra-short waves. N. Hiramoto (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 37).—The secretion of milk was increased in 15 women treated by application of ultra-short waves to the breast and mid-brain (daily application for 3 days to the mid-brain for 5—7 min., and more often to the breasts). P. C. W.

Artificial induction of lactation in virgin animals. S. J. Folley and F. G. Young (*Nature*, 1941, **148**, 563—564).—In 2 goats, combined treatment with diethylstilbœstrol and anterior pituitary extract produced a much more intense lactation than with the former alone. Diethylstilbœstrol was given as 1·0 g. of 1% ointment thrice weekly by inunction of the udder; ox pituitary as 5 ml. of alkaline extract (= 1·25 g. of fresh tissue) every other day by subcutaneous injection. E. R. S.

Supposed occurrence of hydroxyglutamic acid in milk-proteins. B. H. Nicolet and L. A. Shinn (*J. Biol. Chem.*, 1942, **142**, 139—146; cf. A., 1941, III, 588).—Determinations by the HIO_4 method of the serine, threonine, and total hydroxyamino-acids in caseinogen, lactalbumin, and lactoglobulin show that these proteins very probably contain no β-hydroxyglutamic acid. This acid is only partly destroyed by treatment with acid as in protein hydrolysis and yields acetaldehyde only very slowly when treated as for threonine determination. Decomp. of carbohydrate possibly present in protein hydrolysates does not appreciably interfere with the determinations. β-Hydroxyglutamic acid has not yet been conclusively shown to occur in proteins. W. McC.

Testosterone propionate in acne vulgaris. I. D. Riley (*Brit. J. Dermat. Syph.*, 1939, **51**, 119—126).—20 male and female patients suffering from acne vulgaris were treated with 300 mg. of testosterone propionate over a period of 3 months. The condition improved. A. S.

Clinical effect of orally-used methyltestosterone in eunuchoidism. C. S. Byron and P. Katzen (*J. clin. Endocrinol.*, 1941, **1**, 359—362).—3 adult eunuchs and a male eunuchoid (15 years old) were treated with methyltestosterone by mouth. The treatment was effective in 3½ times the dose required with intramuscular injections of testosterone propionate. Continued therapy requires increasing dosage and is usually accompanied by gain in wt. and rise of basal metabolism. Breast tissue is stimulated. Given over 2½ years it had no effect on an incompletely fused radial epiphysis. P. C. W.

Concentration of ascorbic acid and phosphatases in secretions of male genital tract. O. C. Berg, C. Huggins, and C. V. Hodges (*Amer. J. Physiol.*, 1941, **133**, 74—81, 82—87).—Resting semen obtained without adventitious stimulation from dogs was compared with semen obtained following intravenous injection of 6 mg. of pilocarpine. Resting semen was 0·6 p_H more alkaline, and contained less CO_2 and Cl′ than stimulated semen. A reciprocal relationship was found in the concns. of phosphatases of acid and alkaline p_H optima in resting and stimulated semen. There was a decrease of alkaline phosphatase in resting semen and an increase of acid phosphatase activity in the greatly increased vol. produced by pilocarpine. The findings show that on pilocarpine stimulation, acid phosphatase is discharged from the epithelium of the prostate in greater amounts than from the unstimulated gland. Ascorbic acid was greatly increased in human and guinea-pig ejaculates compared with plasma. The increase is largely derived from the seminal vesicles. In guinea-pigs ejaculation by electric shock consisted in the emptying of preformed fluids of the genital excretory tract rather than active secretion. M. W. G.

Phospholipins as source of energy for motility of bull spermatozoa. H. A. Lardy and P. H. Phillips (*Amer. J. Physiol.*, 1941, **134**, 542—548).—Phospholipins from a variety of sources (purified lecithin, egg-, rat liver-, and crude soya-bean-phospholipins) maintained the motility of the bull spermatozoa in a sugar-free medium under aërobic conditions. The effect was not due to catalysis of sperm glycolysis. The rate and duration of O_2 consumption by spermatozoa in the presence of phospholipins were greatly increased. O_2 consumption of the spermatozoa in a medium containing glucose was not increased by the addition of lecithin. Spermatozoa thus call on oxidative processes as sources of energy for motility only when deprived of glycolysable sugars. As added phospholipin and intracellular reserves are similarly utilised by spermatozoa it appears that the intracellular reserves of the spermatozoa are phospholipin in nature. M. W. G.

XIII.—DIGESTIVE SYSTEM.

Submaxillary gland secretion of cats. J. H. Wills (*Amer. J. Physiol.*, 1941, **134**, 441—449).—Optimal frequency for electrical stimulation of the submaxillary glands of cats (dial) through the chorda tympani was 9 per sec. 3 hr. stimulation of the gland gave a series of changes in rate of secretion similar to changes of tension of muscle during long-continued stimulation. Pilocarpine gave a greater saliva flow for a given blood flow than did chorda stimulation; this may explain in part the exhaustion of the K content of the gland during pilocarpine secretion. K concn. of saliva increased markedly at rates of secretion below 0·03 ml. per min. M. W. G.

Effect of acetylsalicylic acid on gastric activity and modifying action of calcium gluconate and sodium bicarbonate. J. G. Schnedorf, W. B. Bradley, and A. C. Ivy (*Amer. J. digest. Dis. Nutr.*, 1936, **3**, 239—244).—In normal human subjects and normal dogs single oral doses (1—2 g.) of acetylsalicylic acid caused gastric retention and increased total titratable acidity of stomach contents. Addition of Ca gluconate increased retention and diminished rise in acidity; $NaHCO_3$ increased rate of gastric evacuation and decreased acidity of contents below that of controls. In dogs with pouches of the entire stomach, local application of acetylsalicylic acid caused increase in neutral Cl; addition of Ca gluconate and of $NaHCO_3$ only slightly increased the diluting secretion. None of the solutions significantly increased formation of HCl. Salicylates in large doses should be administered with $NaHCO_3$ and Ca gluconate. Ch. Abs. (*el*)

Influence of sodium salicylate on secretion of fundus glands. E. E. Tzvilichovskaja (*Vsesoy. Inst. Eksp. Med., K Neiro-Hum. Reg. Sekr. Shel.*, 1936, 237—253).—Addition of Na salicylate (7 g.) to a bread or meat meal fed to Pavlov pouch dogs increased gastric secretion as compared with response to the food alone. Oral administration (7 g.) 3 hr. before the meal decreased the vol. of secretion and duration of activity. Decrease in amount and duration of secretory activity, and of total acidity and free HCl, followed prolonged daily administration (5·25 g. before the morning meal) and persisted for a few days after its discontinuance. In a dog with spontaneous gastric secretion attributed to an ulcer in the Pavlov pouch the drug diminished secretion even when given with the meal. Pathological changes in the gastric mucosa were observed if 15—20% solutions of Na salicylate were administered, but not with the 7% solutions employed. Ch. Abs. (*el*)

Treatment of peptic ulcer by means of injections. C. A. Flood and C. R. Mullins (*Amer. J. digest. Dis. Nutr.*, 1936, **3**, 303—305).—In 8 of 12 patients with active duodenal ulcer, pain was relieved by daily injection of saline for 3 weeks. In 4 of 6 patients, daily injection of histidine hydrochloride relieved pain. The results are attributed to the psychotherapeutic val. of the injections. Ch. Abs. (*el*)

Incidence of hypertrophic pyloric stenosis. A. Wallgren (*Amer. J. Dis. Child.*, 1941, **62**, 751—756).—During 7 years in Göteburg, Sweden, 102 cases occurred; during the same period the annual no. of births varied between 2992 and 4288. 80% of the patients were boys. C. J. C. B.

Mucous membrane of stomach. Carbohydrate exchange. I. Kurtzin (*Nervno-Hum. Reg. Deyat. Pish. App. Chel.*, 1935, II, 117—127).—For the pig, cat, dog, and man vals. were, respectively: lactic acid (mg.-%): fundus 24, 24, 30, 70; pylorus 23, 25, 21, 81; cardia 24, —, 24, 95; lesser curvature 42, —, 37, 83; sugar (mg.-%): fundus 52, 130, 112, 65; pylorus 46, —, 112, 60; cardia 45, —, 100, 65; lesser curvature —, —, 103, 72. Increase in secretion induces greater formation of both sugar and lactic acid, except fundus-lactic acid which is lowered. Parallel investigations on the gastric juice of man and dog show that normal gastric juice contains (average) 3·6 mg.-% of lactic acid and 12 mg.-% of sugar. CH. ABS. (*el*)

Secretion-stimulating property of gastric mucus and juice. I. P. Razenkov, G. V. Derviz, and S. N. Stefanovitsch (*Vsesoy. Inst. Eksp. Med., K Neiro-Hum. Reg. Sekr. Shel.*, 1936, 47—90).—A substance which stimulates gastric secretion is present in gastric juice from a Pavlov pouch, and in gastric mucosa of a fasting dog. It is thermostable at p_H 3—4, but is rapidly destroyed at high p_H or when electrodialysed. CH. ABS. (*el*)

Bismuth carbonate in gastric disease. S. Alstead (*Lancet*, 1941, **241**, 420—423).—$(Bi_2O_2CO_3)_2,H_2O$ has a very feeble neutralising action against HCl; after adding excess to gastric juice *in vitro* the p_H was changed from 2·0 to 2·1. It is almost insol. in gastric juice and thus is not astringent. Clinical studies showed that it had negligible effects on free acid levels after test meals in normal subjects or ulcer patients, *X*-ray studies showed that it did not form any protective coating, and finally it was inefficient in relieving symptoms in contrast to $Mg(OH)_2$. C. A. K.

Pyloric stenosis in non-identical twins. F. T. O'Donnell and J. M. Klein (*Amer. J. Dis. Child.*, 1941, **62**, 1025—1029).—Case reports. C. J. C. B.

Intramural innervation of cat's stomach. B. M. Erez (*J. Méd. Ukraine*, 1940, **10**, 937—941). M. K.

Use of prostigmine for cardiospasm. J. Meyer and H. Necheles (*J. Lab. clin. Med.*, 1941, **27**, 162—168).—2 patients suffering from achalasia and dilatation of the œsophagus benefited from oral prostigmine. Tonus and peristaltic rate of the œsphagus were increased following intramuscular injection of 1 mg. of prostigmine or 1 c.c. of 1 : 2000 ergotamine. These results support the view that cardiospasm is due to diminished function of parasympathetic innervation. In anæsthetised dogs prostigmine also stimulates the œsophagus after atropine. C. J. C. B.

Secretinase in blood serum. H. Greengard, I. F. Stein, jun., and A. C. Ivy (*Amer. J. Physiol.*, 1941, **133**, 121—127).—A secretin solution was made up to the strength necessary for 0·5 c.c. to stimulate the pancreas to secrete 20—60 drops. Blood was withdrawn from anæsthetised dogs and incubated with the secretin solution in the vol. proportion of 9 to 1. Incubation with dog's whole blood, plasma, or serum inactivates secretin. Little destruction occurred after incubation with a suspension of washed corpuscles or with previously heated plasma or serum. There was slight destroying activity at 0°; it increased rapidly as the temp. increased, was max. at 37°, and disappeared at 60°. Extent of the action depended on time of incubation and amount of blood used. Secretin inactivation was effective only at p_H 5—8. The findings point to the existence of an enzymic mechanism of secretin destruction. Until the enzyme has been demonstrated to be sp. for a particular chemical group, it will be called secretinase. M. W. G.

Pancreatic juice of man. V. M. Vasijutotschkin and A. V. Drobintzeva (*Nervno-Hum. Reg. Deyat. Pish. App. Chel.*, 1935, 39—45).—Juice from a pancreatic fistula had p_H 7·8—8·4, alkali reserve 60—86 c.c. CO_2 per 100 c.c., Ca 4·1—18·4, P 1·8—3·8, Cl' 440—560, total N 243, uric acid 1·4, and urea 27—50 mg.-%. Introduction of HCl and NaH_2PO_4 into the duodenum did not affect p_H, which, however, was increased to 8·9 on introduction of $NaHCO_3$. The juice contained amylase, trypsin, lipase, lactase, and maltase in concn. dependent on the character of the diet. CH. ABS. (*el*)

Epidemic neonatal diarrhœa. I. Clinical aspect. G. Ormiston. **II. Bacteriological aspect.** N. Crowley, A. W. Downie, F. Fulton, and G. S. Wilson (*Lancet*, 1941, **241**, 588—594).—3 epidemics of neonatal diarrhœa occurred simultaneously in maternity hospitals in different parts of the country. There was no evidence to suggest that *Salmonella* or dysentery organisms were concerned or that toxins were formed from anaërobic bacilli in the intestine. The changes in fæcal flora were reduction in the no. of lactobacilli and an increase in coliform bacilli. The diarrhœa was attributed either to virus infection or to systemic infection. C. A. K.

Coprophagy in rabbit. E. L. Taylor (*Vet. Rec.*, 1940, **52**, 259—262).—The small, round, soft, mucus-coated food pellets commonly seen at the cardiac end of the stomach in rabbits are of fæcal origin. They are ingested directly from the anus and swallowed whole. Coprophagy probably takes place in tame rabbits during the early morning; in wild rabbits it probably occurs late in the day. The term "psuedo-rumination" is proposed for this form of coprophagy. E. G. W.

Reaction of stools and its relation to diseases of skin. R. Aitken (*Brit. J. Dermat. Syph.*, 1939, **51**, 13—17).—Subjects suffering from pruritus ani, chronic urticaria, and certain types of dermatitis had strongly alkaline stools. The disturbances disappeared on buttermilk and lactic acid medication, producing acid stools. A. S.

XIV.—LIVER AND BILE.

Case of ectopic liver tissue in newly born. D. A. Sanford (*J. Obstet. Gynæc.*, 1941, **48**, 246—248).—A growth at the fœtal end of the œdematous umbilical cord in a new-born child proved to consist of extrusion of the peritoneum and an extra-peritoneal tumour consisting of liver tissue. P. C. W.

Hepatic hæmorrhage in stillborn and new-born infants. J. L. Henderson (*J. Obstet. Gynæc.*, 1941, **48**, 377—388).—47 cases of hepatic hæmorrhage were collected from a series of 1312 post-mortem examinations on stillborn and new-born infants. Rupture of the liver with intraperitoneal hæmorrhage was found in 24 cases, unruptured subcapsular hæmatoma in 22 cases, and deep-seated laceration in 1 case. 20 cases had associated intracranial hæmorrhage. The deliveries of the mothers had been normal in only 3 of the cases. The outstanding clinical sign is development of severe anæmia in the first few days of life. Transfusion and operative intervention was successful in 1 case. Complicated labour is the chief pre-disposing cause, and external trauma and asphyxia are the main precipitating causes, of the condition. P. C. W.

Phosphatase of liver cells in normal rats and rats fed on a diet containing aminoazotoluene. H. Takamatsu and T. Otsuki (*Gann*, 1941, **5**, 283).—While normal rat liver cells give the Takamatsu histological reaction for phosphatase, liver cells from aminoazotoluene-fed rats do not. E. B.

Mechanism of hydrogen transport in animal tissues. IV. Succinic oxidase system. V. R. Potter (*J. Biol. Chem.*, 1941, **141**, 775—787).—The succinic oxidase system consists of three components, cytochrome oxidase (co-enzyme), cytochrome-*c*, and succinic dehydrogenase which acts as an intermediary between the first two. Cytochrome-*c* is 1900 times as effective as methylene-blue as H carrier in this system. If liver pulp (which oxidises succinate less rapidly than an intact-cell prep.) is supplemented with sufficient cytochrome-*c*, the ability to oxidise succinate is restored to the original level. The usual method of prep. of the system by adjustment of an aq. PO_4''' extract to p_H 4·5—4·6 leads to a loss of activity owing to damage to both cytochrome oxidase and succinic dehydrogenase by acid. P. G. M.

Fixation of carbon dioxide by pigeon liver in the dissimilation of pyruvic acid. H. G. Wood, C. H. Werkman, A. Hemingway, and A. O. Nier (*J. Biol. Chem.*, 1942, **142**, 31—45).—Fixation of CO_2 during dissimilation of pyruvic acid by pigeon liver occurs in the CO_2H groups of malic, fumaric, and succinic acids, in the CO_2H adjacent to the CO group of α-ketoglutaric acid, and in the CO_2H of lactic acid. In presence of malonate, aërobic production of succinate occurs without fixation of C. Formation of the C_4 dicarboxylic acids may occur by a reducing process involving fixation of C or by a modified Krebs cycle not involving citric acid. Fixation of C in lactic acid probably does not occur by 2- and 1-C addition. H. G. R.

Synthesis and breakdown of liver phospholipin *in vitro* with radioactive phosphorus as indicator. M. C. Fishler, A. Taurog, I. Perlman, and I. L. Chaikoff (*J. Biol. Chem.*, 1941, **141**, 809—818).—Liver slices can synthesise phospholipin from inorg. P, even in the presence of a net decrease in phospholipin. Homogenised liver is inactive. Liver slices also liberate labelled P from phospholipin. This is probably due to complete disruption of the mol. rather than to exchange with inorg. PO_4'''. R. L. E.

Prevention by choline of liver cirrhosis in rats on high-fat–low-protein diets. H. Blumberg and E. V. McCollum (*Science*, 1941, **93**, 598—599).—On diets of 55% and 70% fat, 10% casein, salt mixture, sucrose, and vitamin supplements (cod-liver oil, riboflavin, Ca pantothenate, thiamin, and pyridoxine hydrochlorides) rats developed cirrhosis in 125—150 and 100—140 days, respectively. Cirrhotic livers showed alteration of architectural pattern, considerable quantities of yellow pigment, and considerable necrosis in some. 25 mg. of cystine per rat per day did not but of *dl*-methionine did retard (not prevent) cirrhotic process, which was prevented by 10 mg. of choline hydrochloride per g. of diet (40—60 mg. per rat per day), either with or without the amino-acids. Cirrhosis was produced in 30 rats and prevented in a like no. E. R. S.

Fat metabolism after liver injury. Fatty acid utilisation by rats treated with carbon tetrachloride on diets which were fat-free or contained fats with high or low iodine values. I. C. Winter (*J. Biol. Chem.*, 1942, **142**, 17—24; cf. A., 1940, III, 851).—No difference is observed in the utilisation of fatty acid between normal and CCl_4-treated rats on a low-fat diet. On a stearate diet the reduction in utilisation of the treated animals is much greater than that of animals on a cod-liver oil diet. Fatty acid synthesis is not increased

by CCl_4 poisoning and the decreased utilisation of fatty acid following liver damage is due to a deficiency in non-essential unsaturated fatty acids. H. G. R.

Far ultra-violet spectrophotometric studies of fatty acids.—See A., 1942, I, 132.

Effect of visible light on liver of rabbit treated with carbon tetrachloride. S. Tomita (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 44—45).—Irradiation with red light of rabbits injected with CCl_4 hastened detoxication of the liver as indicated by excretion tests with 10% Na santoninate. P. C. W.

Study by colchicine method of liver cirrhosis produced by carbon tetrachloride. C. Cavallero (*Arch. int. Méd. exp.*, 1939, **14**, 1—14).—Colchicine (25 μg. per 40 g. body-wt.) was injected subcutaneously into adult male rats at various times after a single, or a series of daily, 30-min. inhalations of CCl_4. The rats were killed 9 hr. after the colchicine injection and examined histologically. The essential features of the cirrhosis are the destruction of hepatic lobules followed by new development of sclerous tissue and regeneration of some tissue. Necrosis and fibrous tissue formation are confined to the intralobular tissue and the mitotic stimulation which follows takes place in the parenchyma surrounding the necrotic areas. The portal interlobular tissue is not affected. Kidney, pancreas, spleen, and lymph glands are less affected than liver. P. C. W.

Pathology of acute yellow atrophy and delayed chloroform poisoning [in obstetrics]. H. L. Sheehan (*J. Obstet. Gynæc.*, 1940, **47**, 49—62).—The histology of the liver in 6 cases of obstetric acute yellow atrophy differs from that in true acute yellow atrophy. There was gross change affecting the entire lobule except for a layer of normal cells around the periphery. The fatty change observed is also distinct from that found in cases of vomiting in early or late pregnancy. 14 cases of delayed $CHCl_3$ poisoning are grouped into 3 types: 2 cases of isolated cell lesions in which individual hepatic cells are spherical, about twice the normal size and containing non-fatty cytoplasm with tiny pyknotic nuclei; 9 cases of mid-zonal necrosis; and 2 cases of central necrosis. In the last 2 groups all the cells in the affected area are necrosed. The patients in the 1st group were healthy but were given prolonged $CHCl_3$ anæsthesia during labour (3½ and 4 hr.); in the second group $CHCl_3$ was administered after prolonged labour (average 3¾ days); the third group consisted of patients with hyperemesis who aborted under $CHCl_3$ without previous intravenous glucose. The clinical course of the cases is described and the literature reviewed. P. C. W.

Necrosis of liver in hæmochromatosis. E. J. Kraus and M. P. Hunter (*Arch. Path.*, 1941, **32**, 989—994).—In a case of hæmochromatosis necrotic foci were found in the cirrhotic liver perhaps due to severe atherosclerotic lesions in small branches of the hepatic artery. (2 photomicrographs.) C. J. C. B.

Jaundice [in children]. R. McIntosh (*Canad. Med. Assoc. J.*, 1941, **45**, 488—495).—A lecture. C. J. C. B.

Comparison of three urobilinogen tests (Watson, Sparkman, and Wallace–Diamond methods) in urine in jaundice and diseases of the liver. F. W. White, A. P. Meiklejohn, E. Deutsch, and R. Kark (*Amer. J. digest. Dis.*, 1941, **8**, 346—353).—Good agreement between the 3 methods was found when afternoon specimens of urine were examined. This is because the excretion of urobilinogen increases after meals. The Watson method is the most sensitive, and the Sparkman method the least sp., of the three. N. F. M.

Acute hepatitis of alcoholism; clinical and laboratory study. H. B. Cates (*Ann. int. Med.*, 1941, **15**, 244—250).—40 bromosulphophthalein tests were made on 25 alcoholics (5 mg. per kg. body-wt. intravenously; blood was sampled after 30 min.). 14 patients retained 5% or more of the dye and were considered to suffer from disturbance of liver function. 1 patient retained 30%, 5 20%, and 8 5—16% of the dye. The functional test may be impaired when liver biopsy shows a normal histological picture and indicates mild toxic hepatitis. A. S.

Lymph drainage of gall-bladder; composition of liver lymph. J. D. McCarrell, S. Thayer, and C. H. Drinker (*Amer. J. Physiol.*, 1941, **133**, 79—81).—Experiments on cats (nembutal anæsthesia) showed that a free and extensive connexion exists between the gall-bladder and liver lymphatics. The 2 lymphs are identical in composition; injections of dil. solution of India ink into the liver substance are readily traced into the gall-bladder lymphatics. These facts have been also demonstrated for the rabbit, monkey, and dog. Protein content of serum and liver lymph is similar. M. W. G.

Fractional method of cholangiography. W. S. Altman (*Radiology*, 1941, **37**, 261—268). E. M. J.

Effect of anoxæmia and oxygen therapy on flow of bile and urine in nembutalised dog.—See A., 1942, III, 206.

Effect of small intestinal distension on bile and urine flow.—See A., 1942, III, 242.

Excretion in fowl bile of derivatives of carcinogenic and non-carcinogenic hydrocarbons.—See A., 1942, III, 251.

Toxicities and choleretic activities of certain bile salts. F. S. Grodins, A. L. Berman, and A. C. Ivy (*J. Lab. clin. Med.*, 1941, **27**, 181—186).—The toxic and choleretic properties of 7 bile salts were studied in the dog. Based on depressor and hæmolytic activity, dehydrocholate is the least, and *apo*cholate and deoxycholate are the most, toxic. Na dehydrocholate, oxidised cholic acid, and a keto-cholanic acid are the most effective choleretics, and least toxic; Na taurocholate is least effective. Deoxycholic acid is a poor choleretic and is toxic. C. J. C. B.

Simplified calculation and nomogram of Van Slyke urea clearance test. J. E. Heesterman and S. Tillema (*J. Lab. clin. Med.*, 1941, **27**, 264—265). C. J. C. B.

XV.—KIDNEY AND URINE.

Experiments with renin.—See A., 1942, III, 205.

Pigmentation of kidneys by psyllium and its effects on excretion. Experimental and clinical study. C. H. Thienes and E. M. Hall (*Amer. J. digest. Dis.*, 1941, **8**, 307—309).—Rats and cats fed on diets containing psyllium showed marked pigmentation of the kidneys but normal urea clearance. 9 patients, daily users of psyllium–agar for 2—7 years, showed no evidence of renal damage as tested by chemical and microscopic examination of the urine and by phenolsulphonephthalein excretion. N. F. M.

Snow-capped papilla in human kidney. V. Vermooten (*S. Afr. J. med. Sci.*, 1941, **6**, 48—49).—Brilliant whiteness of the renal papillæ was seen in 40 cases out of 1070 kidneys examined. It was usually found in people suffering from arterio-sclerosis or myocardial degeneration and was produced by the overgrowth of collagen which later underwent calcification. P. C. W.

Renal hypertension produced by an amino-acid [*l*-dihydroxyphenylalanine]. R. J. Bing and M. B. Zucker (*J. Exp. Med.*, 1941, **74**, 235—246).—In cats the injection of dopa (*l*-dihydroxyphenylalanine) into completely ischæmic kidneys results in the production of a strong pressor substance. After 2—4 hr. of ischæmia the pressure rises by 15—115 mm. Hg on re-establishing the circulation. The pressor substance is also formed in partial ischæmia but not by normal kidneys. The substance formed in these experiments is heat-stable and dialysable, differentiating it from the renin-like pressor substance formed in ischæmic kidneys in the cat over longer periods, and is thought to be hydroxytyramine. Normal kidneys do not form the pressor substance possibly because deamination occurs, whereas in the ischæmic kidney O_2 consumption is limited which interferes with deamination but not decarboxylation. A. C. F.

Relation of nephrosis and other diseases of albino rats to age and modifications of diet. J. A. Saxton, jun., and G. C. Kimball (*Arch. Path.*, 1941, **32**, 951—965).—215 albino rats of the Yale (Osborne–Mendel) strain were subjected during the latter half of life to high (33—41%) or low (7—10%) levels of casein or liver, and moderate restriction of body-wt. by limiting the diet or exercise. Chronic nephrosis was commoner (and length of life shorter) in animals on diets in which protein was supplied by casein rather than liver on high-protein diets and in animals allowed to reach a normal wt. C. J. C. B.

Treatment of hydronephrosis secondary to aberrant renal vessels. F. S. Patch and J. T. Codnere (*Canad. Med. Assoc. J.*, 1941, **45**, 495—499).—Conservative surgery is recommended; the hydronephrotic sac is divided and resewn in front of the constricting blood vessel. C. J. C. B.

Lipoid nephrosis terminating in chronic glomerulonephritis. G. G. Gilbert (*Arch. intern. Med.*, 1941, **68**, 591—598).—A case report. C. A. K.

Crush injury with recovery. A. I. L. Maitland (*Lancet*, 1941, **241**, 446—448).—Case report. The urea clearance fell to 7% of normal 6 days after injury with a blood-urea of 400 mg.-%. Successful treatment included forced fluids (by mouth and intravenously) and protein starvation. C. A. K.

Renal lesions in crush syndrome. J. S. Dunn, M. Gillespie, and J. S. F. Niven (*Lancet*, 1941, **241**, 549—552).—The most definite lesions in the kidneys of 2 cases of crush syndrome were found in the ascending limbs of Henle's loop and in the second convoluted tubules; the lesions were in a healing stage, and the most severe had perforated the walls of neighbouring small venules. They resembled those produced experimentally by uric acid and H_3PO_4. C. A. K.

Obstruction of renal tubules in myelomatosis and in crush injuries. J. E. Morison (*J. Path. Bact.*, 1941, **53**, 403—418).—In both conditions obstruction of the lumen of the tubules is primary and changes in the lining cells are secondary. Glomerular changes are slight. The chief difference lies in the slower deposition of the ultimately larger casts in myelomatosis with slower reduction of renal function. (5 photomicrographs.) C. J. C. B.

Cortical necrosis of kidneys. B. Godwin and A. J. McCall (*Lancet*, 1941, **241**, 512—513).—Report of a case following perforated gastric

ulcer. Histology of the kidney showed coagulative necrosis of the cortex with engorged, widely dilated capillary loops. C. A. K.

Unilateral renal atrophy associated with hypertension. A. H. Baggenstoss and N. W. Barker (*Arch. Path.*, 1941, **32**, 966—982).—The incidence of hypertension was determined in 84 cases of unilateral renal atrophy (48 of pyelonephritis, 28 of hydronephrosis, 8 of pyonephrosis). Death was usually due to neoplastic disease or infection; hypertension caused death in only 5 cases. In pyelonephritis (40%) and pyonephrosis (37%) the incidence of hypertension was greater than in the control group (29%); hypertension occurred in 42% of cases of pyelonephritis in which the atrophied kidney weighed more than 75 g. (9 photomicrographs.) C. J. C. B.

Phosphorus retention in children with chronic renal insufficiency. Effect of diet and ingestion of aluminium hydroxide. S. Freeman and W. M. C. Freeman (*Amer. J. Dis. Child.*, 1941, **61**, 981—1002).—A low intake or absorption of P resulted in a decrease in serum-inorg. P and an increase in [Ca] in 3 children with renal insufficiency. $Al(OH)_3$ reduced the concn. of inorg. P in serum and urine of children with uræmia and in a normal child. There was a correlation between the vals. of serum-inorg. P and -Ca and the clinical condition. (6 photomicrographs.) C. J. C. B.

Myohæmoglobinuria. Renal clearance of myohæmoglobin in dogs. C. L. Yuile and W. F. Clark (*J. Exp. Med.*, 1941, **74**, 187—196).—Intravenous injection of 0·75—1·5 g. of myohæmoglobin in dogs was followed by elimination of 65% from the plasma in 1½—2½ hr. Myohæmoglobin has a threshold plasma concn. of 20 mg.-%; when this is exceeded excretion is proportional to the plasma concn. Max. myohæmoglobin/creatinine clearance ratio averages 0·58, contrasting with the blood hæmoglobin/creatinine val. of 0·023. The excretory mechanism for both myo- and blood-hæmoglobin is similar, but the difference in rate is due to the respective mol. sizes. A. C. F.

Tubular factor in renal hæmoglobin excretion. C. L. Yuile, J. F. Steinman, P. F. Hahn, and W. F. Clark (*J. Exp. Med.*, 1941, **74**, 197—202).—Renal threshold for hæmoglobin in dogs falls by over 60% following repeated injection, and thereafter hæmoglobin excretion curves run parallel. Retention after 24 hr. is measured with hæmoglobin labelled with radioactive Fe. Normal kidneys retain slightly less Fe than those with lowered threshold. A. C. F.

Significance of xanthoproteic reaction [in blood] in renal insufficiency and other clinical conditions. O. B. Ragins, I. Kraus, and G. C. Coe (*J. Lab. clin. Med.*, 1941, **27**, 201—205).—The only sp. condition with increased xanthoprotein vals. in blood is uræmia (lysol poisoning is also a possibility). The xanthoproteic reaction is as accurate an indicator of impending uræmia as blood-N retention. Uræmia with xanthoproteic reactions over 100 is usually fatal, but low xanthoprotein vals do not preclude a fatal termination. The reaction helps in differentiating cerebral conditions simulating uræmia from true uræmia. C. J. C. B.

Treatment of albuminuria of pregnancy by water-balance method. J. St. G. Wilson (*J. Obstet. Gynæc.*, 1941, **48**, 161—187).—905 patients with albuminuria in pregnancy were treated by limiting the fluid intake; details are given. Among 859 women who were delivered there were 8 maternal deaths, 113 stillbirths, and 45 neonatal deaths. There were 63 cases of eclampsia with 2 maternal deaths. Induction was practised in 92 patients and Cæsarean section in 8 cases. P. C. W.

Colour reaction of urine during labour. Y. Asitaka and H. Hudii (*Japan. J. Obstet. Gynec.*, 1941, **24**, 28).—If a drop of rice oil is added to urine obtained during labour followed by "bromic-acetic solution" a blue coloration develops on the surface on warming. The reaction is only obtained for a few days preceding labour and is not present on the day after delivery. It is occasionally given by urine before abortion and again disappears after the expulsion of the uterine contents. P. C. W.

Glycosuria in recruits. A. A. F. Peel and M. W. Peel (*Glasgow Med. J.*, 1941, **135**, 141—152).—Glycosuria is a very frequent finding on examination of recruits. Methods of differential diagnosis are reviewed. G. H. B.

Indoluria in rheumatoid arthritis. E. Neuwirth (*J. Lab. clin. Med.*, 1941, **26**, 1939—1941).—Free indole (0·2—1·94 mg. per l.) was present in fresh urine from 88 patients with rheumatoid arthritis. C. J. C. B.

Urological complications of carcinoma of cervix uteri. T. F. Todd (*J. Obstet. Gynæc.*, 1941, **48**, 334—353). P. C. W.

Effect of small intestinal distension on bile and urine flow.—See A., 1942, III, 242.

Effect of anoxæmia and oxygen therapy on flow of bile and urine in nembutalised dog.—See A., 1942, III, 206.

Water metabolism and diuresis in *Bufo arenarum*.—See A., 1942, III, 258.

Determination of thiamin in urine. E. Egaña and A. P. Meiklejohn (*J. Biol. Chem.*, 1941, **141**, 859—870).—A modified thiochrome method is described. R. L. E

Polarographic determination of cystine in urine. G. Reed (*J. Biol. Chem.*, 1942, **142**, 61—64).—Separate determinations of urinary proteins and cystine plus cysteine can be carried out by the polarographic method (cf. Rosenthal, A., 1937, III, 410) in presence of Co^{++} and Co^{+++} at dilutions at which the effect of protein becomes negligible, respectively. The average excretion of cystine in healthy persons is 40—80 mg. in 24 hr. An unidentified cystine complex, which diffuses through Cellophane membranes, is present in urine, the same amount of cystine being liberated by acid hydrolysis or by means of an ammoniacal Co buffer. H. G. R.

Effect of added salts on recovery of hippuric acid from urine. T. U. Marron (*J. Lab. clin. Med.*, 1941, **27**, 108—110).—$(NH_4)_2SO_4$ is more suitable than Na_2SO_4, NaCl, or $MgSO_4$. The loss was reduced to 0·1% of urine under the conditions of the Quick liver function test, using gravimetric procedures. C. J. C. B.

Determination of sex hormones in urine of pregnancy after castration. Pregnancy diagnosis by urinary histidine.—See A., 1942, III, 236.

Colorimetric determination of urinary androgens.—See A., 1942, III, 240.

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

Mathematical theory of population movement. L. F. Richardson (*Nature*, 1941, **148**, 784).—$ds/dt = \gamma\rho s + [(\partial^2/\partial x^2) + (\partial^2/\partial y^2)](s \,.\, d\rho/d\rho)$ in which ρ is the no. of persons per sq. km., $s = d\rho/\rho$, x and y are horizontal co-ordinates on a flat portion of the earth, γ is a const. expressing gregarious attraction, and p is pressure of population. γ is of the order of 10 or 10^2 cm.^{2} sec.$^{-1}$ person^{-1} for normal people. E. R. S.

Medical, social, and economic problems of physically handicapped. A. R. Shands, jun. (*Amer. J. med. Sci.*, 1941, **202**, 625—629).—A lecture. C. J. C. B.

Evolution of function in mammalian organism. (Sir) J. Barcroft (*Nature*, 1941, **147**, 762—765).—A lecture. E. R. S.

Werner's syndrome: report of first necropsy and findings in a new case. B. S. Oppenheimer and V. H. Kugel (*Amer. J. med. Sci.*, 1941, **202**, 629—642).—This is a heredofamilial disorder characterised by premature greying of the hair, premature baldness, sclero-poikiloderma, precocious cataracts, and hypogonadism. C. J. C. B.

Hydrogen-ion concentration of myiotic wounds in sheep and goats. E. W. Laake and C. L. Smith (*J. Econ. Entom.*, 1938, **31**, 441—443).—Changes in p_H of exudates from wounds of sheep and goats infested with larvæ of *Cochliomyia americana*, C. and P., are recorded. During myiasis the p_H increased to a max. of approx. 7·4 in 3—4 days and subsequently declined; in postmyiasis the vals. declined slowly to 6·6 (goats) and 6·8 (sheep) at the 19th day of the experiment. Wounds producing a watery discharge (slow healing) remain attractive to gravid blowflies for a long time (alkaline discharge). Wounds which scab quickly are acid in reaction. A. G. P.

Weights and measurements of parts and organs of turkeys. S. J. Marsden (*Poultry Sci.*, 1940, **19**, 23—28).—Data for fatted turkeys of both sexes are recorded. A. G. P.

Iodine content of blood, urine, and saliva of normal persons in New York City area. M. Bruger, J. W. Hinton, and W. G. Lough (*J. Lab. clin. Med.*, 1941, **26**, 1942—1944).—Whole blood-I (in μg.-%) of 22 normal persons was 3·1—8·4 (mean 5·9±1·3). Urine-I varied from 6·2 to 56·7 (mean 21·1±16·7). The total output of I in the urine in 24 hr. was 18·0—483 μg. (mean 190·8±138·0) I concn. in saliva was 3·5—24·0 (mean 10·2±5·1). C. J. C. B.

Tensile strength of hair and hair roots. Man Hing Au and E. Bogen (*J. Lab. clin. Med.*, 1941, **27**, 235—236).—Human hair pulled from the forearm of an adult male exerted a tension of 5—25 g. before extraction (average 12 g.). Pulling at the extracted hair until it broke off somewhere in its length required another 8—82 g. (average 18 g.). Hair from the back of a guinea-pig came out on application of 1—5 g.; the same hair could not then be broken without the application of 10—52 g. of tension (average 25 g.). C. J. C. B.

Are population oscillations inherent in the host–parasite relation? P. De Bach and H. S. Smith (*Ecology*, 1941, **22**, 363—370).—Study of populations of puparia of *Musa domestica* and its parasite *Mormoniela vitripennis* supports the view that population oscillations are inherent in host–parasite interactions and are not due entirely to environmental changes. Populations of host and parasite were close to those expected on the theoretical basis that the change in host population is equal to its potential increase minus the no. destroyed by the parasite, which is proportional to the no. of encounters between host and parasite, and the change in the parasite population is equal to the potential changes, corresponding with the no. of hosts destroyed minus the normal deaths of the parasite. L. G. G. W

Distribution of mussel (*Mytilus californianus*) in relation to salinity of its environment. R. T. Young (*Ecology*, 1941, **22**, 379—387).—Gametes and larvæ of *M. californianus* are susceptible to low salinity. Only a few eggs are fertilised in water made by diluting sea-water to a salinity of 1·74%. Fertilisation usually occurs in the salinities of 2·15%, but larval survival at this salinity is low and is reduced at all salinities below 2·96% (salinity of sea-water 3·35%). Absence of mussels from water of suitable salinity may be due to turbidity. L. G. G. W.

Sponge disease in British Honduras and its transmission by water currents. F. G. W. Smith (*Ecology*, 1941, **22**, 415—421).—Diseased sponges in British Honduras showed fungal filaments similar to those associated with sponge disease in the Bahamas. The only other factor which could have contributed to the disease was an abnormally high salinity. L. G. G. W.

Effects of temperature and moisture on distribution and incidence of certain parasites. L. R. Penner (*Ecology*, 1941, **22**, 437—447).—An address. L. G. G. W.

Diapause amongst Tenthredinidæ. II. Effect of immersion on termination of diapause. A. R. Gobeil (*Canad. J. Res.*, 1941, **19, D**, 383—416; cf. A., 1942, III, 147).—Experiments with *Diprion polytomum* and *Pristiphora erichsoni* show that immersion of the cocoons for periods of several hr. in water, dil. H_2SO_4, or aq. glycine (p_H 5 and 3) usually favours development, rapidity of development remaining unaffected by p_H. Development is retarded, slightly if immersion occurs during hibernation, and appreciably if it occurs during the nymphal period. Immersion for a few min. in 95% H_2SO_4 retards development but scarcely increases mortality. W. McC.

Diapause and related phenomena in *Gilpinia polytoma* (Hartig). IV. Influence of food and diapause on reproductive capacity. V. Diapause in relation to epidemiology. M. L. Prebble (*Canad. J. Res.*, 1941, **19, D**, 417—436, 437—454; cf. A., 1942, III, 147).—IV. There is positive correlation between reproductive capacity and certain physical measurements (head width of adult, gross wt. of cocoon and contents, cocoon length) but equations based on the correlations are not applicable outside the populations in which the relationships have been determined. Populations developed on white spruce are more fecund than those developed on black spruce. Periodic food shortage diminishes fecundity by 30% or more. Even during prolonged diapause, eonymphal dry wt. diminishes only slightly and destruction of eonymphal reserves is very slow, the fecundity of emergent females being scarcely affected.

V. The effects of duration of diapause, degree of diapause in overwintered cocoons, and proportion of population surviving on epidemiology are discussed and accounts are given of the nature of infestations in various areas and of intra-sp. differences. W. McC.

Influence of sinus gland on viability and ecdysis in *Cambarus immunis*. F. A. Brown and O. Cunningham (*Biol. Bull.*, 1939, **77**, 104—114).—Removal of the eyestalks containing the sinus gland shortens the life of the animals and increases moulting. Implants of gland tissue lessen these extirpation effects but implants of eyestalk from which gland tissue has been dissected away has a lesser similar effect. D. M. Sa.

Eyestalk removal in *Uca pugilator*. R. K. Abramowitz and A. A. Abramowitz (*Biol. Bull.*, 1940, **78**, 179—188).—After eyestalk removal the crabs moulted sooner and more rapidly. Mortality was high and in 75% of cases related to the moulting. Survivors showed gigantism and loss of pigmentation but no alteration of reproductive functions. D. M. Sa.

Diurnal pigmentary rhythm in isopods. N. Kleitman (*Biol. Bull.*, 1940, **78**, 403—406).—*Ligia baudiniana* has a diurnal pigmentary rhythm preserved for several days in total darkness. A paradoxical rhythm is produced by an artificial 10-hr. day (light) and 8-hr. night (darkness). Variations are common. D. M. Sa.

Physiology and ecology of cuticle colour in insects. H. Kalmus (*Nature*, 1941, **148**, 428—431).—The main differences in physiological properties of dark and light insect cuticles are: a dark cuticle gives better protection against high-frequency radiations, absorbs radiant heat more readily and loses more heat, is tougher and mechanically more resistant, less easy to wet, and gives better protection from desiccation. 14 general rules are formulated. (1) Of two related forms, the one more exposed to ultra-violet radiation will be the darker. (2) If the mode of life of an insect is such that heat absorption is advantageous, it will be dark; if it is irrelevant or disadvantageous, it may be pale. (3) Those parts of the insect body wall which are subject to great mechanical strain are usually dark. (4) Giant forms are usually black; bright colours are more frequent among small insects. (5) Hemimetabolic (heterometabolic) insects before their last hatching are rarely black. (6) Heterometabolic adults are found in the same habitats as their larvæ, holometabolic insects rarely so. (7) Holometabolic larvæ are paler than their imagines. (8) The parts of the insect body where wetting must be avoided are frequently dark. (9) Long-lived insects are darker than their short-lived relatives. (10) Hibernating and activating insects are dark. (11 Most non-black insects are found in the tropics; their related forms become darker as the poles are approached. (12) Insects exposed to drought are dark. (13) Insects which ingest abundant liquid food are frequently pale. (14) Insects with a wide range of activities are darker than their relatives living in permanently moist conditions. E. R. S.

Iron–copper–nucleoprotein complex in animal tissue. K. C. Saha and B. C. Guha (*Nature*, 1941, **148**, 595—596).—The nutritionally available Fe content of tissue is estimated more accurately if the tissue is treated with 10% acetic acid or digested with pepsin before assay by Hill's dipyridyl method. 30—40% of the total non-hæmin-Fe of several animal tissues consists of an Fe–Cu–nucleoprotein complex, which has been obtained fairly pure. The Cu is split off by trichloroacetic acid, Fe and Cu by alkali. The substance has greater hæmopoietic power than equiv. amounts of Fe and Cu or the Cu-free complex. E. R. S.

XVII.—TUMOURS.

Heredity as determining type and site of cancer and age at which it occurs. M. Slye (*Amer. J. Path.*, 1941, **17**, 655—665).—By crossing strains of mice with susceptibility to one or other type, site, or age of appearance of malignancy and examining the offspring, evidence (fully tabulated) consistent with the theory of the recessive nature of cancer susceptibility was obtained. C. J. C. B.

Value of Davis reaction in patients with female genital cancer. E. Okada (*Japan. J. Obstet. Gynec.*, 1940, **23**, 113—114).—The test gave about 90% accurate results. It gave positive results in cases with ectopic pregnancy and became negative on operation. [No account is given of this reaction.] P. C. W.

Effect of sex hormones on transplanted neoplasms. F. Bischoff and L. C. Maxwell (*Amer. J. Cancer*, 1936, **27**, 87—90).—Gonadotropic hormones do not directly stimulate or retard growth of transplanted neoplasms, although they may induce changes in organs leading to the production of neoplasms. Administration of activated prolan and gonadotropic preps. in amounts sufficient to cause 300% increase in wt. of ovaries and seminal vesicles in tumour-bearing animals did not affect growth of mouse sarcoma 180 or rat sarcoma R10. Œstrin (2000 units per mouse) decreased activity of the male gonads but had no effect on tumour growth. Prolactin (60 bird units per mouse) did not affect growth of spontaneous mammary-gland carcinoma. Ch. Abs. (*el*)

Congenital melanoma. L. K. Sweet (*Amer. J. Dis. Child.*, 1941, **62**, 1029—1040).—Report of a case in which antenatal metastasis occurred. (4 photomicrographs.) C. J. C. B.

Acanthosis nigricans. W. C. Herold, W. H. Kaufman, and D. C. Smith (*Arch. Dermat. Syphilol.*, 1941, **44**, 789—797).—A case of acanthosis nigricans of the malignant type associated with gastric carcinoma in a 17-year-old girl is reported. No abnormality of adrenal cortical function was shown. (4 photomicrographs.) C. J. C. B.

Epithelioma attributable to arsenic. H. Montgomery and M. Weissman (*J. Invest. Dermatol.*, 1941, **4**, 365—383).—A review and description of 4 cases. (4 photomicrographs.) C. J. C. B.

Analysis of human tumours. R. D. Lillie (*U.S. Publ. Health Repts.*, 1941, **56**, 2284—2307).—An analysis of 2066 malignant and 1222 benign tumours studied histologically is reported. Differences in type and location of various tumours according to sex, race, age, and occupation are pointed out. Differences in behaviour of histologic varieties of many tumours of specified locations are discussed. C. G. W.

Antigenic relationship of infectious myxoma and fibroma viruses of the rabbit. J. G. Shaffer (*Amer. J. Hyg.*, 1941, **34**, B, 102—120).—Sp. complement-fixing antibodies were demonstrated in sera of rabbits against myxoma and fibroma viruses after injection of heat-inactivated suspensions and after recovery from natural infection. Cross-fixation reactions were obtained in all cases. The relationship between the viruses is not abs. since marked specificity is exhibited by the particular antiserum for its homologous antigen. Sol. heat-labile complement-fixing antigens were present in virus-free filtrates of both myxoma and fibroma; insol. heat-stable antigens were present in unfiltered suspensions. None of these antigens appeared to be identical. Rabbits inoculated with suspensions of heated virus showed higher complement-fixation titres than those inoculated with active virus, while virus-free filtrates produced poor response. The presence of measurable complement-fixing antibodies against myxoma is not necessary for immunity to the virus. It is suggested that actively growing fibroma virus prepares the animal for accelerated antibody response against inoculations of myxoma virus. The virulence and antigenic properties of myxoma virus remained unchanged through 43 egg passages. Fibroma virus remained viable on egg membrane for 16—20 days but failed to multiply. B. C. H.

Preliminary report on prevention, control, and treatment of human cancer as deficiency disease. J. R. Davidson (*Canad. Med. Assoc. J.*, 1941, **45**, 308—312).—Using a diet with high vitamin content but otherwise not described, cures are reported in cases of human carcinomas. C. J. C. B.

Effect of visible light on carbohydrate metabolism of malignant tissue. S. Mizutani (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 45—46).—Red light applied to rabbit sarcoma *in situ* accelerated respiration and had an inhibitory effect on aërobic and anaërobic glycolysis of the tumour tissue; blue light had little effect on respiration but accelerated glycolysis. Applied to tumour tissue *in vitro* both red and blue light decreased respiration and glycolysis. P. C. W.

X-Irradiation of lymph glands in sarcomatous rabbits. S. Nakamura (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 38).—*X*-Irradiation of lymph glands in the neck of a rabbit inoculated with Kato's sarcoma in the ear did not prevent metastases in the lymph glands. P. C. W.

Effect of ultra-short waves on rabbit sarcoma. Y. Kido (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 37—38).—Ultra-short-wave irradiation did not affect the radiosensitivity of Kato's rabbit sarcoma to *X*-irradiation. P. C. W.

Results of radical operation for uterine cancer. K. Wakabayasi (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 36).—Operations were performed on 39% of 1249 cases of uterine cancer. Gross mortality was 33%. There were 10% of metastases in squamous epithelial cancer and 20% in columnar epithelial cancer. P. C. W.

Cancer of sex organs among Chinese women. K. Yanaihara (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 32—34).—In 18 years there were 154 patients (2·3% of total) with cancer of the sex organs attending the Gynecological-Obstetric Dept. of the Dojinkai Tsingtao Hospital. The no. is increasing. The cases are analysed statistically. P. C. W.

Decarboxylation in carcinoma tissue. K. Takeda (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 21).—Tyramine and histamine were not formed from tyrosine and histidine by tissue from human cervical cancer or Flexner–Jobling mouse cancer. P. C. W.

Effect of hydrogen peroxide, vitamin-*C*, and glutathione on mouse cancer and tissue respiration. K. Takeda (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 20).—Vitamin-*C* injections did not affect growth of carcinoma in the mouse; -*C* deficiency prevented growth of the tumour. -*C* injections lowered the respiration of the tumour tissue; it was raised in the mice with -*C* deficiency. Glycolysis was little affected. Glutathione lowered the respiration but did not affect glycolysis. H_2O_2 did not affect the tumour growth or glycolysis but raised the rate of tissue respiration. P. C. W.

Effect of aluminium compounds on growth and radiosensitivity of malignant tumour. II. Effect on radiosensitivity. T. Hamawaki (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 11—15).—The administration of Al compounds to rabbits with Kato's sarcoma increased the effect of *X*-rays on the growth of the tumours. The effect was more pronounced if the compounds were injected into the artery supplying the tumour than if injected into the vein. P. C. W.

Case of racemose mixed tumour developed from cervix of uterus. T. Murasugi, T. Kawasima, and K. Nakai (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 1, 40—42). P. C. W.

Primary cancer of Fallopian tube. T. Murasugi, T. Kawasima, and K. Nakai (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 1, 43—45).—A case is reported. P. C. W.

***d*-Peptidase in serum [in carcinoma in man].** E. Waldschmidt-Leitz, R. Hatschek, and R. Hausmann (*Z. physiol. Chem.*, 1940, **267**, 79—90).—Human serum contained *d*-peptidase (shown by hydrolysis of *d*-leucylglycylglycine) in 54 out of 59 carcinomatous and 3 out of 3 pregnancy cases; only 8 out of 41 non-carcinomatous sera contained the enzyme. The peptidase, which is absent from normal rat's serum, occurred in the sera of rats with developed implants of Walker carcinoma or in rats or rabbits following injection of *dl*-leucyl- or *dl*-glutamyl-glycine (the response to the ethyl ester of which is also positive but less rapidly established after injection), but not of glycylglycine or *d*-leucine; with carcinoma in man, injection of *dl*-leucylglycine abolishes the positive peptidase response given before injection. Injection of *d*-glutamylglycine into mice greatly diminishes the harmful effects of the application of 3 : 4-benzypyrene to the skin. F. O. H.

XVIII.—NUTRITION AND VITAMINS.

Nutrition in war time. D. P. Cuthbertson (*Proc. Roy. Phil. Soc. Glasgow*, 1940—41, **65**, 4—14).—A lecture.

Influence of diet on uric acid excretion of young children. J. E. Hawks and G. Everson (*Amer. J. Dis. Child.*, 1941, **62**, 955—966).—In the experiments, pre-school children were given a normal basal diet containing 3 g. of protein and 90 calories per kg. for long periods. Subsequently 1 group received a diet containing 4 g. of protein per kg. while the other had a 20% increase in calories. The increase in protein increased the daily uric acid output by 7—26%. There was little difference in the uric acid output in the other experiment whether the extra calories were derived from fat, starch, or sugar. C. J. C. B.

Dietary repair of experimental caries. R. F. Sognnaes (*Science*, 1941, **93**, 617).—Experimental caries was produced by feeding rats on a caries-producing diet (Hoppert *et al.*, A., 1931, 1083) for 100 days. Cavities were found in molar teeth and soft areas of exposed dentine noticed. A group of these rats were then fed on finely ground fox chow, adequate in every respect, for a further 2 months. In these rats the carious process had stopped and exposed dentine was hard and polished; histologically the dentine had a sclerotic appearance and new thick secondary layer had been laid down wherever the outer part of the tooth had been attacked. E. R. S.

Relative nutritive value of different forms of milk. S. K. Kon (*Nature*, 1941, **148**, 607—609).—The compositions of different forms of milk are tabulated, and discussed from the point of view of their relative food vals. L. S. T.

Value of biolac [as infant food]. R. C. Eley (*J. Pediat.*, 1941, **19**, 470—480).—Biolac is equal in food value to grade A milk in feeding formulæ. Biolac contains 7—9 mg. of Fe per quart and is adequate in Fe content although a reticulocyte increase is found if further Fe is given by mouth. C. J. C. B.

Calorie requirements of full-term and premature infants in neonatal period. Feeding formula, its uses and limitations. H. M. M. Mackay (*Arch. Dis. Child.*, 1941, **16**, 166—182).—According to the formula suggested the baby should receive on the first day of life calories equiv. to 1/7 × 50 × birth wt. in lb.; the feeds are increased by this same amount each day of the first week, so that by the 7th day of life 50 calories per lb. birth-wt. are given. C. J. C. B.

Relationship of calcium and phosphorus retention to nitrogen retention. S. C. Chen (*Chinese J. Physiol.*, 1941, **16**, 303—307).—With diets containing 12% of protein and twice as much P as Ca, half the young rats examined were given caseinogen + ovalbumin, the other half gluten; half of each group received 0·1%, and half 0·4%, of Ca in the diet. A higher proportion of P was retained with the good protein; Ca was not affected. The biological val. of the good protein was 86, and of the poor protein (gluten) 71 with the higher and 65 with the lower Ca intake. N. H.

Spontaneous activity of young rats on vegetarian and omnivorous diets. C. Y. Chang, H. Wu, and S. Wan (*Chinese J. Physiol.*, 1941, **16**, 309—310).—Females, but not males, were more active on a mixed diet. N. H.

Protein privation. A decade of research into effects of restricted dietary protein. A. A. Weech (*J. Pediat.*, 1941, **19**, 608—617).—A lecture. C. J. C. B.

Response of lipin metabolism to alterations in nutritional state. II. Effects of overnutrition on postabsorptive levels of blood-lipins of dog. C. Entenman and I. L. Chaikoff (*J. Biol. Chem.*, 1942, **142**, 129—137; cf. A., 1940, III, 748).—Overfeeding (body-wt. increased 80%) on lean meat and sucrose sometimes increases the phospholipin and total fatty acid content of the blood, but scarcely affects the cholesterol content; feeding with raw pancreas does not significantly change any of the contents. Fasting after overfeeding usually causes the contents to decrease, the extent of the decrease being greater than that due to fasting in dogs in normal nutritional state. W. McC.

Effect of alfalfa lipins on the progress of sweet clover poisoning in cattle. W. A. King, H. A. Campbell, I. W. Rupel, P. H. Phillips, and G. Bohstedt (*J. Dairy Sci.*, 1941, **24**, 1—8).—Blood-clotting time of bovines, normally 4 to 8 min., was prolonged by feeding toxic sweet clover (40%). The blood platelets rose from about 300,000 per cu. mm. to 700,000, but hæmoglobin, serum-Ca, and fibrin remained normal. Light petroleum extracts of lucerne and bile salts decreased the blood-clotting time and the prothrombin time. Vitamin-*K* is probably not a responsible factor. J. G. D.

Nutritive properties of monoglycerides. W. Q. Braun and C. L. Shrewsbury (*Oil and Soap*, 1941, **18**, 249—250).—The fats extracted from the whole bodies (after removal of the gastro-intestinal tract) of groups of rats reared on diets containing, respectively, lard (8% of ration), monostearin (24% for 4 weeks and 8% for 4 weeks), and monolinolein (24% and 8%) have been studied. An amount of fatty acid equiv. to the lard but fed as monoglyceride (*i.e.*, 24% of food) was badly tolerated and caused slow growth, but at the lower level (8%) the monoglycerides appeared to be utilised almost as well as the triglycerides, and the ingested fatty acids are deposited as triglycerides in the depot fat. The mol.-% composition of the fatty acids from the fats of the 3 groups was: myristic 1·5, 4·2, 2·3; palmitic 25·2, 27·2, 18·0; stearic 3·6, 4·3, 2·8; arachidic 1·4, 1·5, 1·1; tetradecenoic 1·0, 3·9, 2·1; hexadecenoic 5·8, 9·0, 4·8; oleic 51·9, 49·1, 38·4; linoleic 7·7, 0·5, 29·4; and arachidonic 1·6, 0·3, 1·3. The linoleic acid fed appears to be stored directly in the body-fat, whereas stearic acid from the monostearin fed is not stored to any appreciable degree. E. L.

Effect of honey on calcium retention in infants. E. M. Knott, C. F. Shukers, and F. W. Schlutz (*J. Pediat.*, 1941, **12**, 485—494).—120 metabolism studies were made on 14 healthy male infants during the first 6 months of life. Retention of Ca was always higher

if honey was included in the diet, both with low and with high intakes of vitamin-*D* and regardless of the type of milk fed or the use of lactic acid. C. J. C. B.

Use of radioactive copper in studies on nutritional anæmia of rats. M. O. Schultze and S. J. Simmons (*J. Biol. Chem.*, 1942, **142**, 97—106; cf. A., 1941, III, 557).—In rats rendered severely deficient in Cu by means of a milk diet, only 5—6% of a single therapeutic dose of ^{64}Cu administered in milk is retained. When the rats are rendered deficient in Fe, the proportion of ^{64}Cu retained is only approx. 2·5%. The tissues which, in proportion to their wt., retain the largest amounts of the ^{64}Cu administered are the kidney, liver, and bone-marrow. ^{64}Cu (obtained from $^{64}_{28}$Ni in a cyclotron) is extracted from aq. Ni salts, tissues, and excreta with diphenylthiocarbazone in CCl_4. W. McC.

Northumbrian pining not curable by cobalt. W. L. Stewart and P. Ponsford (*Vet. Rec.*, 1940, **52**, 379—382).—A detailed account of work already noted (A., 1941, III, 130). E. C. W.

Growth-inhibition produced in rats by oral administration of sodium benzoate; effects of dietary supplements. A. White (*Yale J. Biol. Med.*, 1941, **13**, 759—768).—1% of glycine or sarcosine added to the growth-inhibiting diet (5% Na benzoate) produced a prompt stimulation of the growth rate. Glycollic acid in optimal quantities (2%) gave a prompt but less effect. A no. of other substances suggested as playing a rôle in benzoic acid detoxication were without effect. The results favour the view that such growth inhibition is due to the production of a deficiency in the normal metabolic substance or substances specifically concerned with combination with the growth-inhibitory substance to form a detoxication product. F. S.

Vitamins and eye, ear, nose, and throat. Eye disease due to vitamin deficiency in Trinidad. Clinical ocular conditions associated with vitamin-*B* complex deficiencies.—See A., 1942, III, 221.

Vitamins and ear.—See A., 1942, III, 225.

Ulceration of corners of mouth in pregnancy [from vitamin insufficiency]. Tamaka (*Japan. J. Obstet. Gynec.*, 1940, **23**, 107).—The condition is ascribed to vitamin deficiency and toxæmia. Secondary fungal growths sometimes occur. P. C. W.

Vitamin deficiency syndrome in albino rat precipitated by chronic zinc chloride poisoning. P. Gross, Z. Harvalik, and E. Runne (*J. Invest. Dermat.*, 1941, **4**, 385—398).—Young female rats kept on a synthetic diet and a filtrate fraction low in pantothenic acid were fed $ZnCl_2$ dissolved in oil in daily doses of 4—6 mg. Most animals developed deficiency symptoms which were absent in control animals. The deficiency syndrome could be cured by additional feeding of 150 μg. of Ca pantothenate daily. Larger amounts of $ZnCl_2$ were necessary to produce a wt. plateau in rats fed on the same diet with the addition of 100 μg. of Ca pantothenate. If $ZnCl_2$ was added to 5 g. of the food mixture and fed, its toxic effect was apparently lost. It is believed that the toxic action of $ZnCl_2$ in oil directly introduced into the intestinal tract is due to the higher activity of Zn ions thus fed. C. J. C. B.

Vitamin-*A* and the biologically active carotenoids. R. F. Hunter (*Chem. and Ind.*, 1942, 89—94).—A review.

Carotene preparations as substitutes for vitamin-*A*. L. Nicholls and A. Nimalasuria (*Brit. Med. J.*, 1941, II, 406).—A prep. of β-carotene was effective, but not so good as cod-liver oil, in the treatment of 15 children with phrynodermia, a papular skin lesion appearing early in vitamin-*A* deficiency. C. A. K.

Absorption of vitamin-*A*. G. A. Le Page and L. B. Pett (*J. Biol. Chem.*, 1941, **141**, 747—761).—88—96% of vitamin-*A* ingested in man cannot be accounted for as such in blood and fæces, in which an unidentified substance occurs having an absorption band at 275 mμ. Reduction (Na–Hg) of -*A* in alcoholic solution destroys most of the -*A* and gives a product the only characteristic absorption band of which is that of -*A*. Oxidation by H_2O_2 yields a product with absorption max. at 328 (-*A*) and 275 mμ., similar to that found in blood and fæces after ingestion of -*A*. P. G. M.

Requirements of chickens for vitamin-*A* when fed as carotene. R. M. Sherwood and G. S. Fraps (*Texas Agric. Exp. Sta. Bull.*, 1940, No. 583, 21 pp.).—Chicks up to 12 weeks require 180, pullets to the beginning of the laying period at least 200, and laying hens at least 500 μg. of carotene per 100 g. of feed. Hens laying eggs for hatching should have at least 600 μg. A. W. M.

Nummular eczema; clinical picture and successful therapy [by vitamin-*A*]. P. Gross (*Arch. Dermat. Syphilol.*, 1941, **44**, 1060—1077).—A general review and report of 18 of 24 cases cured by vitamin-*A* 75,000 U.S.P. units daily. C. J. C. B.

Vitamin-*A* and ascorbic acid in pulmonary tuberculosis. H. R. Getz and T. A. Koerner (*Amer. J. med. Sci.*, 1941, **202**, 831—847).—Plasma-vitamin-*A* in tuberculous patients was lowered in proportion to the extent of tuberculous involvement. Plasma-ascorbic acid was lowered with tuberculous involvement and reached prescorbutic levels with advanced tuberculosis. Pathological deficiency of both -*A* and -*C* makes the prognosis worse. C. J. C. B.

Changes in structure of developing tooth in rats maintained on a diet deficient in vitamin-*A*. C. G. Burn, A. U. Orten, and A. H. Smith (*Yale J. Biol. Med.*, 1941, **13**, 817—829).—A mild, chronic vitamin-*A* deficiency maintained up to a year in rats produced in the incisor teeth loss of pigmentation and translucency, twisting of the teeth, transverse and longitudinal ridging, exposure of the pulps, constrictions and eventual exfoliation of the erupted portion of the tooth. The older rats developed odontomas. Microscopic changes were focal areas of degeneration of the ameloblasts with a more progressive and diffuse change in older animals. The lingual odontoblasts became atrophic and completely disappeared. The labial odontoblasts were regular, but enlarged and hyperplastic. The lingual dentine was resorbed and eventually disappeared, thus permitting the embryonic pulp cells to grow unrestrained into the surrounding soft tissues of the jaw to form tumour masses. (12 photomicrographs.) F. S.

Vitamin-*A* and immunity to *Strongyloides*. H. J. Lawler (*Amer. J. Hyg.*, 1941, **34**, D, 65—72).—Rats fed on diet deficient in vitamin-*A* and control animals on normal diet were given subcutaneous inoculations of *S. ratti* larvæ. The animals were killed after 10 days and examined for no. of larvæ present in the intestine and -*A* content of the liver. Exhaustion of the vitamin reserves increased susceptibility to infection. The resistance of immune rats to secondary infection was lowered. A relationship may exist between -*A* metabolism and the reticulo-endothelial system. B. C. H.

Vitamin-*A* deficiency and dark adaptation.—See A., 1942, III, 223.

Vitamin-*A* deficiency and nervous system.—See A., 1942, III, 212.

Effect of vitamin-*A* deficiency on gastric function.—See A., 1942, III, 240.

Effect of a vitamin-*B* complex on residual neural disturbances of a treated pernicious anæmia.—See A., 1942, III, 191.

Influence of inositol and other vitamin-*B* complex factors on motility of gastro-intestinal tract.—See A., 1942, III, 243.

Treatment of dietary cirrhosis of liver in rats. Treatment by a nutritious diet and supplements rich in vitamin-*B* complex.—See A., 1942, III, 244.

Effect of protein-rich diets on rats deprived of vitamin-B_1. G. G. Banerji (*Biochem. J.*, 1941, **35**, 1354—1357).—Protein (caseinogen) is vitamin-B_1-sparing, as evidenced by prevention of bradycardia and loss of wt. Unlike fat, however, it does not prevent increased excretion of bisulphite-binding substances. P. G. M.

Effect of vitamin-B_1 deficiency on gastric function.—See A., 1942, III, 240.

Effect of vitamins-B_1 and -B_2 on female sex organs.—See A., 1942, III, 234.

Components of the vitamin-B_2 complex. S. Lepkovsky (*Nutr. Abs. Rev.*, 1942, **11**, 363—375).—A review.

Riboflavin content of milk. P. Johnson, L. A. Maynard, and J. K. Loosli (*J. Dairy Sci.*, 1941, **24**, 57—64).—Transfer of cows from pasture to natural feeds low in riboflavin resulted in a decrease of riboflavin to the extent of about 25% (1·8 to 1·3 mg. per l.). Feeding a molasses–yeast by-product led to only a temporary increase. A winter ration of good hay, acid grass silage, and grain maintained riboflavin at its pasture level. Feeding a riboflavin- and also an aneurin-deficient ration did not appear to affect lactation in the goat. There appears to be an inverse relation between yield and riboflavin in milk. J. G. D.

Riboflavin deficiency in pig. A. J. Patek, jun., J. Post, and J. Victor (*Amer. J. Physiol.*, 1941, **133**, 47—55).—Riboflavin deficiency in the pig is characterised clinically by retarded growth, corneal opacities, changes in the skin, hair, and hoofs, and by a terminal collapse associated with hypoglycæmia. The mechanism of the collapse syndrome is not clear; glucose infusions gave only transitory benefit. On autopsy changes of corneal epithelium were found; microscopic hæmorrhages in the adrenals, lipoid degeneration of the proximal tubules, and lens cataract (one animal) were also found. M. W. G.

Pellagra in Great Britain since 1934. J. H. T. Davies and H. G. McGregor (*Brit. J. Dermat. Syph.*, 1939, **51**, 51—63).—12 cases of pellagra reported in the British literature and 4 additional cases observed by the authors are discussed. The skin manifestations occurred on covered parts of the body almost as frequently as on those exposed to sunlight. Nicotinic acid (50 mg. per day) is recommended; the mucous membrane lesion should show improvement within 48—72 hr. The question of a direct ætiological association between pellagra and Addison's disease can not yet be decided. A. S.

Beriberi in child. C. G. Kerley and E. J. Lorenze (*J. Pediat.*, 1941, **12**, 526—528).—A case report in a male aged 2½ years. C. J. C. B.

Feline pellagra. M. K. Heath, J. W. MacQueen, and T. D. Spies (*Science*, 1940, **92**, 514).—Six cats had lost wt. and refused food; they appeared weak, sluggish, and apathetic. The upper part of the palate showed an ulcerated reddish margin, and the tip of the tongue was reddened. Foul-smelling saliva dropped from the mouth, and the body temp. was 3—5° above normal. Oral doses of 80—100 mg. of nicotinic acid daily resulted in disappearance of symptoms and return of appetite in 48 hr. E. R. S.

Synthesis of nicotinic acid by rats. W. J. Dann (*J. Biol. Chem.*, 1941, **141**, 803—808).—The daily increase in nicotinic acid content of growing rats is at least 195 μg. more than that in the diet. The degree of synthesis is not affected by administration of sulphaguanidine, indicating that nicotinic acid is not of bacterial origin and is not a vitamin for the rat. P. G. M.

Effect of nicotinic acid and related substances on intracranial blood flow of man.—See A., 1942, III, 203.

Synthesis of pantothenic acid and its derivatives. Preparation and properties of sodium *d*-pantothenate. Crystalline calcium pantothenate.—See A., 1942, II, 132, 133.

Anæmia in dogs due to pyridoxine deficiency. J. M. McKibbin, A. E. Schaefer, D. V. Frost, and C. A. Elvehjem (*J. Biol. Chem.*, 1942, **142**, 77—84).—In the anæmia due to pyridoxine deficiency, blood plasma-Fe is high and total blood-Cu low. Remission is partial with pyridoxine therapy but becomes practically total on addition of liver extract to the diet. This stimulation is not due to thiamin, riboflavin, nicotinic or pantothenic acids, or choline. H. G. R.

Formation of adipic acid by oxidative degradation of the diaminocarboxylic acid derived from biotin.—See A., 1942, II, 131.

Biological degradation of fatty acids by methyl oxidation. Preparation and metabolism of deuterodicarboxylic acids.—See A., 1942, II, 131.

Metabolism of vitamin-*C* in Japanese pregnant and puerperal women in Manchukuo. H. Yamamura and G. Miyaoka (*Japan. J. Obstet. Gynec.*, 1940, **23**, 176).—Studies on 51 pregnant and 22 puerperal women showed that 51% of the former and 77% of the latter had blood-ascorbic acid of less than 0·5 mg.-%. P. C. W.

Relation of mastitis to level of ascorbic acid and other constituents in milk. E. P. Reineke, E. R. Garrison, and C. W. Turner (*J. Dairy Sci.*, 1941, **24**, 41—50).—Mastitis resulted in a decrease in ascorbic acid (from 10 to 50%) and an increase in NaCl (35 to 100%). Mastitis streptococci, like other bacteria, retarded the oxidation of ascorbic acid. The decrease could not be explained by the presence of ascorbic oxidase but was probably due to the effect of the disease on the permeability of the milk-secreting cells to ascorbic acid. J. G. D.

Obstetric and gynæcological study of vitamin-*C* in cerebrospinal fluid. I. Obstetric. II. Gynæcological. K. Wakabayasi, T. Kikuti, H. Adati, and T. Takenaka (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 1, 20—21, 22—23).—I. The vitamin-*C* content of c.s.f. was lower in pregnant women than in normal women; it did not alter constantly during pregnancy. It was still lower in the puerperium. It was lowest in summer and highest in winter.

II. Various gynæcological patients had lower -*C* content in c.s.f. than normal women (3·13 mg.-%). P. C. W.

Effect of lack of vitamin-*C* on labour.—See A., 1942, III, 238.

Histochemical vitamin-*C* test in epithelium of choroidal plexus. G. Wolf-Heidegger (*Schweiz. med. Wschr.*, 1941, **71**, 339—340).—The Giroud–Leblond technique (cf. A., 1934, 1042) was used in rats and guinea-pigs. Reduced ascorbic acid was not found in the basal but in the distal parts of epithelial cells in the choroidal plexus in the region of the Golgi apparatus. Ependyma cells were free from vitamin-*C*. A. S.

Influence of halides on oxidation of ascorbic acid. L. W. Mapson (*Biochem. J.*, 1941, **35**, 1332—1353).—Cl′ and Br′ are more effective in suppressing oxidation of ascorbic acid in the presence of Cu at 100° than at room temp. The effect of I′ is unaltered by change of temp. F′ has no protective action. Reduction of Cu to below $0{\cdot}015 \times 10^{-7}$ suppresses oxidation at 100° in both the presence and absence of halides. Hydroxy-acids decrease the effectiveness of halides, probably by acting like these salts in forming complexes with Cu. The max. effect of halides is exerted at p_H 2·3—4·0. P. G. M.

Blackcurrant purée as source of vitamin-*C*. W. W. Payne and E. Topley (*Lancet*, 1941, **241**, 596—597).—Convalescent children were saturated with ascorbic acid, and the amount of blackcurrant purée required to maintain saturation was then found to be 1½—2 oz. daily per child (6—15 mg. of ascorbic acid per stone). C. A. K.

Use of bacteria in chemical determination of total vitamin-*C*. I. C. Gunsalus and D. B. Hand (*J. Biol. Chem.*, 1941, **141**, 853—858).—Dehydroascorbic acid is reduced to ascorbic acid by a suspension of *B. coli*. The total ascorbic acid is then titrated with 2 : 6-dichlorophenol-indophenol. R. L. E.

Effect of low-calcium diet and calciferol (vitamin-D_2) on calcium and phosphorus metabolism. Studies on two parathyreoprivic patients and one "normal" subject. E. Rose, W. H. Perloff, and F. W. Sunderman (*Amer. J. med. Sci.*, 1941, **202**, 691—702).—Ca and P metabolism studies were made on 2 cases with chronic hypoparathyroidism and 1 control with myotonia atrophica without evidence of parathyroid disease, before and during the daily administration of 400,000 units of vitamin-D_2. The cases were maintained on diets low in Ca and containing slightly less than normal amounts of P. In the patients with hypoparathyroidism, serum-Ca and -inorg. P gradually returned to normal following administration of -D_2. There was concomitant disappearance of parathyreoprival symptoms. The urinary excretion of Ca and P increased following administration of -D_2 in all 3 subjects at the expense of the fæcal excretion of Ca and P. All 3 subjects remained in negative Ca balance throughout. The hypoparathyroid patients remained in positive P balance, the control was in P equilibrium throughout. The control developed no symptoms before or after the administration of -D_2. The changes in his serum-Ca and -inorg. P following calciferol were slight but qualitatively similar to those observed in the 2 patients. C. J. C. B.

Late rickets resembling Fanconi syndrome. J. D. Boyd and G. Stearns (*Amer. J. Dis. Child.*, 1941, **61**, 1012—1022).—Report of 3 cases. C. J. C. B.

Relation of dental caries to sex, age, and environment [need for vitamin-*D*].—See A., 1942, III, 186.

Vitamins-*E* and -B_6 in treatment of muscular dystrophy and motor neurone disease.—See A., 1942, III, 211.

Loss of nerve-endings in degenerated skeletal muscles of young vitamin-*E*-deficient rats.—See A., 1942, III, 208.

Comparative methods of vitamin-*E* assay tested on Chinese drugs. T. G. Ni (*Chinese J. Physiol.*, 1941, **16**, 379—389).—Using controls on a vitamin-*E*-deficient diet, mice were given supplements of *Angelica polymorpha*, *Dipsacus asper*, *Salvia miltiorrhiza*, or wheat-germ, all of which prevented degeneration of the testes and increased muscle-Cl′ in some individuals. *Epimedium macranthum* and *Conioselinum univittatum* protected somewhat against encephalomalacia in chicks and slightly decreased the water in the cerebellum. N. H.

Intravenous use of vitamin-*K*. Prothrombin response to intravenous administration of water-soluble naphthaquinone. Percutaneous treatment of vitamin-*K* deficiency.—See A., 1942, III, 194.

Blood-prothrombin in new-born: effect of vitamin-*K*.—See A., 1942, III, 195.

2-Methyl-3-*n*-hexadecyl-1 : 4-naphthaquinone.—See A., 1942, II, 146.

Determination of 2-methylnaphthaquinone (menadione). J. Rosin, H. Rosenblum, and H. Mack (*Amer. J. Pharm.*, 1941, **113**, 434—439).—Menadione is determined either by reduction (Zn dust + aq. acetic acid–HCl) and titration with $Ce(SO_4)_2$ (indicator, *o*-phenanthroline), or by treatment with Br-water, and determination of the excess of Br with $Na_2S_2O_3$. A. Li.

Use of vitamin-*P* in œdema of pregnancy toxæmia. E. Shute (*Canad. Med. Assoc. J.*, 1941, **45**, 542—543).—No beneficial effects were found in 20 cases so treated. C. J. C. B.

Growth factors for bacteria. XIII. Eluate factor required by lactic acid bacteria.—See A., 1942, III, 269.

XIX.—METABOLISM, GENERAL AND SPECIAL.

New frame for metabolism. J. P. Peters (*Yale J. Biol. Med.*, 1941, **13**, 739—758).—A general review recommending the division of metabolism into two categories, viz., operative and energy-producing. F. S.

Cortical metabolism in relation to cerebral disease.—See A., 1942, III, 214.

Basal metabolism and clinical signs in hyperthyroidism. Effect of thyroidectomy on serum-cholesterol and basal metabolic rate in rabbit.—See A., 1942, III, 227, 228.

Minimum base value of heat production in animals. E. B. Forbes and R. W. Swift (*Science*, 1941, **93**, 623—624).—Energy expense of utilisation of body nutrients catabolised was equiv. to 14·4 calories per kg. of steer (live wt.) during fast and equal time standing and lying, or to 12·6 calories per kg. during fast in the lying position alone, or to 26·5% of the metabolisable energy of the oleo oil and dried beef muscle fed to represent the body nutrients catabolised. Heat produced–wt. of feed curves are given for 4 steers, showing observed fasting min. and theoretical min. of heat production. Dynamic effects of nutrients directly observed at planes of nutrition below that of energy equilibrium are fundamentally invalid. E. R. S.

Basal metabolism of normal infants from 3 to 15 months of age. D. D. Clagett and M. L. Hathaway (*Amer. J. Dis. Child.*, 1941, **62**,

967—980).—The basal metabolism of 8 normal infants was measured over 5—10 months. The total caloric production increased with growth at a uniform rate. The least dispersion was found when total calories were referred to age. For individual infants the vals. for calories per kg. were const. throughout the series of observations. The vals. for calories per sq. m. for 6 of the 8 infants increased during growth. No one basis was uniformly satisfactory for the prediction of the basal metabolic rate. Basal metabolic rates in non-twins may be as similar as in twins. The widest difference was found in the vals. for the fraternal twins of different sex, but the basal metabolic rate of the boy in this pair was markedly higher than the rates for the rest of the group. C. J. C. B.

Anaërobic metabolism of turtle's auricle and eel's heart. J. Wu, Y. W. Yeh, and I. Chang (*Chinese J. Physiol.*, 1941, **16**, 391—402).—Asphyxia by CN′ *in vitro* decreased the "mechanical activity" and the phosphagen content of the heart in turtles and, less rapidly, in eels unless iodoacetate was added. A reduction, not augmented by adrenaline, in the glycogen content of the turtle's heart and in the content of lower carbohydrates present in the eel's heart was produced by asphyxia. N. H.

Cystinuria. Effect of various amino-acids on the excretion of cystine. W. C. Hess and M. X. Sullivan (*J. Biol. Chem.*, 1942, **142**, 3—15).—No variation in the excretion of cystine by normal subjects is observed following ingestion of glycine, glutamic acid, *l*-methionine, cysteine hydrochloride, cystine, or alanine although alanine causes a slight increase of inorg. SO_4'' which is the main path of excretion of S-containing NH_2-acids. No evidence of excretion of a disulphide compound other than the normal small amounts of cystine is observed after feeding methionine. Conflicting results are obtained with cystinuric subjects but ingested cystine is completely oxidised. In cases where methionine increases cystine excretion alanine, glycine, and glutamic acid cause smaller increases due mainly to a stimulation of metabolism. H. G. R.

Conversion of citrulline into arginine in kidney. H. Borsook and J. W. Dubnoff (*J. Biol. Chem.*, 1941, **141**, 717—738).—One mechanism involved in the formation of arginine from citrulline in surviving slices of kidney (rat, guinea-pig) is the transference of the imino-group from aspartic or glutamic acid or their precursors to citrulline. This transference is inhibited by pyruvic acid, which is converted into alanine at the expense of glutamic acid, and by certain oxidative inhibitors; the inhibition by KCN (but not by As_2O_3 or As_2O_5) is partly counteracted by H acceptors. The dehydrogenation of the amino-group possibly occurs while the dibasic acid is in combination with citrulline. Similar, but less rapid, reactions are obtained with proline, hydroxyproline, lysine, and ornithine, due to their initial conversion into glutamic acid. Formation of arginine in the liver does not take place in this way. P. G. M.

Effect of feeding *dl*-lysine monohydrochloride on storage of liver-glycogen and urinary excretion of acetone bodies. G. O. Sharp and C. P. Berg (*J. Biol. Chem.*, 1941, **141**, 739—745).—Neither the deposition of liver-glycogen nor the excretion of acetone bodies is significantly affected by feeding *dl*-lysine hydrochloride or glutaric acid. Concurrent feeding of Na butyrate does not affect the result. P. G. M.

Biochemical defect in choline-deficient rats. H. P. Jacobi and C. A. Baumann (*J. Biol. Chem.*, 1942, **142**, 65—76).—The choline content of rats is slightly greater than normal during signs of choline deficiency and the synthesis appears to proceed normally, the deficiency being due to the lack of methyl-containing substances other than choline. Hæmorrhagic kidneys contain more choline than normal and no sex differences are observed. The choline content is normal on diets low in "labile methyl" and fat or containing Na_2SeO_3 but on a methionine-deficient diet young rats decline in wt. and develop kidney hæmorrhage preventable by choline. Rats can grow to maturity and reproduce on a choline-free diet. H. G. R.

Biological relationship between creatine and creatinine in relation to water, salt, and phosphate metabolism in normal and castrate rats. H. H. Beard, J. K. Espenan, A. L. Koven, and P. Pizzolato (*Endocrinol.*, 1941, **29**, 762—771).—Injection of water or physiological NaCl solution in rats caused increased creatine excretion and the change of body-creatine to creatinine, but with NaCl creatinine was retained, and with water it was execreted. Large doses (16 c.c.) of saline caused in normal rats a slightly greater creatine excretion than in castrates. In man, ingestion of saline caused much greater creatine and creatinine excretion than ingestion of water. Saline and creatinine injected simultaneously gave twice as great a creatine excretion as when they were injected separately, but this conversion of creatinine into creatine did not occur in castrates. If $NaHCO_3$ or Na_2HPO_4 formed 1—2% of diet, creatinine to creatine change and excretion was increased. V. J. W.

Formation of urea in fœtal liver, kidney, and placenta during early pregnancy. K. Takeda, K. Temma, E. Kubo, and R. Arizuka (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 16—17).—Formation of urea in the fœtal liver and kidney and in the placenta begins in the 5th month of pregnancy and continues to term; arginase appears at the same time. The ratio of urea formation in liver and kidney (2 : 1) is the same throughout pregnancy. Arginase is markedly activated by $MnSO_4$ in the fœtal liver and kidney. Vals. were not altered in eclampsia. P. C. W.

Effects of biotin on fat synthesis and metabolism.—See A., 1942, III, 254.

Respiration of brown adipose tissue and kidney of hibernating and non-hibernating ground squirrel. W. E. Hook and E. S. G. Barron (*Amer. J. Physiol.*, 1941, **133**, 56—63).—Brown adipose tissue of the ground squirrel shows considerable metabolic activity. O_2 consumption was 17·1±3·65 cu. mm. per mg. fat-free dry wt. and R.Q. 0·8. Anaërobic glycolysis in the absence of glucose was 4·0 cu. mm. CO_2; on addition of glucose it rose to 6·0. The tissue oxidised succinate and pyruvate with the same activity as the kidney. It oxidised lactate, citrate, α-ketoglutarate, fatty acids, and amino-acids. The respiration was almost completely abolished by HCN. The tissue contained cytochrome *c*, and the activity of its cytochrome oxidase was 14% of that of heart. Diphosphothiamin content was 18 μg. per g. (3 times that of liver). In hibernation while all other tissues reduce their metabolism to a min., brown adipose tissues retains one third of its optimum activity. M. W. G.

Ingestion of lard in treatment of eczema and allied dermatoses. C. W. Finnerud, R. L. Kesler, and H. F. Wiese (*Arch. Dermat. Syphilol.*, 1941, **44**, 849).—9 of 18 patients with atopic dermatitis had subnormal I vals. of the serum-fatty acids when admitted to the hospital. The clinical condition improved with a rise in the I val. of the serum-fatty acids after lard was added to the diet. Of the remaining 9 patients 3 showed decided clinical improvement, 1 showed no appreciable change and 2 showed slight or general improvement. The skin of only 1 patient cleared entirely. No patient was considered cured. C. J. C. B.

Localised lipoid atrophy in diabetes. Z. T. Wirtschafter and E. D. Schwartz (*Amer. J. med. Sci.*, 1941, **202**, 880—882).—Although repeated injection of insulin within a restricted area is not advisable on general principles, the case described indicates that recovery from localised fat atrophy may occur in spite of continued injection of insulin in and around the involved area. C. J. C. B.

Effects of glucose and insulin on metabolism of isolated diaphragm of rat. C. L. Gemmill (*Johns Hopkins Hosp. Bull.*, 1941, **68**, 329—336).—Determinations of total O_2 consumption, R.Q., and total carbohydrate deposition in the tissue and glucose utilisation from the medium show (1) that the isolated diaphragm in a medium without glucose uses a non-carbohydrate substance for its metabolism, (2) that when glucose is present it is oxidised and carbohydrate is deposited by the muscle, and (3) that when insulin or additional glucose is present carbohydrate deposition is augmented. T. F. D.

Diabetic state as influenced by diet. A. R. Spiegelman and H. O. Mosenthal (*Amer. J. med. Sci.*, 1941, **202**, 731—737).—Carbohydrate tolerance in many diabetics may be increased by diet. The type of diet, whether high- or low-carbohydrate, is not the determining factor but the important principle is feeding with the max. amount of carbohydrate which can be utilised. If the quantity of carbohydrate taken by a diabetic exceeds his tolerance the severity of the diabetes increases. C. J. C. B.

Adrenaline treatment *in vitro* and liver-glycogen. J. R. Bendall and H. Lehmann (*Nature*, 1941, **148**, 538—539).—Several processes known to influence blood-sugar level and glycogen metabolism *in vivo* have been reproduced *in vitro*. Thus glucose regulated glycogen breakdown by inhibiting glycogen phosphorylase; asphyxia *in vivo* and reducing agents *in vitro* increase the production of reducing sugar; insulin prevents the breakdown of muscle-glycogen, inhibiting the Cori ester → Robison ester transformation; in adrenal deficiency the liver fails to store glycogen, and *in vitro* adrenalectomised rabbits' liver slices have ¼th of the power of normal slices to synthesise glycogen; adrenaline *in vivo* produces a glycogen breakdown and then glycogen storage. Experiments with starved rabbits' liver slices showed that in 1 hr. M/200,000-adrenaline produces considerable glycogenolysis, and in the second hr. a like glycogen synthesis. Rat liver slices (which, in summer, do not synthesise glycogen from glucose) showed a parallelism between absence of glycogen synthesis and failure of adrenaline to influence glycogenolysis. E. R. S.

Rate of glycogenolysis in isolated livers.—See A., 1942, III, 244.

[Utilisation of] xylan. H. Iwata (*Bull. Imp. Coll. Agric. For. Morioka*, 1935, No. 21, 120 pp.).—Xylan is actively decomposed by alimentary micro-organisms from higher animals with formation of xylose and small amounts of lactic, butyric, acetic, and formic acids and CO_2. Bacteria from the cæcum and rumen are especially active, the optimum p_H being 6·8—7·4 at 37°; they are harmless to rats and mice, and attack also starch, dextrin, inulin, melezitose, trehalose, melibiose, lactose, sucrose, maltose, and salicin. When administered to rabbits, xylan has a protein-sparing effect. Glycogen is stored when xylan is given to fasting rabbits and rats. In rabbits the rate of storage is nearly the same as with starch. In rabbits,

1 kg. of xylan forms 269 g. of fat. The total heat val. of xylan is 4·2 g.-cal. per g., and the net energy val. is 2·5 kg.-cal., the same as for starch. CH. ABS. (*el*)

Aërobic breakdown and resynthesis of phosphagen in rabbit's heart. I. Chang and L. Li (*Chinese J. Physiol.*, 1941, **16**, 265—276).—In the rabbit's auricle poisoned with iodoacetate, contraction and phosphagen content are restored by lactate or pyruvate. N. H.

Carbohydrate metabolism of brain tissue. Potassium effect. II. Effect of monoiodoacetic acid.—See A., 1942, III, 213.

Localised amyloidosis of skin. A. Dostrovsky and F. Sagher (*Arch. Dermat. Syphilol.*, 1941, **44**, 891—905).—5 cases of circumscribed local amyloidosis of the skin are described. For diagnosis, the intravenous Congo-red test was employed. 0·1 c.c. is injected intracutaneously in the affected region, and after 24 hr. in cases of amyloidosis of the skin, the pathological nodules are strongly stained with the red dye and the interposed skin eventually appears slightly stained. (3 photomicrographs.) C. J. C. B.

Relation of fasting ketosis in the rat to the preceding diet and the liver-fat. E. M. MacKay, H. O. Carne, A. N. Wick, and F. E. Visscher (*J. Biol. Chem.*, 1941, **141**, 889—896).—The degree of fasting ketosis is unaffected by the level of liver-fat, or by dietary choline, methionine, or cystine. Fasting ketosis is delayed and reduced by a previous diet rich in protein, which creates a reserve of stored tissue-protein available as antiketogenic material. R. L. E.

Ketogenic action of branched-chain fatty acids. A. N. Wick (*J. Biol. Chem.*, 1941, **141**, 897—903).—Ketonic compounds are formed on injection into rabbits of β-methylbutyric, β- and γ-methylvaleric, but not by α-substituted butyric or valeric acid. α-Methylhexoic acid forms ketonic compounds probably from the residual 4-C chain after β-oxidation. The α-alkyl groups block the oxidation. Condensation of pairs of C atoms after β-oxidation is a more likely mechanism than dealkylation followed by β-oxidation. R. L. E.

Formation of acetone bodies from acetic acid. M. E. Swendseid, R. H. Barnes, A. Hemingway, and A. O. Nier (*J. Biol. Chem.*, 1942, **142**, 47—52).—Formation of acetone compounds occurs through direct transference of CO_2H-C of acetic acid to form acetoacetic and β-hydroxybutyric acids rather than by intermediate formation of CO_2. Increased ketosis due to administration of $NaHCO_3$ is brought about by a secondary disturbance of carbohydrate metabolism; the C in $NaHCO_3$ does not enter the acetone compounds. H. G. R.

Comparison of acetone body metabolism of the lactating mammary gland of the normal cow with that of the cow with ketosis. J. C. Shaw (*J. Biol. Chem.*, 1942, **142**, 53—60).—The lactating mammary gland of a cow with ketosis uses 100% more β-hydroxybutyric acid per 100 c.c. of blood passing through the gland than that of the normal cow, but in neither case is acetoacetic acid utilised. In ketosis a decrease in O_2 utilisation occurs, practically the whole being required for complete combustion of the β-hydroxybutyric acid, whereas in the normal gland only 37% is utilised for this purpose, the remaining 63% of the energy for milk production being derived from oxidation of other fat. H. G. R.

Biological degradation of fatty acids by methyl oxidation. Preparation and metabolism of deuterodicarboxylic acids.—See A., 1942, II, 131.

Spectrographic analysis of neuro-dermatitic lesions [distribution of magnesium] in skin. R. C. MacCardle, M. F. Engman, jun., and M. F. Engman, sen. (*Arch. Dermat. Syphilol.*, 1941, **44**, 428—440).—The Mg content of the skin of 32 patients with chronic disseminated neurodermatitis is reduced in unaffected axillary skin, in active and in healed lesions compared with 138 controls. No such reduction was found in any other cutaneous disease studied. C. J. C. B.

Relationships of the hormone of the thyroid gland to potassium metabolism. I. Abelin (*Helv. Chim. Acta*, 1941, **24**, 1298—1306).—K^+ plays an important part in the chain of chemical reactions of intermediary cell metabolism. It is closely related to the transformations of proteins, lipins, and, particularly, of carbohydrates and is frequently concerned in the concn. and liberation of H_3PO_4. In the determination of K in animal matter, it should be borne in mind that normally K is deposited in many organs and notably in the liver simultaneously with glycogen and water. The hormone of the thyroid gland has also relationships to the reactions of K^+. The normal close connexion between K, glycogen, and water content of the liver is disturbed by thyroxine. An excess of the hormone restricts the deposition of glycogen in the liver and causes marked increase of the K content of this organ. H. W.

Influence of metabolism of human erythrocytes on their potassium content.—See A., 1942, III, 191.

Rôle of phosphate in cellular assimilations. H. M. Kalckar (*Biol. Rev.*, 1942, **17**, 29—45).—A review. J. D. B.

Effect of intravenous administration of phosphate solution in normal rabbits. I. Greenfield (*J. Lab. clin. Med.*, 1941, **27**, 68—70).—5 c.c. of 10% aq. Na phosphate at the p_H of plasma was administered intravenously to rabbits; the serum-Ca fell from 16·4 to 9·4 mg.-% and serum-P rose from 4·8 to 6·8 mg.-%. The concn. of urine-Ca dropped and urine-P increased. Convulsions were noted in 2 animals and tremors in 1 animal used. C. J. C. B.

Distribution of radioactive phosphorus in tooth enamel of experimental animals. N. F. Sognnaes and J. F. Volka (*Amer. J. Physiol.*, 1941, **133**, 112—120).—In cats, dogs, and 1 monkey, after systemic administration of radioactive P (as a solution of Na_2HPO_4 containing 10 mg. of the solute with a ^{32}P radioactivity varying from 2·5 to 4 million counts per min.) it was observed that radio-P metabolism in enamel of fully erupted teeth is smaller than that in dentine. The greatest concn. of ^{32}P in the enamel was found in the surface layer. Enamel carries out mineral interchanges partly via pulp and dentine, and partly by contact with the oral secretions. M. W. G.

Applications of radioactive tracers to biology and medicine. J. G. Hamilton (*J. Appl. Physics*, 1941, **12**, 440—460).—Experimental methods employed in the application of radioactive tracers to the study of metabolism are reviewed, and examples of the use of radioactive isotopes of P, I, element 85, Fe, Ca, Sr, C, and N are discussed. Special attention is given to "radio-autography," in which the distribution of a radioelement in an organism is registered photographically by the emitted radiation. A. J. E. W.

Concentration and detection of radioactive substance in abscesses. H. H. Kroll, S. F. Strauss, and H. Neckeles (*J. Lab. clin. Med.*, 1941, **27**, 50—53).—The bromination of Na_2 1-amino-8-naphthol-3 : 6-disulphonate with normal and radioactive Br is described. The localisation of the inactive brominated derivative in abscess and normal tissue, spleen, kidney, and liver after intravenous injection of varying concns. was determined by chemical analysis. With a dose of 0·4 g., the concn. in the abscess was slightly higher than or equal to the concn. in spleen or kidney and over twice that in normal tissue. The region of the lower chest occupied by the kidney and spleen had a slightly higher concn. of radioactive material than the abscess in the thigh in 3 of 4 experiments while the abscess showed over 3 times as much as equiv. normal tissue. C. J. C. B.

Water metabolism in pregnancy. W. T. Pommerenke and H. E. Thompson, jun. (*Amer. J. med. Sci.*, 1941, **202**, 714—723).—A general review. C. J. C. B.

Detoxication. XI. Identification of pyrocatechol-4-sulphonamide as a metabolic product of *p*-hydroxybenzenesulphonamide in the rabbit. R. T. Williams. **XII. Metabolism of vanillin and vanillic acid in the rabbit.** H. G. Sammons and R. T. Williams (*Biochem. J.*, 1941, **35**, 1169—1174, 1175—1189; cf. A., 1942, II, 140, 143).—XI. Phenol-*p*-sulphonamide fed to rabbits is partly (? 4—5%) oxidised to pyrocatechol-4-sulphonamide. Methylation of the HCl-hydrolysed urine yields veratrole-4-sulphondimethylamide corresponding to 1% of the dose. Pyrocatechol-4-sulphonanilide has no effect on a 2% blood solution at room temp. during 24 hr.

XII. Of vanillin and vanillic acid fed to rabbits, 83% is accounted for in the urine. Vanillin yields 44% of vanillic acid, 25% of conjugated vanillic acid (8% as ethereal sulphate, 17% as glucuronide), and 14% of conjugated vanillin (mainly as glucurovanillin). Vanillic acid yields 56% of free and 27% of conjugated vanillic acid (11% ethereal sulphate, 16% glucuronide), and (?) not more than 5% of protocatechuic acid. Conjugation of vanillin and vanillic acid appears to precede oxidation, and the bearing of this on the theory of detoxication is discussed. A. LI.

Metabolism of β-naphthylamine by rats, rabbits, and monkeys. K. Dobriner, K. Hofmann, and C. P. Rhoads (*Science*, 1941, **93**, 600—601).—β-Naphthylamine, acet-β-naphthylamide, and 2-acetamido-6-naphthol were isolated from the urines of rats, rabbits, and monkeys which had received subcutaneous injections of β-naphthylamine in olive oil. E. R. S.

Elimination of 3 : 4-benzpyrene from the animal body after subcutaneous injection.—See A., 1942, III, 251.

XX.—PHARMACOLOGY AND TOXICOLOGY.

Mode of action of sulphanilamide. Bacteriostatic action of methionine. E. A. Bliss and P. H. Long (*Johns Hopkins Hosp. Bull.*, 1941, **69**, 14—38).—Methionine, but not homomethionine, cysteine, *S*-methylcysteine, homocystine, choline, or 7 essential amino-acids, in concns. of 0·015—1000 mg.-% interferes with the bacteriostatic action of 8·6—17·2 mg.-% of sulphanilamide and of smaller amounts of sulphapyridine and sulphathiazole on *E. coli* in a synthetic medium. Arginine and lysine exhibit this action irregularly and to a much lower degree than methionine. The effect of methionine is not the result of its acting as a growth stimulant. Concns. of methionine over 1% exhibit an antibacterial action on *E. coli* which is partly neutralised by sulphanilamide. T. F. D.

Simple micro-test for sulphanilamide and its derivatives in blood. J. Churg and D. Lehr (*Amer. J. med. Sci.*, 1941, **202**, 687—691).—The test is based on the yellow colour resulting from the reaction

between sulphanilamide and *p*-dimethylaminobenzaldehyde, which has been stabilised and intensified by the addition of alcohol. Readings are facilitated by the use of a blue filter. The standards are prepared by mixing aq. solutions of $K_2Cr_2O_7$ and K_2CrO_4 with water. C. J. C. B.

Determination of members of sulphanilamide group, especially sulphathiazole. J. A. Gardner and R. Dunn (*Biochem. J.*, 1941, **35**, 1231—1234).—The difficulties encountered by Osterheld (*Schweiz. med. Woch.*, 1940, **70**, 21, 459) in the determination of sulphathiazole in urine are overcome by a modification of the procedure in which trichloroacetic acid is added to the diluted fluid. The modification is applicable also to blood. Accuracy and convenience are achieved in measuring the colour by using an absorptiometer. Several standards must be employed if a colorimeter is used, since the variation in colour produced follows Beer's law only within narrow limits of concn. W. McC.

Chemotherapy of meningococcic meningitis. H. Little (*Canad. Med. Assoc. J.*, 1941, **45**, 509—513).—14 consecutive cases of acute meningococcal meningitis were treated with sulphapyridine and soludagenan, with one death. C. J. C. B.

[Treatment of] non-hæmolytic streptococcus omphalitis, parotitis, and meningitis in premature infant. M. J. Hurst and P. S. Astrowe (*J. Pediat.*, 1941, **12**, 529—533).—A successfully treated case of non-hæmolytic streptococcal sepsis with omphalitis, parotitis, and meningitis in a premature infant is reported. The source of the infection was the mother, and the portal of entry was the umbilical cord. The total amount of sulphathiazole and sulphapyridine given was 363·2 grains. C. J. C. B.

Recovery from two attacks of meningitis caused by different organisms [treatment]. H. G. Morton and R. W. Roberts (*J. Pediat.*, 1941, **12**, 534—535).—The patient had 2 attacks of purulent meningitis, separated by 3 years of good health. The first attack, due to a β-hæmolytic streptococcus, was cured with sulphanilamide, the second, due to the pneumococcus, was cured with sulphapyridine. C. J. C. B.

Meningococcus infection. N. Silverthorne and C. Cameron (*J. Pediat.*, 1941, **12**, 618—627).—59 cases between 1938 and 1941 are compared with 51 cases between 1931 and 1938 (*ibid.*, 1939, **15**, 491). Mortality rates and other findings were very similar in the 2 series. C. J. C. B.

Pfeiffer's bacillus meningitis and sulphonamides. N. Mutch (*Lancet*, 1941, **241**, 751—753).—Sulphonamide E.O.S. was successfully used in 2 adult cases (aged 30 and 16) of Pfeiffer's bacillus (influenzal) meningitis. Sulphapyridine was unsuccessful in 2 infants aged 7 and 17 months as was sulphonamide E.O.S. in a girl of 6 years; all these cases died. C. A. K.

Sulphapyridine in Pfeiffer's bacillus meningitis. N. M. Jacoby (*Lancet*, 1941, **241**, 753—754).—Recovery in an infant of 1 year is reported. C. A. K.

Prolonged treatment with sulphanilamides in case of meningococcal septicæmia. M. G. Hayes (*Northw. Med.*, 1941, **40**, 284—287).—A girl of 22 years, with meningococcal septicæmia and polyarthritis, tolerated 137 g. of sulphanilamide (started on the 33rd day) and 350 g. of sulphapyridine (started on the 79th day), given over a period of 6 months while she had several bouts of hyperpyrexia and bacteræmia. Treatment had been begun with small doses of neoprontosil, blood transfusions of 200—300 c.c., and injections of 10,000 and 40,000 units of meningococcal antitoxin within the first week. The girl lived. E. M. J.

Serum and sulphapyridine in pneumococcal peritonitis. C. Noon (*Brit. Med. J.*, 1941, II, 724).—3 cases of pneumococcal peritonitis recovered after drainage + antipneumococcal serum; 1 case treated with drainage + sulphapyridine recovered rapidly. C. A. K.

Therapeutic effect of sulphapyridine in pneumococcus-infected mice in atmospheres of varying oxygen tension. A. L. Barack and N. Molomut (*J. Lab. clin. Med.*, 1941, **26**, 1915—1917).—Pneumococcus-infected mice were treated with sulphapyridine in atm. having low (8%) and high (60%) O_2 concns. No effect on the mortality rate was observed. C. J. C. B.

[Treatment of] gonococcal vaginitis in children in Bengal. C. L. Mukherjee (*J. Obstet. Gynæc.*, 1940, **47**, 275—290).—11% of 1138 cases of gonorrhœa occurred in female children. There were 63% of cures in 40 cases treated locally, 44% of cures in 26 cases treated with œstrogen injections, and 84% of cures in 50 cases having the combined treatments. 7 out of 10 patients treated locally with sulphanilamide (prontosil album) were cured. P. C. W.

Influence of sulphanilamide compounds on anthrax infection [of mice]. G. Ivanovics (*Z. Immunitätsforsch.*, 1939, **96**, 252—254).—Sulphanilamide, sulphapyridine, and 4 : 4′-diaminodiphenylsulphoglycoside were used. None of the drugs had any influence on the course of the infection, nor were they effective when given in combination with subeffective doses of anti-anthrax serum. G. W.

Use of sulphonamide drugs in bronchial asthma. L. Unger (*J. Allergy*, 1941, **12**, 528—536).—23 adult cases of severe intractable asthma were treated by sulphonamide drugs; only 4 improved. C. J. C. B.

Local application of sulphanilamide. F. Hawking (*Brit. Med. J.*, 1941, II, 685—686).—Details are given of methods of application of sulphanilamide as a powder to open wounds, as tablets to deep sinuses, or as various kinds of paste to inflamed surfaces, burns, and wounds. C. A. K.

Sulphathiazole snuff in diphtheria carriers. A. M. Thomas (*Brit. Med. J.*, 1941, II, 687—689).—Sulphathiazole snuff was successfully used in the treatment of 12 of 20 nasal carriers of *C. diphtheriæ*. It also reduced the nos. of *Staph. pyogenes*. Reasons for failures are suggested. C. A. K.

Urinary tract in sulphonamide therapy. O. L. Peterson and M. Dinland (*Amer. J. med. Sci.*, 1941, **202**, 757—770).—A review of the literature. C. J. C. B.

Effects of continued administration of sulphathiazole and sulphapyridine in monkeys. D. R. Climenko and A. W. Wright (*Arch. Path.*, 1941, **32**, 794—817).—Animals given sulphapyridine (0·5 g. per kg. per day by mouth in milk) died on the 13th, 14th, and 24th days. Hæmaturia was present in all. Postmortem urolithiasis, degenerative changes of the tubular epithelium, particularly of the collecting tubules, pyelitis, and cystitis were observed. Monkeys receiving the same dose of sulphathiazole for 28 days showed no ill effects. 1 animal of the latter series, killed on the 29th day, showed no changes other than slight œdema of the kidney and a chronic inflammation of the renal pelvis. The difference between sulphathiazole and sulphapyridine disappeared when the dose level was raised; above 1 g. per kg. per day fatalities and severe renal lesions occurred. The severity of the lesions varied directly with the height and duration of the concn. of the drug in the blood. The dose range employed was 10—200 times the usual therapeutic range. (8 photomicrographs.) C. J. C. B.

Toxic reactions to sulphapyridine. A. A. Goldbloom, L. Greenwald, and H. Reinstein (*J. Lab. clin. Med.*, 1941, **27**, 139—147).—Acute hæmolytic anæmia, myeloid leukæmoid reaction, and purpura are described in 3 separate cases. C. J. C. B.

Influence of sodium bicarbonate in preventing renal lesions from massive doses of sulphathiazole. D. R. Climenko, O. W. Barlow, and A. W. Wright (*Arch. Path.*, 1941, **32**, 889—894).—When doses of sulphathiazole are used which kill most and produce severe renal lesions in all the monkeys used, fatalities and renal inflammatory lesions can be prevented by giving large doses of $NaHCO_3$. This action of $NaHCO_3$ can be accounted for by the fact that both sulphathiazole and acetylsulphathiazole are much more sol. in alkaline media so that maintenance of an alkaline urine prevents pptn. of the drug in the kidney and so prevents local lesions. C. J. C. B.

Preparation and properties of three isomeric *n*-hexylcresols and their chlorinated derivatives.—See A., 1942, II, 139.

Simplified method of disinfection in obstetric and gynæcological departments. H. Tatibana. R. Suzaki (*Japan. J. Obstet. Gynec.*, 1940, **23**, 106—107).—The first author reports a method of disinfecting with glycerin–formalin–alcohol. The second author reports favourably on the procedure. P. C. W.

Carboxylic and derivatives of 4 : 4′-diaminodiphenylsulphone.—See A., 1942, II, 140.

Intravenous anæsthesia. H. R. Schmidt (*J. Kansas Med. Soc.*, 1941, **42**, 425—427).—Report of 684 cases. E. M. J.

Ether convulsions. H. J. Brennan (*Brit. Med. J.*, 1941, II, 765—767).—It is suggested that ether convulsions are caused by neurogenic stimuli in hyperpyrexial patients. Hyperpyrexia may result from general anæsthesia in a dehydrated patient in a hot humid atm. C. A. K.

Perchlorate method for determining concentration of alcohol in expired air as medicolegal test. W. W. Jetter and G. C. Forrester (*Arch. Path.*, 1941, **32**, 828—842).—A crit. evaluation of the perchlorate method for the determination of breath-alcohol was made. The presence of acidosis or alkalosis in the subject affects the results. In 79 cases in which breath and direct blood analyses were made, the deviation never exceeded 16%. C. J. C. B.

Amphetamine sulphate–ethyl alcohol antagonism in rabbit. E. C. Reifenstein, jun. (*J. Lab. clin. Med.*, 1941, **27**, 131—139).—The administration of 5 g. per kg. of alcohol to 13 rabbits produced, after 17 min., narcosis which lasted for 408 min. The administration of 5 g. per kg. of alcohol with 1 m.l.d. (85 mg.) of amphetamine per kg. to another 13 animals produced narcosis after 56 min. for 307 min. It did not, however, antagonise the narcosis of lethal doses of alcohol and increased the toxicity of near-lethal quantities. Alcohol, on the contrary, protected the animal against 1·5—2 times the m.l.d. of amphetamine sulphate. C. J. C. B.

Active constituents and pharmacological effects of bark of *Pseudocassin transvaalensis*. C. Frost (*S. Afr. J. med. Sci.*, 1941, **6**, 57—

58).—The bark of the tree contains 13·3% of pyrocatechol tannin together with phytosterols, phlobaphens, resins, and brown colouring matter. Medicinal effects are probably due to the tannin content. P. C. W.

Pharmacological actions of *Adenium oleifolium*. N. Sapeika (*S. Afr. J. med. Sci.*, 1941, **6**, 86—91).—A 70% alcohol tincture was made of the dried plant and was found to have digitalis-like properties. P. C. W.

Effects of neo-synephrin on anæsthetised dog. P. H. Lorhan and J. G. Schnedorf (*Arch. Surg., Chicago*, 1941, **43**, 94—100).—Neo-synephrin in doses of 2 minims of a 1% solution intravenously in dogs anæsthetised with Na pentobarbital produced a rise in blood pressure (120—240 mm. Hg.) and bradycardia. Cardiac irregularities were caused by doses of 10 minims. There was a decrease in the depth of respiration and sometimes apnœa lasting 10—90 sec. 4—10 minims caused a decrease in urine and bile flow. F. S.

Theory of chlorate poisoning. W. Heubner and F. Jung (*Schweiz. med. Wschr.*, 1941, **71**, 247—250).—Suspensions of red cells in isotonic solutions of $NaNO_2$ turn brown very quickly; hæmolysis sets in as in normal suspensions. Red cells in isotonic ClO_3' mixtures form a sticky mass, deep brown with a greenish tint. ClO_3' poisoning is due to formation of small amounts of hypochlorite in the circulating blood, which is accelerated by methæmoglobin. A. S.

Effect of prolonged administration of salicylate on nitrogen metabolism and plasma carbon dioxide-combining power in the dog. J. G. Schnedorf, W. B. Bradley, and A. C. Ivy (*Amer. J. digest. Dis. Nutr.*, 1936, **3**, 332—334).—Prolonged administration of acetylsalicylic acid (0·15 g. per kg. twice daily) resulted in digestive disturbances, alterations in N metabolism, and a tendency towards acidosis in dogs. Simultaneous administration of Ca gluconate (0·07 g. per kg. twice daily) ameliorated the untoward effects, stabilised N metabolism, prevented early acidosis, slightly increased the plasma CO_2-combining power, and caused the urine to remain alkaline. Ch. Abs. (*el*)

Heart glycosides. XVII. Transformation of scillaren *A* into *epiallo*lithocholic acid.—See A., 1942, II, 81.

Action of alkaloids of *Fritillaria verticillata*, Wild., on rabbits. Y. Narumi (*Tôhoku J. Exp. Med.*, 1936, **28**, 26—43).—Verticine, verticilline, and fritillarine have effects on rabbits similar to those of fritilline; they paralyse various co-ordination centres in the cerebellum. Verticine and verticilline weaken the respiratory movements. Blood pressure is increased by these two drugs in small doses, and decreased by all three in large doses. All three inhibit tonus and movement of the intestine, and increase tonus of the uterus. Ch. Abs. (*el*)

Generalised dermatitis from nail polish. H. Shellow (*Arch. Dermat. Syphilol.*, 1941, **44**, 463—464).—A case report. C. J. C. B.

Dermatitis venenata due to nail lacquer. E. D. Osborne, J. W. Jordon, and P. C. Campbell, jun. (*Arch. Dermat. Syphilol.*, 1941, **44**, 604—615).—A review of the literature and an analysis of 100 cases. C. J. C. B.

Sodium hypochlorite dermatitis. M. Bernreiter (*J. Kansas Med. Soc.*, 1941, **42**, 424—425).—Case report. E. M. J.

Dermatitis due to ink eradicator and cosmetic lacquers. J. G. Downing (*Arch. Dermat. Syphilol.*, 1941, **44**, 465—466).—A case report. C. J. C. B.

Coral dermatitis. O. L. Levin and H. T. Behrman (*Arch. Dermat. Syphilol.*, 1941, **44**, 600—603).—A case is reported of dermatitis caused by a stinging coral animal. The affected skin immediately showed intense serous exudation, and within 24 hr. a sloughing ulcer appeared. Healing was slow, with cheloid formation and persistent pruritis. This was relieved by filtered *X*-ray therapy. C. J. C. B.

Urticaria due to tryparsamide. R. H. Kampmeier (*Arch. Dermat. Syphilol.*, 1941, **44**, 671—673).—A case of generalised urticaria following the use in all of 9 g. of tryparsamide is reported. C. J. C. B.

Gold colloid and colloids of other heavy metals in treatment of rheumatoid arthritis. J. M. Tarsy (*J. Lab. clin. Med.*, 1941, **26**, 1918—1924).—Colloid Au injections are far less toxic as the Au is less sol., and are effective in the treatment of rheumatoid arthritis. Pt, Bi, and Se are of little therapeutic val. C. J. C. B.

Chrysiasis [gold pigmentation of skin]. O. E. L. Schmidt (*Arch. Dermat. Syphilol.*, 1941, **44**, 446—452).—Chrysiasis is a permanent pigmentation of the skin caused by the parenteral use of a Au prep. and the subsequent exposure of the skin to ultraviolet radiation including sunlight. The literature is reviewed. C. J. C. B.

Argyria. W. R. Hill and H. Montgomery (*Arch. Dermat. Syphilol.*, 1941, **44**, 588—599).—Ag is not deposited in the epidermis but in the elastic fibres in the cutis, membrana propria of sweat glands, connective tissue sheaths about the sebaceous glands and hair follicles, and cutaneous vessels, muscles, and nerves. Ag granules are easily recognised under dark-field illumination. Ag pigment causes no pathological change in the skin. For microscopic diagnosis a specimen can be taken for biopsy from the non-pigmented skin of persons who have generalised argyria. In some cases Ag causes increased production of melanin. C. J. C. B.

Systemic action of drugs placed on intact skin. P. W. Miles (*J. Kansas Med. Soc.*, 1941, **42**, 430—431).—A review. E. M. J.

Wound infection and accidental wounds. J. Fraser (*Edinb. Med. J.*, 1941, [iv], **48**, 818—842).—Antiseptic eras, yesterday and to-day. A historical review. H. S.

XXI.—PHYSIOLOGY OF WORK AND INDUSTRIAL HYGIENE.

Industrial hygiene in national defence programme. J. J. Bloomfield (*Ann. int. Med.*, 1941, **15**, 165—171).—A lecture. A. S.

Heat regulation in animals, especially in the tropics. O. Kestner (*Vet. Rec.*, 1940, **52**, 74—76).—A general account, without references. E. G. W.

Effects of training and gelatin on certain factors which limit muscular work. S. Robinson and P. M. Harmon (*Amer. J. Physiol.*, 1941, **133**, 161—169).—Ingestion of 60 g. of gelatin daily for 26 weeks in non-athletic men does not improve performance. M. W. G.

Silicosis in Stourbridge fireclay miners. S. Deaner (*Lancet*, 1941, **241**, 417—420).—Stourbridge clay miners are exposed to dust containing free SiO_2; 3 cases are reported in which *X*-ray signs of silicosis were present and autopsy in 1 fatal case showed silico-anthracosis. C. A. K.

Health hazards in fur garment making shops. M. M. McMahon (*Ind. Hyg. Bull., N.Y. State*, 1941, **20**, 299—302).—The principal hazards to health result from exposure to fur hair and dander, and fur dyes particularly *p*-phenylenediamine, which is a sensitising agent, and is responsible for many of the allergic reactions observed in fur workers. C. G. W.

Onycholysis in fur workers. H. Heimann and M. G. Silverberg (*Arch. Dermat. Syphilol.*, 1941, **44**, 426—428).—Onycholysis is a relatively common but preventable condition among fur fleshers. It is disfiguring but not disabling. The factors responsible for its development are maceration of the skin underlying the nail at its distal end and mechanical trauma. C. J. C. B.

Industrial manganese poisoning. R. H. Flinn, P. A. Neal, and W. B. Fulton (*J. Ind. Hyg.*, 1941, **23**, 374—387).—Of 34 men exposed to MnO_2 dust, 11 were diagnosed as suffering from Mn poisoning. The symptoms were lassitude, ataxia, dyspnœa, muscular weakness, and cramp. Leukopenia with a reduced proportion of neutrophils was usual, its degree varying with the severity of the poisoning. Mn was present in the urine of all exposed workers, but the amount was unrelated to the degree of poisoning. The c.s.f., examined in 9 men, showed a slight change in the colloidal Au reaction. Many symptoms regressed or disappeared when the patient was removed from the risk at an early stage. Regular medical examination and measures of dust control should prevent Mn poisoning. E. M. K.

Hazards in spray painting with gasoline as diluent. J. H. Sterner (*J. Ind. Hyg.*, 1941, **23**, 437—448).—Samples of gasoline submitted as diluents contained 1—30% of toluene + xylene, the majority falling between 5 and 10%. The concn. of total aromatic compounds in the air of workrooms varied from 200 to 800 p.p.m. Workmen showed occasional acute poisoning, but this was slight and transient. There was an abnormally high incidence of minor illness with neurological symptoms, headache, lassitude, anorexia, mental depression, and inability to concentrate. The hæmoglobin level and red-cell count were significantly, though slightly, lowered. The small C-cartridge respirators were found to be effective for only a very short time, and were replaced by air-supplied respirators. E. M. K.

XXII.—RADIATIONS.

Recent contributions of physics and engineering research to radiology. B. Cassen (*Radiology*, 1941, **37**, 338—342). E. M. J.

Rœntgen irradiation of calcareous deposits around shoulder joint. L. W. Baird (*Radiology*, 1941, **37**, 316—323).—16 of 18 cases of acute and subacute calcified subacromial bursitis were cured by rœntgen irradiation, 11 with only one treatment of 300 r. at 200 kv. *X*-Rays were of no use in the chronic stage of the disease. E. M. J.

Rœntgen irradiation in *Clostridium welchii* infection in dogs. A. H. Dowdy and R. L. Sewell (*Radiology*, 1941, **37**, 440—442).—5 of 16 dogs injected with the min. lethal dose of 1·25 c.c. or more of a pure culture of *Cl. welchii* and treated by *X*-rays (several doses of 100 r.) survived against 2 survivals in 16 untreated dogs. The survivals in the 17 dogs treated with 125 kv. and 3·55 mm. Al half val. layer and the 8 dogs with 200 kv. and 0·95 mm. Cu half val. layer were 7 and 2, respectively. E. M. J.

Intravesical low-voltage contact rœntgen irradiation in carcinoma of bladder. L. S. Goin and E. F. Hoffmann (*Radiology*, 1941, **37**, 545—548).—5000—7668 r. were applied 1—3 times at 7—10 days intervals with the contact therapy tube introduced into the bladder after repeated cystotomies; no evidence of tumour was found 3—19 months later in 9 cases. Similar results were obtained in 2 of 4 cases given 2000 or 2556 r. on alternate days or every third day up to a total dose of 20,000—30,000 r. E. M. J.

Rœntgen therapy of tumours of brain and spinal cord. F. B. Mandeville, D. A. Russell, and M. S. Farley (*Radiology*, 1941, **37**, 560—568).—A report of 100 cases. E. M. J.

Influence of rœntgen irradiation of normal lung on prevention of metastatic tumour growth. R. P. Barden (*Radiology*, 1941, **37**, 608—615).—Moderate doses of radiation (300—900 r.) applied to one lung diminished the incidence of pulmonary metastases in rabbits after intratesticular inoculation with Browne–Pearce carcinoma from 80% (6 controls and literature) to 35% (26 animals). Radiation was most effective if given 2—4 weeks prior to inoculation. A few rabbits developed permanent immunity after removal or regression of the primary inoculum. E. M. J.

Protective screening of radium during transportation. L. F. Curtiss (*Radiology*, 1941, **37**, 628—630).—Tabulation of the thicknesses of Pb for certain strengths and times of transit as accepted by U.S.A. carriers with illustration of the special container recommended. E. M. J.

Depth dose calculation, volume depth dose, and universal dose finder. W. H. Meyer (*Radiology*, 1941, **37**, 476—486). E. M. J.

Twelve-year review of *X*-ray therapy of gas gangrene. J. F. Kelly and D. A. Dowell (*Radiology*, 1941, **37**, 421—438). E. M. J.

Effect of *X*-rays on osmotic resistance of red blood cells. I. Effect of reproductive condition. II. Effect of hæmorrhage. N. Simada, T. Hukui, and G. Miyaoka (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 1, 16—17, 17—18).—I. The max. osmotic resistance of erythrocytes was increased by *X*-irradiation of the cells; the min. resistance was unaffected. The increase was max. on the second day of menstruation and diminished through the cycle. No increase was produced in blood withdrawn during pregnancy but an increase was apparent at labour, rose during the 5 days following, and had disappeared by the 18th day post-partum.

II. Following hæmorrhage the max. osmotic resistance of the erythrocytes in patients was increased by *X*-irradiation. P. C. W.

Effect of *X*-irradiation on renal function. H. Ito (*Japan. J. Obstet. Gynec.*, 1940, **23**, 58—67).—The kidneys of normal male rabbits were unilaterally *X*-irradiated with doses of 1800—3000 r. The effects were examined by cystoscope and histologically. Renal function was practically abolished; the kidneys became atrophic and the parenchyma was replaced by connective tissue. The effects were more marked if the *X*-rays were given in divided doses or if the *X*-irradiation was preceded by injection of Hg^{II} salts, glucose, or I. P. C. W.

Treatment of skin diseases with Grenz-rays. H. Jungmann (*Brit. J. Dermat. Syph.*, 1939, **51**, 151—165).—Grenz-rays are *X*-rays of 1—3 A. and are produced by a tension of 5—12 kv. The therapeutic use of this type of radiation in skin diseases is reviewed. A. S.

Effect of *X*-rays on a tumour of known genetic constitution.—See A., 1942, III, 250.

Differential sensitivity of cells to *X*-rays.—See A., 1942, III, 277.

Distribution of surface radiation from million-volt generator. M. C. Reinhard and H. L. Goltz (*Radiology*, 1941, **37**, 335—337).—The surface isodose curves for the two *X*-ray beams used—one transmitted in the direction of the electron beam through the W target set at 45°, the other reflected in the usual way—both showed asymmetries which were very marked for the transmitted beam. They were satisfactorily corr. by the introduction of wedge-shaped filters. E. M. J.

Biological determination of erythema dose of *X*-rays in " r." units. W. N. Goldsmith (*Brit. J. Dermat. Syph.*, 1939, **51**, 126—131).—Individuals differ greatly in their sensitivity to *X*-rays as measured by the appearance of erythema. The erythema dose in r. is independent of kilovoltage and of moderate filtration. The erythema is caused by the action of the *X*-rays on the most superficial layers of the epidermis. In one subject erythema was produced by 270 r., but 540 r. did not produce any further changes. A. S.

Milliammeters at ground potential in *X*-ray tube circuits. L. D. Marinelli (*Radiology*, 1941, **37**, 331—334).—The constructional changes for the conversion of high-potential milliammeters into such working at or near ground potential are described for two types of circuit where they have been successfully applied. E. M. J.

Simplified method of preserving radiographs on miniature film. S. S. Sanderson (*Radiology*, 1941, **37**, 616—621).—One-step reproduction on 35-mm. film was possible by the use of the special Agfa " Superpan reversible " type of film. An exposure scale and simple mounting of the camera with the object on an opaque glass top illuminated from below are illustrated. E. M. J.

Effect of short-wave irradiation of mid-brain on uterine movements in rabbit. Inoue (*Japan. J. Obstet. Gynec.*, 1940, **23**, 115—116).—Irradiation with ultra-short waves for 3 min. caused acceleration of the uterine movements, which were max. 6—7 days later and returned to normal after 30 days. During this period sensitivity to adrenaline and pilocarpine decreased. Longer irradiation produced greater effects for a shorter time. P. C. W.

Biological effects of short waves. S. Umeda (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 1, 37—39).—Fœtal death occurred in 70% of a group of rabbits irradiated with short waves of 12·5 m.; the mother was little affected. The deaths were not due to rises in temp. P. C. W.

Lethal effects of ultra-violet radiation on fungus spores.—See A., 1942, III, 267.

Case of erethism for solar light. S. Yunoki and N. Simada (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 1, 46).—An hysterical patient developed urticaria on exposure to sunlight; the long waves (green and blue) were chiefly effective. Ultra-violet, infra-red, and *X*-rays were without effect. P. C. W.

Effect of visible light on intestinal movement. S. Kitunezuka (*Japan. J. Obstet. Gynec.*, 1941, **24**, No. 2, 46).—Irradiation of the mid-brain in rabbits with red light led to increased intestinal tone and greater sensitivity to pilocarpine and atropine. Sensitivity to adrenaline was unaffected. P. C. W.

Effect of visible light on the secretion of milk. K. Menju (*Japan. J. Obstet. Gynec.*, 1940, **23**, 130—140).—Lactating guinea-pigs were irradiated with visible light for 30 min. daily for 8 days. Light above λ 580 mμ. increased, light below this λ decreased, milk secretion. White light had no effect. Irradiation of the head with the red light increased milk secretion but blue or white light had no effect. Injection of methylene-blue or eosin had no effect on the reactions. P. C. W.

Effect of visible light on wound treatment. M. Natume (*Japan. J. Obstet. Gynec.*, 1940, **23**, 160—161).—A formula is given for calc. the rate of wound healing; red light accelerated and blue light retarded the rate of healing of a wound artificially made in a rabbit's ear. Treatment should not be applied to new wounds since the initial effect is to prolong the period preceding the start of healing. P. C. W.

Effect of visible light on human capillaries. E. Yogo (*Japan. J. Obstet. Gynec.*, 1940, **23**, 161—162).—Irradiation of the abdomen in women with red light for 1 hr. caused capillary dilatation. Blue light produced inconst. effects. Irradiation of the brain stem with Ne light produced no effect. P. C. W.

Change in permeability of lymphatic–blood-vessel system of frog irradiated with visible light. S. Nambu (*Japan. J. Obstet. Gynec.*, 1940, **23**, 162).—Irradiation of the hind leg of the frog with white or red light increased the capacity of the blood vessels and the amount of fluid in the lymphatic cavities was correspondingly increased. Opposite effects were obtained with blue light. The effect of white light was strongest and most prolonged. P. C. W.

Effect of visible light on physico-chemical nature of blood. K. Horie (*Japan. J. Obstet. Gynec.*, 1940, **23**, 162—163).—The stability of rabbit serum as measured by the minimal concn. of alcohol necessary to cause pptn. *in vitro* was lowered by irradiation of either the rabbit, or of the serum *in vitro*, with white, red, or blue light. The effect of white light was greatest and was enhanced *in vivo* by injection of eosin or methylene-blue. P. C. W.

Effect of visible light on blood gases. S. Izawa (*Japan. J. Obstet. Gynec.*, 1940, **23**, 163—164).—Irradiation of white rabbits with blue light caused no changes in the blood-CO_2 or -O_2. Irradiation with red light caused a decrease in the alkali reserve reaching a max. 3 hr. after the irradiation and then an increase; O_2 remained const. P. C. W.

Effect of visible light on biological reaction of eclamptic blood serum and eclamptic placenta. K. I. Yamada (*Japan. J. Obstet. Gynec.*, 1940, **23**, 141—146).—Passive sensitisation of the guinea-pig uterus to the action of eclamptic placental extracts, produced by injection of eclamptic serum, was not effected by irradiation of the sensitised guinea-pig with red or blue light or with blue light after eosin injection. Sensitisation was abolished by irradiation with red light after methylene-blue injection. P. C. W.

Effect of visible light on reticulo-endothelial system. K. Yagi (*Japan. J. Obstet. Gynec.*, 1940, **23**, 164—165).—Irradiation of isolated subcutaneous tissue or of the entire body of the rabbit with red or white light produced acceleration of phagocytic activity as measured by the capacity to ingest Indian ink. The effect of blue light was inconst. P. C. W.

Effect of visible light on glucose tolerance test. S. Sakaguti (*Japan. J. Obstet. Gynec.*, 1940, **23**, 166).—Irradiation of rabbits with red or blue light accelerates the return to normal blood-sugar level after intravenous glucose. The max. blood-sugar val. attained in unaffected. The earlier return to normal is hastened if the red

light is applied after methylene-blue injection or the blue light after eosin injection. P. C. W.

Effect of visible light on liver function. S. Tomita (*Japan. J. Obstet. Gynec.*, 1940, **23**, 165—166).—Irradiation of the abdomen of rabbits with white, red, or blue light decreased the latent period and increased the rate of excretion of injected santonin in the urine. P. C. W.

Neon-ray irradiation of brain-stem. Effect of visible light on vegetative nervous system in animals.—See A., 1942, III, 219.

Photodynamic action of lime oil (*Citrus aurantifolia*). W. M. Sams (*Arch. Dermat. Syphilol.*, 1941, **44**, 571—587).—A photodynamic reaction was produced in 11 patients by rubbing oil on the skin and then exposing the patch to sunlight. The concn. of the photodynamic agent, the length of time of exposure, the subject, the location of the application, and previous irradiation determine the intensity of the subsequent dermatitis. λ just below the zone of visible light (3100—3700 A.) produce the dermatitis and subsequent pigmentation. C. J. C. B.

XXIII.—PHYSICAL AND COLLOIDAL CHEMISTRY.

Linkage of physico-chemical processes in biological systems. F. G. Donnan (*Nature*, 1941, **148**, 723—724).—A theoretical example is discussed. A cell contains a neutral substance X and is bathed in a solution of an ionised salt K^+A^-, and the membrane is impermeable to X but permeable to K^+ and A^-. Inside the cell Y^- is formed from X and A^- practically irreversibly and completely, while the membrane is impermeable to Y^-. $C_K = \frac{1}{2}[C_Y + \sqrt{C_Y^2 + 4C_K^2}]$ is deduced, where C denotes molar concns. inside the cell. E. R. S.

Progressive boundary spread in electrophoresis of proteins in solution. D. G. Sharp, M. H. Hebb, A. R. Taylor, and J. W. Beard (*J. Biol. Chem.*, 1942, **142**, 217—231).—A general equation is derived to express the dependence of n on time, distance moved, and individual ionic mobility in the moving boundary of a monodisperse protein during electrophoresis. This relationship takes into account the effects of diffusion and a distribution of mobilities among the protein ions in reversible boundary spread. When there is a low rate of diffusion or wide distribution in mobilities the general equation is greatly simplified, and at const. electrical field strength, the standard deviation of observed Svensson curves increases at a const. rate with time. This rate of increase, except for a const. factor, is the standard deviation of the mobility distribution factor. Abs. vals. of the mobilities in this distribution can be determined by means of existing theory. J. N. A.

XXIV.—ENZYMES.

"Fermentation" of Ceylon tea. Respiration and tea fermentation.—See A., 1942, III, 276.

Succinic-oxidase system in riboflavin-deficient rats. A. E. Axelrod, V. R. Potter, and C. A. Elvehjem (*J. Biol. Chem.*, 1942, **142**, 85—87; cf. A., 1942, III, 39).—In these rats, the succinic-oxidase content of the liver (but not that of the brain, heart muscle, thigh muscle, or kidney cortex) is increased by supplementing the otherwise adequate diet with riboflavin. This finding supports the view that the succinic-oxidase system includes one or more flavoproteins. W. McC.

Radioactive carbon as indication of carbon dioxide utilisation. Possibility of carbon dioxide reduction via the carboxylase system.—See A., 1942, III, 269.

Effect of sodium and potassium ions on choline-esterase. D. Glick (*Nature*, 1941, **148**, 662—663).—The effect of the addition of pure NaCl and KCl to choline-esterase–acetylcholine chloride systems has been investigated. Both salts have an activating effect on the activity of the enzyme from rabbit sera, but neither produced a consistent activation or inhibition of the horse serum enzyme. The source of the enzyme appears to be a crit. factor in determining the effect of Na^+ and K^+ on choline-esterase. L. S. T.

Sex hormones and enzymes. IV. Sex and choline-esterase in guinea-pigs, mice, and beri-beri rats. E. A. Zeller, H. Birkhäuser, H. von Wattenwyl, and R. Wenner (*Helv. Chim. Acta*, 1941, **24**, 1465—1470).—The serum of the male guinea-pig contains appreciably more choline-esterase than that of the mature female. The amount is diminished by castration of the female. Liver-choline-esterase in the mouse increases in the female with sex maturity but remains nearly const. in the male; in the adults there is a distinct difference between the sexes in amount. The activity of liver choline-esterase of B_1-avitaminotic rats which has been reduced below normal is restored to normal vals. by administration of œstradiol. H. W.

Localisation of choline-esterase in nerve fibres.—See A., 1942, III, 209.

Specificity of arginase; action on argininic acid. A. Hunter and H. E. Woodward (*Biochem. J.*, 1941, **35**, 1298—1306).—Liver extracts contain an enzyme which splits argininic acid into urea and *l*(−)-δ-amino-α-hydroxy-*n*-valeric acid, and appears to be identical with arginase (optimum p_H 9·8 etc.). The replacement of the α-amino-group of arginine by hydroxyl in argininic acid renders the mol. less susceptible to attack by arginase, which hydrolyses arginine 3750 times as rapidly. P. G. M.

Arginase and histidase in myoma uteri.—See A., 1942, III, 235.

Oxidative deamination of arginine and histidine [action of *B. coli* from rat's skin].—See A., 1942, III, 270.

Transamination in tumours, fœtal tissues, and regenerating liver.—See A., 1942, III, 251.

Dipeptidases of intestinal mucosa. F. B. Gailey and M. J. Johnson (*J. Biol. Chem.*, 1941, **141**, 921—929).—Pig's intestinal mucosa contains dipeptidases stable in 50% glycerol at low temp. but very unstable in sq. solution. Three, amongst others, have been partly characterised, viz., (*a*) an alanylglycine-splitting enzyme, not activated by any of the substances tested, (*b*) an enzyme rapidly hydrolysing diglycine, activated by Mn and, especially, Co, and (*c*) an enzyme hydrolysing prolylglycine and probably other dipeptides without an amino-group in the *l*-configuration, activated by Mn. There is no evidence for the presence of a sp. prolinase attacking all prolylpeptides. The activity of the dried mucosa is due mainly to leucyl-peptidase. H. G. R.

Occurrence in serum and urine of persons having carcinoma of polypeptidases capable of hydrolysing polypeptides containing *d*-amino-acid residues.—See A., 1942, III, 250.

Proteolytic enzymes of animal tissues. III. Enzymes of ox spleen, ox kidney, and pig kidney. Classification of cathepsins. J. S. Fruton, G. W. Irving, jun., and M. Bergmann (*J. Biol. Chem.*, 1941, **141**, 763—774; cf. A., 1941, III, 534).—There are indications of a fourth component of ox-spleen cathepsin, the activity of which towards carbobenzyloxyglycylphenylalanine in presence of cysteine is more resistant to acidity (p_H 3·9—3·5) than is cathepsin II. Ox and pig kidney also contain all four enzymes. Cathepsins I and II are carbonylproteinases, since they are sp. for substrates with a peptide linking adjacent to the ·CO· side of the sensitive peptide bond. Cathepsin III is an aminopeptidase, and cathepsin IV a carboxypeptidase. P. G. M.

Molecular kinetics of trypsin action. J. A. V. Butler (*J. Amer. Chem. Soc.*, 1941, **63**, 2971—2974).—$\text{Log}_{10} k$ (at 0°), ΔH (g.-cal.), and ΔS for the initial stages of the reactions, (*a*) trypsin–chymotrypsinogen, (*b*) –benzoyl-*l*-arginine amide, and (*c*) –sturin, (*d*) chymotrypsin–benzoyltyrosylglycyl amide and (*e*) –pepsin, and (*f*) H^+–acetylglycine are (*a*) 2·6, 16,300, +8·5, (*b*) 0·40, 14,900, −6·2, (*c*) 3·33, 11,800, −4·7, (*d*) 1·57, 10,500, −17·4, (*e*) 2·34, 11,200, −11·5, and (*f*) −6·47 (at 80°), 21,200, −24·8. The rates, except for (*a*), are normal and approximate to those calc. from the simple collision theory. Since with such mols. many collisions must be ineffective, this must be compensated by, *e.g.*, formation of fairly stable complexes of enzyme + substrate. R. S. C.

Formation of chymotrypsin from chymotrypsinogen. J. A. V. Butler (*J. Amer. Chem. Soc.*, 1941, **63**, 2968—2970).—Conversion of chymotrypsinogen into chymotrypsin, measured at 0°, 6·2°, 13·0°, and 19·6°, has activation energy 16,300 g.-cal. but is abnormally rapid. Increase in formol titration parallels that in milk activity but continues after the latter is complete. This later increase is a secondary reaction, but the first change is fission of peptide bonds (4—6 per mol.) in ring structures without liberation of "non-protein-N" or NH_3. The Michaelis const. is more than $1·3 \times 10^{-3}$ mol. per l. D_2O has no effect on the reaction, which thus does not involve H^+. Salt effects are $KCl > NaCl > Na_2SO_4$. R. S. C.

Determination of melibiase activity. P. P. Gray and H. Rothchild (*Ind. Eng. Chem. [Anal.]*, 1941, **13**, 902—905).—The hydrolysis of melibiose by melibiase follows a unimol. law between the limits of 30% and 70% hydrolysis, and activities are expressed as k vals. as determined after 30 min. hydrolysis. The degree of hydrolysis is determined colorimetrically using a solution of Cu lactate–phosphomolybdic acid reagent. Determinations on sucrose–raffinose mixtures indicate that the amounts of enzyme specified by the A.O.A.C. for hydrolysis are unnecessarily high. The application of the method to the activity of brewery yeasts is discussed. J. D. R.

Emulsin. XLV. Glucosides of hydroxy-sulphonic acids and their esters.—See A., 1942, II, 133.

Constitution of starch synthesised *in vitro* by potato phosphorylase.—See A., 1942, II, 135.

Absorption of oxygen in the enzymic oxidation of unsaturated fatty acids.—See A., 1942, II, 73.

XXV.—MICROBIOLOGICAL AND IMMUNOLOGICAL CHEMISTRY. ALLERGY.

Rôle of potassium in yeast. E. J. Conway and J. Breen (*Nature*, 1941, **148**, 724).—The mean rate of CO_2 production from glucose by

yeast in which the K has been replaced by NH_3 is 40% of that of the untreated yeast. On a suitable medium, the K-yeast grows faster at first and reaches an upper limit in 24 hr.; the NH_3-yeast is slower at first, but after 2—3 days exceeds the K-yeast, and passes to a higher level of growth. The resting metabolism of the NH_3-yeast is higher than that of the K-yeast. K, at least more than 0·1—1·0 mg. per 100 g., is not essential for fermentation, growth, or resting metabolism of the living yeast cell (cf. A., 1942, III, 299). L. S. T.

Preparation from yeast active in breaking the rest period of buds.—See A., 1942, III, 275.

Degradation of carbohydrates of the starch group by Lebedev's extract of dried yeast.—See A., 1942, II, 82.

Studies in the genus *Colletotrichum*. II. Physiological studies on *C. falcatum*, Went. T. S. Ramakrishnan (*Proc. Indian Acad. Sci.*, 1941, **14**, B, 395—411).—*C. falcatum* will grow at p_H 3·7—7·9, best at 4·5—5·0, the p_H being shifted to 6—7 during growth; 30° is the best temp. for growth, and 32° for germination of spores. NH_3 is produced during growth. The fungus grows on sucrose, glucose, sol. starch, maltose, lactose, and arabinose, in that order, and just perceptibly on cellulose. The best sources of N are asparagine, peptone, and KNO_3. 5% is the best sugar concn.; 1—1·5% KNO_3 provides the best level of N, and the best C/N ratio is 5. A light-coloured strain appeared in some cultures; this had similar physiological characteristics but was more virulent than the dark parent strain. Growth is reduced in the presence of *Aspergillus* or a filtrate of its culture medium. *Trichoderma* has no such effect. Invertase, diastase, pectinase, oxidase (tannin test), trypsin, amidase, lipase, erepsin, and inulase were detected, the amounts varying in the two strains. R. L. E.

Development and structure of conidia of *Erysiphe polygoni*, D.C., and their germination at low humidity. H. J. Brodie and C. C. Neufeld (*Canad. J. Res.*, 1942, **20**, C, 41—61).—Germination of conidia of *E. polygoni* is independent of the moisture content of the surrounding atm. and can occur under conditions of extremely low humidity. The conidium is cut off from the surrounding conidiophore by a ring of wall material which is added to inwardly until a perforate disc is formed. The pore is closed later and the mature conidium is attached to its conidiophore only by a minute papilla. The conidia do not germinate *in situ* and are passively discharged. The wall of the conidium is markedly impervious to water and stain enters the spore only at the papillate end. It is assumed that the wall is also relatively impervious to gases and that the papilla is the only permeable spot, and this is not exposed until the spore has been detached. When exposed to air the papilla allows CO_2 to pass out from the chloroplast and O_2 to pass in and this causes respiration and other germination processes to begin. Freshly detached conidia do not germinate in 10% CO_2 or 100% N_2. No shrinkage occurs during germination, but shrivelling and collapse occur when death is imminent. J. N. A.

Biological decomposition of chemical lignin [lignosulphonates]. I. Sulphite waste liquor. G. A. Adams and G. A. Ledingham. **II. Decomposition of calcium lignosulphonate by wood-destroying and soil fungi.** G. A. Ledingham and G. A. Adams (*Canad. J. Res.*, 1942, **20**, C, 1—12, 13—27).—I. The lignin in sulphite waste liquor is present as sol. Ca lignosulphonate, and in order to form a suitable medium for growth of fungi the free SO_2 is removed by boiling and vigorous aëration for 15 min. followed by the addition of nutrient salts containing P and N, and adjustment of the p_H. The wood-staining fungus, *Endoconidiophora adiposa* decomposes approx. 10% of the lignin fraction in such a medium. The best neutralising agent for the liquor is Na_2CO_3 or a mixture of $CaCO_3$ and $MgCO_3$. The fungus also utilises 10—15% more of the reducing sugars than does yeast. Org. and NH_3-N are more satisfactory for growth than is inorg. NO_3'. In general, decomp. of lignin is proportional to fermentation of sugar, and after the available sugar has been fermented decomp. of lignin rapidly decreases, and addition of more sugar does not cause further decomp. of lignin, although the sugar is fermented. The best p_H for fermentation of sugar and decomp. of lignin is 5·50—5·85, but mycelial growth is most rapid at approx. p_H 6·50. Most of the decomp. of the lignin occurs within 35 days at 25°.

II. The prep. of a medium from Ca lignosulphonate isolated from waste liquor is described. It contains $(NH_4)_2HPO_4$ (0·5), KCl (0·1), $MgSO_4$ (0·1), $FeSO_4$ (0·002), glucose (2), and Ca lignosulphonate (5%). The growth and ability to decompose lignin of 106 cultures of wood-destroying and soil fungi, including 33 strains of *Alternaria* and 13 strains of *Fusaria*, are determined. Certain species of these two genera decompose 12 and 18% of lignin, respectively, but in general, the wood-destroying fungi show great variation and only a few species are effective. There is a slight positive correlation between the Bavendamm tannic acid reaction for identification of lignin-decomp. fungi and the decomp. of lignosulphonate after 60 days' growth, but the test is of doubtful practical val. J. N. A.

Intermediate [product] in the alcoholic fermentation of carbohydrates by *Fusarium lini*, Bolley (Fib.). J. C. Wirth and F. F. Nord (*J. Amer. Chem. Soc.*, 1941, **63**, 2855).—Pyruvic acid is produced when glucose, fructose, mannose, galactose, or xylose is fermented by *Fusaria*. It is an intermediate product and occurs in smaller amount if aneurin is added to the medium. R. S. C.

Action of penicillin on enterococci and other streptococci. S. Bornstein (*J. Bact.*, 1940, **39**, 383—387).—Twenty-seven strains of enterococci and six strains of *Streptococcus lactis* were resistant and 13 strains of *S. viridans* were susceptible to penicillin (filtrate from cultures of *Penicillium notatum*). The enterococci were highly resistant and *S. lactis* and *S. viridans* were slightly susceptible to K_2TeO_3. A. G. P.

Transmission of *Leishmania tropica* by bite of *Phlebotomus papatasii*. S. Adler and M. Ber (*Nature*, 1941, **148**, 227).—Female sandflies, kept at 30°, were infected by feeding on a suspension of flagellates in 3 parts of 2·7% saline and 1 part of inactivated defibrinated rabbit's blood. They were re-fed afterwards on 8 human volunteers, of whom 5 became infected with cutaneous leishmaniasis. E. R. S.

Effect of intraperitoneal injections of carbon ink on *Plasmodium lophuræ* infections in chickens. W. Trager (*Amer. J. Hyg.*, 1941, **34**, C, 141—149).—*P. lophuræ* inoculated into 4—9-week-old chicks multiplied until the 3rd day, when they rapidly decreased. Similar chicks were given injections of Indian ink into the post-peritoneal cavity 1 day before inoculation with parasites and for several days afterwards. The parasite no. continued to increase beyond the 3rd day and a higher max. no. was reached on the 5th day, which declined less rapidly than in control chicks. The course of infection resembled that in very young chicks. Indian ink probably interferes with the mechanism of immunity developed in older chicks. B. C. H.

Klino-kinesis of *Paramecium*.—See A., 1942, III, 263.

Rôle of microbes in development of *Cosmarium pachydermum*. M. Ronse (*Arch. int. Méd. exp.*, 1939, **14**, 41—48).—The alga develops more rapidly than normal in the presence of microbes. It is usually associated with a particular species of microbe belonging to the Chromobacteriæ. Other microbes such as *B. proteus*, *B. coli*, or staphylococcus produce the same results. Certain sporulated microbes have an inhibitory effect. P. C. W.

Production of growth-promoting and -inhibiting factors by ultra-violet irradiated micro-organisms. J. R. Loofbourow and M. N. Morgan (*J. Bact.*, 1940, **39**, 437—453).—Lethal irradiation of suspensions of yeast induced the production of a factor which stimulated the growth of several species of bacteria examined. Similar treatment of suspensions of *E. coli* or *S. aureus* also produced stimulative substances but inhibitory factors were also present. A. G. P.

Bacteriostatic and bactericidal agents obtained from saprophytic micro-organisms. R. J. Dubos (*J. Pediat.*, 1941, **19**, 588—595).—A review. C. J. C. B.

Antibacterial action of two bacterial products of known structure. H. McIlwain (*Nature*, 1941, **148**, 628).—Data showing the effect of the pigment of *Chromobacterium iodinum*, and of chlororaphin on the growth of *Streptococcus hæmolyticus*, *Staphylococcus aureus*, *B. coli*, *B. typhosum*, and *Proteus vulgaris* are recorded. 2 μg. per ml. of the pigment prevents visible growth of *S. hæmolyticus* in liquid media, and in solid media within a radius of 1 cm. Synthetic chlororaphin is also inhibitory, but to a smaller degree. L. S. T.

Inhibition of bacterial growth by indolylacrylic acid and its relation to tryptophan; illustration of inhibitory action of substances chemically related to essential metabolite. P. Fildes (*Brit. J. exp. Path.*, 1941, **22**, 293—298).—Indolylacrylic acid inhibits the growth of *Bact. coli*, which can synthesise tryptophan from NH_3, *Bact. typhosum*, which can synthesise tryptophan from indole, and a strain of *Bact. typhosum* trained to synthesise indole from NH_3. This inhibition can be counteracted by the addition of tryptophan, which gives a growth proportional to the addition, but has no quant. relationship to the inhibitory concn. of indolylacrylic acid. It is concluded that indolylacrylic acid blocks the utilisation of a precursor in the final stage (after indole) of synthesis to tryptophan (cf. Woods, A., 1940, III, 615; McIlwain, *ibid.*; also A., 1941, III, 799). F. S.

Nutritional investigation of antibacterial action of acriflavine. H. McIlwain (*Biochem. J.*, 1941, **35**, 1311—1319).—The action of acriflavine in inhibiting growth of *B. coli* and *Streptococcus hæmolyticus* is reversible by the addition of two types of compound not normally required for bacterial growth. Type I can be replaced by nucleotides and type II by a concentrate of amino-acids (chiefly phenylalanine). Inhibition of *B. coli* is also prevented, but only in the presence of type II factors, by certain H carriers (*e.g.*, methylene-blue, pyocyanine, etc.). P. G. M.

Prevention of droplet-borne infections by spray. D. S. Middleton and I. C. Gilliland (*Lancet*, 1941, **241**, 598—599).—12 units of a searchlight brigade were studied for the effects of spraying huts etc. with hypochlorite solution on the frequency of droplet-borne infections. 6 units whose huts were sprayed showed fewer such infections than 6 untreated units, and the frequency of non-droplet diseases was the same in both groups. C. A. K.

Change with time in blood [bactericidal power] following venesection.—See A., 1942, III, 198.

Bactericidal action of *X*-rays, neutrons, and radioactive radiations.—See A., 1942, III, 262.

New staining method for Gram-positive and Gram-negative organisms in frozen sections. A. A. Krajian (*Arch. Path.*, 1941, **32**, 825—827).—The section is stained for 2 min. in alum–hæmatoxylin, washed in tap water until blue, and rapidly destained in acid alcohol, dipping in and out 5—7 times; after rinsing in tap water $CuSO_4$–$ZnSO_4$ solution is applied for 3 min. ($CuSO_4$ 7 g., $ZnSO_4$ 4 g. dissolved in 100 c.c. of distilled water by the aid of heat). The solution is poured off; brilliant-green is then applied for 5 min. (0·3 g. of brilliant-green dissolved in 10 c.c. of $CuSO_4$–$ZnSO_4$ mixture). The prep. is rinsed in water and fortified for 1 min. with 5% aq. NH_4NO_3, rinsed in tap water, and treated with carbolfuchsin (Ziehl–Neelsen method) for 2 min. The slide is rinsed in tap water, blotted, and treated with dioxan for 2 min. After pouring off the reagent and without washing creosote–xylene (equal parts) is applied, the solution being changed several times and the slide agitated for even differentiation until the background is clear red with no more stain leaving the section (this step requires about 1 min. and it is advisable to control the differentiation under the microscope). The prep. is cleared in pure xylene (2 min.) and mounted in gum dammar. Nuclei are bluish-red, Gram-positive organisms bluish-green, Gram-negative organisms red, monilias and actinomycetes green, and Negri bodies bright red with greenish chromatin bodies. All the staining solutions are stable except the brilliant-green, which keeps well about 24 hr. C. J. C. B.

Bacteriological air analysis by cloud-chamber method. S. D. Elliott (*Lancet*, 1941, **241**, 514—515).—Air samples for bacteriological analysis are first drawn through a water vapour mist to trap suspended particles, and then cooled so that condensation of water on particles left in suspension occurs. The method, which is described in detail, is highly efficient in removing streptococci from air, and the organisms are recovered in a fluid medium. C. A. K.

Composition tubes as substitute for glass in isolation of sporulating anaërobes. R. S. Spray (*J. Lab. clin. Med.*, 1941, **26**, 1957—1958).—A tube of plastic is used and the colonies may then be fished by piercing the side of the tube with a needle. C. J. C. B.

Evaluation of errors involved in estimating bacterial numbers by the plating method. M. W. Jennison and G. P. Wadsworth (*J. Bact.*, 1940, **39**, 389—397).—The total error in bacterial counts is largely due to errors of dilution and distribution. Means of evaluating both sources of variation are described. A. G. P.

Effect of temperature on growth rates of *Rhizobia*. F. E. Allison and F. W. Minor (*J. Bact.*, 1940, **39**, 365—371).—Growth–temp. relationships have been examined. The optimum growth range for 9 cultures examined was 29—31° (*R. meliloti* 35°). Growth ceased at 37° (*R. meliloti* 41°). The temp. characteristic of growth over the range 15—85° was 16,900 cal. A. G. P.

Synthesis of co-enzyme *R* by certain *Rhizobia* and by *Azotobacter chroococcum*. F. E. Allison and F. W. Minor (*J. Bact.*, 1940, **39**, 373—381).—Two strains of *Rhizobium* and also *Azotobacter chroococcum* synthesised co-enzyme *R* and transmitted it to the culture medium. Rapidly growing *Rhizobia* require the addition of *R* to the medium. Other strains which grow well without *R* in the medium produce it in amounts exceeding their requirements. A. G. P.

Fermentation of sugar acids by bacteria. G. B. Robbins and K. H. Lewis (*J. Bact.*, 1940, **39**, 399—404).—The utilisation of mucic, *d*-saccharic, *d*- and *l*-gluconic, *d*- and *l*-mannonic, *d*-galactonic, *d*-talonic, *l*-rhamnonic, 5-keto-*d*-gluconic, and *d*- and *l*-arabonic acids by 24 bacterial species is examined and compared with that of the related aldoses and sugar alcohols. Data confirm that modification of the aldose structure diminishes the frequency of utilisation of compounds by bacteria. The total mol. structure of sugar acids is probably more important than their asymmetry in conditioning their fermentation by micro-organisms. Sugar acids may serve to distinguish between certain bacterial species. A. G. P.

Acetone–butyl alcohol fermentation. I. Nutritional and other factors in preparation of active suspensions of *Cl. acetobutylicum* (Weizmann). R. Davies and M. Stephenson (*Biochem. J.*, 1941, **35**, 1320—1331).—The character of the fermentation depends largely on the age of the culture. Only ripe cells, obtained after the appearance of acetone in the parent culture, give rise to acetone in subsequent fermentations. Even so the nature of the medium affects the products; on 5% maize meal a normal fermentation occurs, whilst on 2% glucose and yeast water little alcohol or acetone is produced (acid fermentation). The best medium for growth of the organism is the basal medium given + a 2·5% tryptic digest of liver. The optimum p_H for fermentation of glucose is 5·7, and of pyruvate 5·1. The addition of certain factors, present in liver, maize, and yeast, will convert an acid into a normal fermentation. P. G. M.

Communicable disease and the school. G. M. Wheatley (*Amer. J. Dis. Child.*, 1941, **62**, 1052—1059).—A lecture. C. J. C. B.

Control of infectious diseases in rapidly mobilised troops. A. P. Hitchens (*Ann. int. Med.*, 1941, **15**, 172—177).—A lecture. A. S.

Wound infection. A. A. Miles (*Lancet*, 1941, **241**, 507—510).—A lecture. C. A. K.

Vaginal flora in children. G. Campbell (*Amer. J. Dis. Child.*, 1941, **62**, 939—954).—In 190 girl infants and young children with vaginal infection, the usual organisms were group *A* streptococcus, gonococcus, and the diplobacillus of Petit in that order of frequency. C. J. C. B.

An acid-fast bacterium frequently present in tonsillar tissue of pig. A. G. Karlson and W. H. Feldman (*J. Bact.*, 1940, **39**, 461—472).—Physiological characteristics and allergic and agglutination reactions of an acid-fast organism found in 25% of pig tonsils are recorded. A. G. P.

Bacteriæmia produced by aërobic, Gram-negative sporulating bacillus. A. Bondi, jun., E. H. Spaulding, and J. A. Kolmer (*J. Lab. clin. Med.*, 1941, **27**, 41—44).—An unidentified Gram-negative, spore-bearing bacillus was isolated from the blood stream of 5 different patients. The organism was not pathogenic to rabbits or apparently to the patients concerned. C. J. C. B.

Differentiation of *B. coli* in water. J. Daems (*Arch. int. Méd. exp.*, 1939, **14**, 187—199).—*B. coli* derived from the earth and those from the intestine present in drinking-water may be distinguished by various tests: culture on synthetic media of Na citrate or propionate, on Harden's medium, by Voges–Proskauer test, indole test, or by the reaction to methyl-red. Testing for anti-coli bacteriophage and detection of enterococcus are recommended in conjunction with the above tests. P. C. W.

Semisolid double sugar medium for identification of the colon–typhoid group. S. H. Zia and P. Y. Liu (*J. Lab. clin. Med.*, 1941, **26**, 1952—1953).—The medium is a modification of Russel's double sugar medium. C. J. C. B.

Identification of *Blastomycoides histolytica* in 3 infections of central nervous system. R. A. Holt (*J. Lab. clin. Med.*, 1941, **27**, 58—62).—Report of 3 cases. (4 photomicrographs.) C. J. C. B.

Technique for isolation of *Brucella* from human brucellosis. M. A. Paston (*J. Lab. clin. Med.*, 1941, **26**, 1961—1965).—The cultures are examined daily and transplants of broth cultures made to fresh broth at 2—3-day intervals even though there is no visible growth. When organisms are present in small nos., as in the blood of patients with the chronic form of brucellosis, and in lymph nodes, *Brucella* may be recovered occasionally from guinea-pigs when the cultures are negative. C. J. C. B.

Infection of chick embryos with *Bact. tularense*, *Brucella*, and *Pasteurella pestis*. G. J. Buddingh and F. C. Womack, jun. (*J. Exp. Med.*, 1941, **74**, 213—222). A. C. F.

Factors affecting activity of toxin of *Clostridium welchii*. C. L. Oakley and G. H. Warrack (*J. Path. Bact.*, 1941, **53**, 335—370).—The estimated val. of the min. indicating dose of α toxin against red cells, human serum, and lecithovitellin depends on [Ca^{++}] present. Increase in [Ca] or [Mg] leads (up to a point) to a decrease in the min. indicating dose. The min. lethal dose and the min. necrotising dose are independent of [Ca] owing to the free diffusibility of Ca^{++}. The estimated combining power of α toxin is increased by the increase in [Ca] or [Mg]; the relationship is logarithmic: log combining power = m(log molar [Ca] or [Mg] + a const.). The val. of m varies greatly for different toxins and sera. An explanation of this is suggested on the basis of the law of mass action. α toxins differ among themselves in the stability of the compounds they form with α antisera; these differences can be demonstrated and measured by "Ca avidity curves." The combining power as determined by intravenous inoculation of toxin–antitoxin mixtures into mice or intracutaneous injection into guinea-pigs, concn., and the neutral point in flocculation tests of α toxin–antitoxin mixtures are unaffected by changes in [Ca]. C. J. C. B.

Types of diphtheria bacilli in New York City in 1940. E. Seligman (*Amer. J. Hyg.*, 1941, **34**, B, 125—137).—181 strains of diphtheria bacilli (108 throat, 71 nose, 2 unknown) were examined from 138 cases and carriers. Morphology from Loeffler and blood–tellurite media, type of colony on Clauberg's and McLeod's media, blood–agar, and plain agar, appearance of growth and p_H change in broth, carbohydrate fermentation, and virulence were investigated. 5 strains fermented starch and glycogen and resembled *gravis* type. Of the remaining 176, 96 possessed *mitis* characteristics while 80 differed from either type and were called "indeterminate" strains. No *intermedius* types were found. 11 (6·1%) strains were avirulent including 10 *mitis* and 1 indeterminate. No relationship was found between type of bacilli and clinical severity. The reduced incidence and mild character of diphtheria in New York City during 1940 may account for the difficulty in classifying prevailing *C. diphtheriæ* according to European methods of type differentiation. B. C. H.

Diphtheria bacillary carrier rate in natives. N. Emmerson (*S. Afr. J. med. Sci.*, 1941, **6**, 51—52).—The carrier rate for virulent *C. diphtheriæ* among 1005 urban natives was 0·2%; among 554 foreigners (Europeans) in Port Elizabeth it was 0·18%. Virulent bacilli were not isolated from 134 rural natives. P. C. W.

Purification of diphtheria toxin and toxoid made from tryptic digest broths. F. V. Linggood (*Brit. J. exp. Path.*, 1941, **42**, 255—261).—Treatment of toxin or toxoid with charcoal followed by a two-stage pptn. with $CdCl_2$ gave purities up to 1500 *Lf* units per mg. of N without lengthening the flocculating time of the toxin or toxoid. F. S.

Diplococcus mucosus, von Lingelshein. A. M. McFarlan (*J. Path. Bact.*, 1941, **53**, 446—450).—A strain of *D. mucosus* described differs from previous strains in having a rough variant colony, in fermentation reactions and lack of pathogenicity for mice, suggesting that the organism is a variant of the *Neisseria pharyngis* group. The systemic position of the organism is uncertain. C. J. C. B.

Antigenic properties of microfilaria from *Dirofilaria immitis*. G. Bruynoghe (*Arch. int. Méd. exp.*, 1939, **14**, 29—39).—No antibody formation occurred in dogs, guinea-pigs, or rabbits. Positive reactions were recorded in the blood of patients infested with *Loa loa*; the reaction was only positive in 1 of 5 cases infested with *Achantocheilonema perstans*. P. C. W.

Studies on *Loa loa* and first report of *Wuchereria bancrofti* in Sudan. H. M. Woodman and A. Bokhari (*Trans. R. Soc. trop. Med. Hyg.*, 1941, **35**, 77—92).—A review of the incidence and epidemiology of *Loa loa* in the Sudan. C. J. C. B.

Crude birth-death ratio (vital index) in British Guiana; relation to malaria. P. A. T. Sneath (*Trans. R. Soc. trop. Med. Hyg.*, 1941, **35**, 105—117). C. J. C. B.

Avoidance of fatal complications in therapeutic malaria. U. J. Wile and L. K. Mundt (*Arch. Dermat. Syphilol.*, 1941, **44**, 1078—1081).—A general discussion. C. J. C. B.

Human infection with *Pasteurella pseudotuberculosis rodentium* of Pfeiffer. E. S. Moss and J. D. Battle, jun. (*Amer. J. clin. Path.*, 1941, **11**, 677—699).—A case report with postmortem. (9 photomicrographs.) C. J. C. B.

H. pertussis. **Preparation and assay of hyperimmune human serum.** E. W. Flosdorf, A. C. McGuiness, A. C. Kimball, and J. G. Armstrong (*J. Pediat.*, 1941, **19**, 638—643).—Antitoxin for the 2 known toxins of *H. pertussis* is not found in human convalescent or hyperimmune human serum but agglutinins or antibacterial antibodies are found in high titre in the hyperimmune serum of known high clinical potency. Agglutination is recommended as a means of assay of such sera and should be used routinely as a laboratory control test in the production of such sera for clinical use. Titres of the sera of a group of human donors during the course of immunisation show variations in different donors and also in any given donor from time to time. C. J. C. B.

Prophylactic value of pertussis vaccine. J. E. Perkins, E. L. Stebbins, H. F. Silverman, P. A. Lembcke, and B. M. Blum (*Amer. J. Publ. Health*, 1942, **32**, 63—72).—Pertussis attack rate was more than twice as high in controls as in children vaccinated with phase 1 pertussis vaccine in a total dosage of 80×10^9 organisms. Cases which did occur in the vaccinated children were less severe than in the controls. C. J. C. B.

Friedländer bacillus pneumonia. L. A. Julianelle (*Ann. int. Med.*, 1941, **15**, 190—206).—The incidence of *B. Friedländer* pneumonia in 17,260 cases of pneumonia collected from the literature was 1·1%; the mortality rate in 242 Friedländer cases was 82%; 60% out of 98 patients showed bacteræmia. In the author's 109 cases, typing of the Friedländer organism was carried out on sputum, blood, and urine (to urine diluted up to 1 : 80, 0·2 c.c. of antiserum and 0·3 c.c. of NaCl are added; pptn. after 2 hr. or on the following day indicates presence of free polysaccharides). Type *A* was found in 64%, type *B* in 14%, type *C* in 7%, and type *X* in 15%. Of 55 patients 39 were type *A* (mortality rate 89%), 7 were type *B* (71% died), 4 were type *C* (2 patients died); 5 were group *X* (3 died); the total mortality rate of this group of 55 patients was 82%. Sulphonamides are of little val.; sp. antiserum should be tried. (B.) A. S.

Active immunisation against pneumonia with pneumococcal polysaccharide. M. Siegel and R. S. Muckenfuss (*Amer. J. Hyg.*, 1941, **34**, A, 79—109).—Types I and II pneumococcal polysaccharides prepared by the method of Wadsworth and Brown, and types I, II, and III polysaccharides prepared by Felton, were employed at Letchworth Village during 1937—40 and 1940—41, respectively. There was no evidence of protection against pneumonia caused by type I pneumococcus and insufficient data to determine the prophylactic val. of the polysaccharides against pneumococci types II and III. Experience with other strains of pneumococci and other micro-organisms in pneumonia demonstrated the difficulty of preventing the disease when limited to sp. active immunisation with derivatives of only types I, II, and III pneumococci. B. C. H.

Polarographic studies of the behaviour of normal and pneumococcus-infected dog sera toward denaturation agents and enzymes. M. L. Crossley, R. H. Kienle, B. Vassel, and G. L. Christopher (*J. Lab. clin. Med.*, 1941, **27**, 213—222).—No differences were found between rates of denaturation of serum from normal and from type I pneumococcus-infected dogs when wetting agents or pepsin and trypsin are used. Alkali produced changes in the polarographic rate of denaturation curves which differ markedly for normal and infected sera, the wave height being lower in the former. The partial *in vivo* destruction of the serum-proteins during infection to mols. of the size of metaproteins, proteoses, and peptones probably accounts for the observed differences. C. J. C. B.

Cutaneous reactions with specific soluble substance in [pneumonia] infants and children. R. Meyer and B. W. Carey (*J. Pediat.*, 1941, **19**, 481—484).—When sp. antipneumococcal serum is given intravenously, only one skin test with sp. sol. substance need be done; after this area becomes positive, serum therapy can be discontinued. By utilising this test, less serum was given with comparable therapeutic effect. The time of development and intensity of cutaneous reactions varied greatly when patients received only chemotherapy. C. J. C. B.

Utilisation of nicotinic acid and related pyridine compounds by the *Proteus* group of organisms. M. J. Pelczar, jun., and J. R. Potter (*J. Bact.*, 1940, **39**, 429—435).—Of 13 pyridine derivatives examined those which were effective for the growth of *Staphylococcus aureus* (Knight, 1937) also produced satisfactory growth of *Proteus* strains. Diethylnicotinamide was biologically active. A.,G. P.

Phagocytosis and immunity in psittacosis. K. F. Meyer (*Schweiz. med. Wschr.*, 1941, **71**, 436—438).—A suspension of *Microbacterium multiforme psittacosis* in convalescent whole blood, incubated for 2 hr. at 37°, is less infective for mice on intraperitoneal injection than in convalescent serum. Macro- and micro-phages were obtained from guinea-pig's peritoneal exudate after intraperitoneal injection of starch or oil; they were washed in heparinised salt solution and added to psittacosis elementary bodies in buffered saline or in various concns. of homologous sera from normal, infected, or immunised animals. After 30 min. incubation at 37° and centrifuging, slides of the sediment were stained with Giemsa and differentiated in tannic acid–orange G solution or dyed according to Castanedo or Macchiavello. In saline suspensions the phagocytic activity of the monoblasts was slightly greater than of the polyblasts. Addition of immune serum (complement-fixation titre 1 : 64) caused a moderate increase in phagocytosis by both types; the increase grew parallel with the serum concn. Untreated serum or sera reinforced by complement tripled the total no. of virus bodies ingested by the monoblasts. Complement alone does not cause marked monoblast phagocytosis. Mixtures of exudate cells (0·2 c.c.), serum (0·1 c.c.), and virus (0·1 c.c.; 1×10^{-7}) in 0·5 c.c. of buffered saline were incubated for 2 hr. at 37° and centrifuged; intraperitoneal injection into mice of supernatant fluid or sediment proved lethal in all cases. If heated or unheated immune sera were used the supernatant fluid was innocuous but the sediments (with heated sera) caused infections, but not with unheated sera. A. S.

Rat-bite fever. P. V. Woolley, jun. (*J. Pediat.*, 1941, **12**, 513—525).—2 cases of rat-bite fever are reported. The literature is reviewed. C. J. C. B.

Effect of serum on cytolysis produced by staphylococcus toxin. O. Gengou (*Arch. int. Méd. exp.*, 1939, **14**, 23—27).—The cytolytic action of staphylococcal toxin requires the presence of some constituent of serum to be complete. This is particularly the case with its action on leucocytes, less so for hæmatoblasts, and even less for erythrocytes. The serum is not deprived of its effect if desiccated, dialysed, treated with ether, petrol, or $CHCl_3$, or if it is Ca-free. P. C. W.

Localisation and concentration of staphylococcus antitoxin in areas of rabbit's skin. R. G. Rigdon (*J. Lab. clin. Med.*, 1941, **27**, 37—40).—Staphylococcus antitoxin given intravenously localises and concentrates in areas of the rabbit's skin where the capillary permeability is increased by local application of xylene. Antitoxin sufficient to inhibit necrosis localises within 2 hr. and remains in the tissues for at least 5 days. C. J. C. B.

Two cases of staphylococcal meningitis treated with asparagine bacteriophage. P. S. MacNeal and D. B. Foster (*Amer. J. med. Sci.*, 1941, **202**, 874—879).—2 cases treated with asparagine bacteriophage intravenously and intrathetically are described. One recovered and the treatment is outlined in detail. C. J. C. B.

Microscopical observations on bacteriophage of staphylococcus. K. B. Eisenberg-Merling (*J. Path. Bact.*, 1941, **53**, 385—390).—From each coccus 1—4 phage bodies are released as a result of the lysis of the organism. Fragments of lysed cocci of various forms and sizes, phage bodies, and resistant cocci persist in lysed cultures for some time. The diameter of the phage bodies was 0·06 mμ. ±10%. (11 photomicrographs.) C. J. C. B.

Analysis of 1592 cases of scarlet fever, from August, 1939, to July, 1940, at Kingston Avenue Hospital, Brooklyn, New York. A. Gibel and A. M. Litvak (*Arch. Pediat.*, 1941, **58**, 597—604). C. J. C. B.

Transformations of phosphorus during glucose fermentation by living cells of *Streptococcus fæcalis*. D. J. O'Kane and W. W. Umbreit (*J. Biol. Chem.*, 1942, **142**, 25—30).—P in the cells and medium is markedly decreased in the early stages of glucose fermentation by resting *S. fæcalis* and appears chiefly in the Ba-sol. alcohol-insol. fraction. Conversion of inorg. P from the cells and medium into org. P compounds follows the usual course of phosphorylating glycolysis (cf. Endo, A., 1938, III, 535). H. G. R.

Mechanism of cross infection of wounds in hospital by hæmolytic streptococci. R. E. Willits and R. Hare (*Canad. Med. Assoc. J.*, 1941, **45**, 479—488).—A review of the subject with additional evidence of transfer of infection from case to case by hands, instruments, dust in air, etc. C. J. C. B.

Agglutin content of antisera to hæmolytic streptococci. S. D. Henriksen and M. Heidelberger (*J. Exp. Med.*, 1941, **74**, 105—114).—Application of quant. agglutination procedure to hæmolytic streptococci and their antisera yields vals. indicative of the antibody content of the antisera in wt. units. A. C. F.

Origin of bacteriophages for lactic streptococci. H. R. Whitehead and G. J. E. Hunter (*J. Path. Bact.*, 1941, **53**, 440—441).—A summary of the author's previous work. Air-borne bacteriophage in the surroundings of cheese factories may account for the sudden appearances of phage in cultures of lactic streptococci used in cheese manufacture. C. J. C. B.

Neutralising ability of streptococcal antisera NY 5 and 594. H. Plummer and F. H. Fraser (*J. Bact.*, 1940, **39**, 455—460).—The similarity of the two antisera is demonstrated. A. G. P.

Colorimetric determination of hæmolysis. Study of streptolysin. Purification and properties of streptolysin-*O*.—See A., 1942, III, 265.

Transmission of recurrent tropical fever. G. Bone (*Arch. int. Méd. exp.*, 1939, **14**, 137—173).—The transmission of *Spirochæta duttoni* by *Ornithodorus moubata* is in the fluid excreted, during feeding of the latter, from the orifice in the proximal joint of the legs (coxal fluid). The excretion of the Malpighian tubules and the saliva contain no spirochætes. There is no evolutionary cycle of the spirochæte with a granular stage in the cells of the ornithodore, nor an evolution in the stomach or cœlom. The Leishman granules described by other authors in the Malpighian tubules are present also in healthy ornithodores and consequently have no connexion with the spirochætes. Spirochætes are found in some eggs of an infected insect. P. C. W.

Accidental inoculation with *Spirochæta pallida*. C. Shaw (*Arch. Dermat. Syphilol.*, 1941, **44**, 878—882).—A case is reported of probable accidental inoculation by needle puncture of a person with the Nichols strain of *S. pallida* from a rabbit without subsequent development of syphilis. The wound was allowed to bleed freely and 33% mild HgCl ointment was applied. No arsenicals or heavy metals were administered. A serological follow-up study showed no evidence of infection. C. J. C. B.

Cultivation of *Spirochæta pallida* on chorioallantoic membrane of developing hen egg. J. L. Gallaway and J. Sharp (*J. Lab. clin. Med.*, 1941, **27**, 232—234).—Virulent spirochætes (Nichols strain) live for 27 hr. in the developing hen egg and may retain their virulence to rabbits for that length of time. No growth was demonstrated. C. J. C. B.

Weil's disease; report of three cases, including morbid anatomy of one case and review of literature. J. J. White and J. V. Prevost (*Ann. int. Med.*, 1941, **15**, 207—225).—Friedman's method for obtaining dark-field preps. of *Treponema pallida* from gonorrhœal discharge was successfully used to identify *Spirochæta icterohæmorrhagica*, and is recommended for routine dark-field examinations on all jaundiced patients. Morbid anatomy, clinical and laboratory findings are described. The *Leptospira* was found in the bile of one patient. The agglutination test is not reliable. Prothrombin deficiency may play some part in producing the hæmorrhagic diathesis of the disease. Liver extract is of great val. as symptomatic therapy. Convalescent or horse or rabbit *Leptospira* immune sera may be used. A. S.

Results of serological tests for syphilis in nonsyphilitic persons inoculated with malaria. L. E. Burney, J. R. S. Maya, and A. P. Iskrant (*Amer. J. Publ. Health*, 1942, **32**, 39—47).—All of 11 cases of dementia præcox inoculated with malaria gave positive syphilitic serological tests by one or other of the standard techniques, although they were all negative beforehand. Most positive results occurred 15—21 days after the onset of clinical malaria and positively seldom extended beyond 4 weeks. The duration, highest temp. reached, time of withdrawal of blood in relation to the paroxysms, or the density of parasites did not affect the results. C. J. C. B.

Kahn verification test. L. Chargin and C. R. Rein (*Arch. Dermat. Syphilol.*, 1941, **44**, 1031—1048).—The Kahn temp. verification test was made in 1565 persons with various conditions. In the 349 syphilitic patients, the verification tests gave the syphilitic type reaction in 100% of those with strongly positive serodiagnostic reactions, in 76·5% of those with weakly positive reactions, and in 40·2% of those showing doubtful reactions. Only 2 of 269 non-syphilitics gave a syphilitic type of verification reaction. C. J. C. B.

Laughlen test for syphilis. W. B. Dublin and M. Eltrich (*J. Lab. clin. Med.*, 1941, **27**, 77—78).—In a comparison on 1008 specimens the Kolmer test showed 99% sensitivity and 91% specificity; the Kahn test showed 98% sensitivity and 93% specificity; the Laughlen test showed 95·5% sensitivity and 99% specificity. C. J. C. B.

Serological diagnosis in histologically proved chronic syphilis. O. A. Brines and B. Juliar (*J. Lab. clin. Med.*, 1941, **27**, 15—19).—Of 424 patients with microscopically proved syphilis encountered at autopsy 75·7% had positive serology. Patients with multiple organs involved gave 21% more positive reactions than those with only one organ involved. 335 patients showed some evidence of cardiovascular involvement. Of these 71·6% had positive serology. There were 26 cases of hepatic syphilis. In 80·7% of these the serology was positive. 130 had central nervous system involvement and 85·4% had positive serology. C. J. C. B.

Preparation and use of antigen–mastic in serodiagnostic test for syphilis. M. A. Levy (*Amer. J. clin. Path. Tech. Suppl.*, 1941, **5**, 150—157).—Antigen–mastic is formed when Kuhn antigen is treated with gum mastic. It remains satisfactory for instant use for several weeks. The mastic envelops the lipin–cholesterol material in the dispersed phase and remains adsorbed when the resulting lipin–cholesterol–mastic material is pptd. from solution by the action of the electrolyte. C. J. C. B.

Agglutination reactions of certain trichomonads in sera from immunised rabbits, with particular reference to *Trichomonas fœtus*. M. Robertson (*J. Path. Bact.*, 1941, **53**, 391—402).—The agglutination of *T. fœtus* and *Eutrichomastix colubrorum* in immune rabbit sera is described. The serological identity of 3 different strains of *Tr. fœtus* and the considerable degree of overlapping between *Tr. fœtus* and *E. colubrorum* are shown. No group agglutinins for *Tr. fœtus* were found in sera prepared against *Tr. columbæ*, parasitic in the pigeon, or against a *Herpetemonas* parasitic in a dipterous fly. Exposure of *E. colubrorum* to alcohol (70% for 48 hr.) and to acid (5% HCl for 48 hr.) caused no qual. alteration in the val. of the antigen as an immunising agent. Heating for 1 hr. at 100° was also ineffective in destroying or altering the antigen, but heating at 100° for 2 hr. caused a marked difference in the antigenic val. of the material, producing a titre of 1 : 192 compared with 1 : 6144. *Tr. fœtus*, *E. colubrorum*, and *Tr. columbæ* were all killed and lysed in high concns. of fresh normal rabbit and guinea-pig sera with complement intact. C. J. C. B.

Undenatured trichophytin. H. E. Miller, R. A. Stewart, and F. Kimura (*Arch. Dermat. Syphilol.*, 1941, **44**, 804—815).—A method for preparing undenatured trichophytin is described in detail. The undenatured trichophytin stimulates the production of complement-fixing antibodies and precipitins when injected into rabbits and is suitable for use in serological tests to detect the presence of circulating antibodies in human infections as shown by the results of cutaneous tests on 208 patients with dermatophytosis. C. J. C. B.

Trichophytin. Apparent separation of the skin-reactive factor from the therapeutic principle in trichophytin. S. M. Peck, A. Glick, and E. Weissbard (*Arch. Dermat. Syphilol.*, 1941, **44**, 816—836).—When Sabouraud's bouillon was acidified with HCl or PO_4''' (McIlvaine) buffers and inoculated with *T. gypseum*, there was a rise in p_H in 75—80 days to 8·6; after that time it remained unchanged. With the rise in p_H the skin test principle began to appear and increase proportionately with p_H rise. A rise in p_H from 4·0 to 6·0 indicated a concn. of skin test principle in excess of that found in an equiv. amount of Lederle 1 : 30 trichophytin. When Sabouraud's bouillon was initiated on the alkaline side by the addition of 1 : 5 PO_4''' buffers, at p_H 9·0—10·0, and inoculated with *T. gypseum*, p_H dropped to below 5·0 before it increased again. Finally a p_H of about 8·6 was attained. While the p_H was dropping the skin test principle was not formed or only in small amounts. It appeared as p_H rose, and its concn. again was roughly parallel to the rise in the p_H val. *T. purpureum* formed less skin test principle than *T. gypseum*. The total N content of trichophytin bore no relation to the amount of skin test factor present in bouillon. Trichophytin fractions were prepared in which no skin test principle could be demonstrated even in persons who were stringly sensitive to the Lederle trichophytin. Such trichophytins produced rapid desensitisation in suitable patients without any local or focal reactions. These experiments suggest that skin test factor is not necessarily identical with the desensitising principle. C. J. C. B.

Serum fraction associated with anti-trichinella (*Trichinella spiralis*) antibody.—See A., 1942, III, 198.

Active immunisation against tetanus. D. G. Evans (*Lancet*, 1941, **241**, 628—630).—The sera of 81 non-immunised subjects all contained less than 0·01 i.u. of tetanus antitoxin per c.c. 9 weeks after the first injection of tetanus toxoid 31 of 53 subjects showed a content of more than 0·01 i.u. and 22 less than 0·01 i.u. 17 weeks after the

second injection of toxoid, given 9 weeks after the first, all of 70 subjects showed a content greater than 0·01, 68 more than 0·02, 59 more than 0·1, and 19 more than 1 i.u. This level was maintained for 10 months, and a third injection at this time produced a large, rapid further increase lasting for at least one month. C. A. K.

Sensitisation induced by tetanus toxoid, alum-precipitated. H. Gold (*J. Lab. clin. Med.*, 1941, **27**, 26—36).—In many individuals the injection of tetanus alum-pptd. toxoid is followed by development of a sp. sensitivity to the toxoid and some of its constituent proteins, as demonstrated by positive skin tests. 2 types of skin reactions are obtained: an immediate reaction (erythema wheal formation) that develops in 15 min. and a delayed reaction which consists of erythema, induration, papule formation, and local swelling that reaches its height in 24 hr. and then subsides gradually. Berna peptone when present in tetanus alum-pptd. toxoid appears to sensitise more readily than Difco proteose; hence it should be eliminated from the medium in which the tetanus bacillus is grown. There is no apparent correlation between the high incidence of positive skin tests and the low incidence of clinical manifestations of allergy following the injection of alum-pptd. toxoid. Thus of 1700 patients immunised with 2 or more doses of alum toxoid there were 2 cases of urticaria following the second injection in one case and a no. of injections in the other. Urticaria may also occur in persons with negative skin tests and allergic reactions failed to occur in 4 patients following the injection of alum toxoid who had marked positive reactions. C. J. C. B.

Pulmonary tuberculosis. C. G. Sutherland (*Amer. J. med. Sci.*, 1941, **202**, 772—780).—A review of recent literature from the point of view of the radiologist. C. J. C. B.

Inoculation tuberculosis. P. A. O'Leary and M. W. Harrison (*Arch. Dermat. Syphilol.*, 1941, **44**, 371—390).—A general review of the literature and discussion of 12 cases. (5 photomicrographs.) C. J. C. B.

Factors influencing demonstration of tubercle bacilli by concentration methods. L. Robinson and W. D. Stovall (*J. Lab. clin. Med.*, 1941, **27**, 84—91).—Various concn. methods are reviewed. Comparable results in pptg. the organisms can be obtained at p_H 7—11 and surface tension 63—73. Lowering the sp. gr. only helped in the case of very viscous specimens. The use of a large amount of specimen, thorough liquefaction with N-NaOH, and long centrifugation, thus securing a great concn. of the solids, are the essentials of a good concn. method. C. J. C. B.

Sputum film cultures of tubercle bacilli: method for early observation of growth. D. M. Pryce (*J. Path. Bact.*, 1941, **53**, 327—333).—A film of sputum is dried on a glass surface, treated with acid, washed with water, and incubated in contact with hæmolysed blood. The technique may be carried out on the floor of Petri dishes, in vaselined rings on microscopic slides, and in many other ways. After 7 days' incubation the prep. is washed, stained with Ziehl–Neelsen, and examined with the low power. The technique can also be applied to pus and caseous material. (24 photomicrographs.) C. J. C. B.

Efficiency of patch test in detecting reactors to tuberculin. M. L. Furcolow and E. L. Robinson (*U.S. Publ. Health Repts.*, 1941, **56**, 2405—2415).—Efficiency of the patch test depends on the tuberculin-sensitivity of the individual and the potency of the patches employed. The 1% PPD patch was the most potent. The New International Standard PPD was employed in the patch tests and 20% glycerin was mixed with it to aid in skin absorption. The OT and 0·1% PPD patches were weaker, and of about equal strength. The site of application of the patch test has little relation to the efficiency of the test. C. G. W.

Tuberculin patch test (Vollmer) on BCG vaccinated and control children. I. S. Neiman, S. R. Rosenthal, and W. G. Motel (*J. Pediat.*, 1941, **12**, 540—544).—The tuberculin patch test was applied to 207 children aged 3 months—3½ years. There was a satisfactory comparison between the Vollmer patch test and the Mantoux test. Readings on 114 patches at 48 and 96 hr. after application showed that accurate readings are obtained best at 96 hr. C. J. C. B.

Typhoid–paratyphoid inoculation and its effect on serological typhoid diagnosis. R. Regame and A. Grumbach (*Schweiz. med. Wschr.*, 1941, **71**, 463—468).—Typhoid and paratyphoid *BO* agglutinins were observed in inoculated subjects and cannot be used for diagnostic purposes. Typhoid Vi-agglutinins were examined in 50 sera 32 and 112 days after the last inoculation; they were only present in a titre of 1 : 2; a Vi-titre of 1 : 20 therefore indicates an active typhoid infection. A. S.

Dark-ground studies of Vi agglutination of *B. typhosus*. A. Pijper (*J. Path. Bact.*, 1941, **53**, 431—436).—In *H* agglutination the sp. action of the serum is to cover the tails and flagella with a sheath. The thickened motile organs then get entangled mechanically. In *O* agglutination the bacilli no longer repel but become attracted towards one another. They approach each other head first, become attached in polar fashion, and build up characteristic patterns resembling crystals. In Vi agglutination there are 3 factors: a growing paresis of motile organs, the normal repulsion between bacilli, and a stickiness of the surface of the bacilli. The paresis causes erratic movements, which overcome the normal repulsion, and the stickiness makes accidental contacts permanent. Side-to-side attachments prevail. (14 photomicrographs.) C. J. C. B.

Outbreak of diarrhœal disease due to *Salmonella typhi murium*. W. E. Mosher, S. M. Wheeler, H. L. Chant, and A. V. Hardy (*U.S. Publ. Health Repts.*, 1941, **56**, 2415—2426).—An outbreak is reported of 238 cases of acute gastro-enteritis, with one death. *S. typhi murium* was isolated by stool culture from 86 (36·1%) of the cases. A series of 195 patients were examined repeatedly to determine the duration of the convalescent carrier state. This was longer than usually expected. One patient carried the organism for 18 weeks. C. G. W.

Nuclear apparatus of bacteria. C. F. Robinow (*Proc. Roy. Soc.*, 1942, **B**, **130**, 299—324).—The organisms studied included *B. mycoides*, *B. megatherium*, *B. subtilis*, *B. mesentericus*, *Proteus vulgaris*, *Sarcina lutea*, *S. aurantiaca*, *Torulopsis bacillaris*, and *Monilia albicans*. Dumbbell-shaped bodies giving a positive Feulgen reaction and possessing a strong affinity for nuclear dyes were observed in resting bacterial spores and vegetative cells from young cultures. With 2 strains of *B. mycoides*, resting spores contain one chromatinic dumbbell body closely attached to, but distinct from, a rod of non-chromatinic protoplasm; division forms of this body occur in a few spores. When germination begins, the dumbbell body enters the rod of protoplasm and soon becomes invisible; when it reappears at a later stage of the germination, it has divided into two closely contiguous dumbbell bodies. Further division of the chromatinic bodies precedes the divisions of the vegetative cells (each of which usually contains a pair of dumbbell bodies) in a regular manner. Similar chromatinic bodies have been observed in *Proteus vulgaris* and 2 sarcinæ. The dumbbell bodies are considered to be comparable with the chromosomes of plant and animal cells. F. O. H.

Experiments on drying and freezing bacteriophage. M. L. Campbell-Renton (*J. Path. Bact.*, 1941, **53**, 371—384).—No relationship was found between the sensitivity of 14 phages to desiccation and their classification by other methods. The degree of resistance to drying may form an additional means of grouping phage, and of isolating separate types from a mixture. The rate of destruction during drying is uniform until the phage is nearly dry, when the destruction is much less. Dry phage may be stored in vac. for 3½ years with little further deterioration. Freezing differentiates less than drying between the phages used, as only one type was sensitive to exposure to low temp. The partial removal of water obtained by freezing in vac. affords protection both when phage is further dried and when it is frozen at low temp. In both drying and freezing the destruction was augmented when the phage was diluted with 5% NaCl and diminished when it was diluted with 1% peptone. C. J. C. B.

Neurotropic virus diseases of man. A. B. Sabin (*J. Pediat.*, 1941, **19**, 445—451).—A lecture. C. J. C. B.

Present position of yellow fever in Africa. G. M. Findlay (*Trans. R. Soc. trop. Med. Hyg.*, 1941, **35**, 51—72).—A general review. C. J. C. B.

Cultivation of influenza virus. C. Nigg, D. E. Wilson, and J. H. Crowley (*Amer. J. Hyg.*, 1941, **34**, B, 138—147).—Methods are described for initiating and maintaining cultures of influenza virus in chick embryo. Of the minced tissue, membrane, yolk sac, and allantoic culture methods, the last proved to be particularly advantageous for its simple technique, high yields of virus, and prep. of potent complement-fixing antigens from both chorio-allantoic membrane and allantoic fluid. B. C. H.

Resistance of influenza virus to drying. D. G. F. Edward (*Lancet*, 1941, **241**, 664—666).—After impregnation of a blanket with a suspension of influenza virus (PR 8 strain), it was shown that the virus will survive drying under ordinary atm. conditions, and is present on dust particles produced by shaking. After 3 days there is little loss of virus, and 1—10% remains one week after drying. Disappearance of virus was much more rapid when impregnated materials were kept at 37° or in the light. The epidemiological importance of these results is discussed. C. A. K.

Human [umbilical] cord serum-globulin in modification and prevention of measles. L. P. Stream, G. J. Stream, D. Lapointe, and E. Dechene (*Canad. Med. Assoc. J.*, 1941, **45**, 385—387).—The globulin fraction from human umbilical cord serum can be pptd. with Na_2SO_4 and inhibits or modifies measles when injected intramuscularly. The dosage recommended is 2—5 c.c. for modification, and 5—10 c.c. for inhibition, of measles, given early in the incubation period. C. J. C. B.

Westward spread of Eastern type equine encephalomyelitis virus. R. Randall and E. A. Eichhorn (*Science*, 1941, **93**, 595).—Until 1939, when a few cases of both types were isolated in Alabama state, there was a sharp boundary (the Appalachians) between the areas containing the two immunologically distinct strains of virus. In 1941 a horse brain from Boca Chica flats, Texas, where 60 horses

died from suspected encephalomyelitis, was found to contain Eastern type virus. Western type immune guinea-pigs and controls died within 3 days of inoculation with 0·1 ml. of 1 in 500 emulsified brain. Eastern type immune animals were unaffected. Geographical limitation of the types has broken down. E. R. S.

Postvaccinal and measles encephalomyelitis. A. H. G. Burton and J. H. Weir (*Lancet*, 1941, **241**, 561—562).—Two cases of encephalomyelitis, one postvaccinal, one following measles, recovered after treatment with sulphapyridine and intramuscular whole blood (+ measles convalescent serum in the second case). C. A. K.

Post-vaccinal meningo-encephalomyelitis. T. M. Dunn and R. H. Rigdon (*Amer. J. clin. Path.*, 1941, **11**, 771—776).—Report of a case. (4 photomicrographs.) C. J. C. B.

Poliomyelitis : survey of recent contributions. A. E. Siegel (*Amer. J. med. Sci.*, 1941, **202**, 887—901). C. J. C. B.

Poliomyelitis induced by the Lansing strain of virus. H. H. Peers (*Arch. Path.*, 1941, **32**, 928—938).—The topography of lesions in the human brain from which the Lansing strain was originally isolated and in the brains of 23 rhesus monkeys used to isolate and propagate the virus from that brain is identical. C. J. C. B.

Serum utilisation test in poliomyelitis. Absorption and elution of antibody with alumina gel and a virus–alumina gel complex. J. A. Harrison and N. P. Hudson (*J. Bact.*, 1940, **39**, 405—427).—The virus-neutralising fraction of convalescent human serum was adsorbed on Al_2O_3 gel at p_H 6·5 and liberated at p_H 7·4. The virucidal substance was less easily adsorbed by the virus–Al_2O_3 gel complex. The behaviour of the virus-neutralising fraction of serum of normal human adults was indistinguishable from that of convalescent monkeys or human beings. A. G. P.

Rôle of neurones in dissemination of poliomyelitis virus in nervous system.—See A., 1942, III, 217.

Sensitivity of white mice to rabies virus isolated at Coquilhatville. J. Jadin (*Arch. int. Méd. exp.*, 1939, **14**, 175—183).—The virus isolated in this district of the Congo is more pathogenic when inoculated in mice than in rabbits, guinea-pigs, or rats. P. C. W.

Probability of error in diagnosis of rabies by microscopic search for Negri bodies. S. R. Damon and T. F. Sellers (*J. Lab. clin. Med.*, 1941, **27**, 71—74).—In Alabama over a 3-year period 12% of the specimens reported as microscopically negative were actually positive, as shown by mouse inoculation. C. J. C. B.

Exanthematic and endemic typhus. G. M. Findlay (*Lancet*, 1941, **241**, 659—660).—2 cases (one the author) of endemic typhus were contracted in the laboratory. In one the infection was apparently modified by previous immunisation with killed exanthematic typhus rickettsiæ, confirming guinea-pig observations which suggest that there is a quant. rather than qual. relation between exanthematic and endemic rickettsiæ. C. A. K.

Complement fixation in rickettsial diseases. I. A. Bengtson and N. H. Topping (*Amer. J. Publ. Health*, 1942, **32**, 48—58).—In endemic typhus, titres of 1 : 128 and 1 ; 256 may be reached on the 9th day of illness and a titre of 1 : 4000 by the 14th day. Complement fixation is a better criterion of past infection than is the Weil–Felix reaction as it may remain positive for 5 or more years after the illness. Rocky Mountain spotted fever sera tested against typhus antigen usually gave a negative test while still giving a positive Weil–Felix reaction. C. J. C. B.

Effect of virus to host cell relationship on infection with vaccinia. D. H. Sprunt (*J. Exp. Med.*, 1941, **74**, 81—90).—Studying the effect of vaccine lymph on rabbits, observations on the no. of lesions in relation to no. of cells exposed to the virus were made. When the size of the inoculation was varied the smaller sizes proved more effective than the larger. The spread of the virus was localised by the œstrogenic hormone which decreased the chance of a lesion. Mixture of the vaccine with spreading factor prepared from the bull's testicle increased the probability of a lesion. It is concluded that the greater is the no. of host cells per virus particle the greater is the probability of a lesion. A. C. F.

Behaviour of pox viruses in the respiratory tract. IV. Nasal instillation of fowl pox virus in chickens and in mice. J. B. Nelson (*J. Exp. Med.*, 1941, **74**, 203—212).—Fowl pox virus from active skin lesions was established in the respiratory tract of normal chickens by nasal instillation and maintained for 12 successive pasages. The nasal infection was not communicable by contact but afforded protection for at least 6 weeks. Few changes occur in the nasal mucous membrane. A. C. F.

Infectious unit of vaccinia. R. F. Parker, L. H. Bronson, and R. H. Green (*J. Exp. Med.*, 1941, **74**, 263—281).—Using a chick-embryo-adapted strain of vaccine virus results indicate that the particles of virus are of essentially uniform virulence. As virulence increases so the no. of elementary bodies per infectious unit approaches 1. A. C. F.

Constituents of elementary bodies of vaccinia. IV. Demonstration of copper in purified virus. V. Flavin associated with vaccinia virus. C. L. Hoagland, S. M. Ward, J. E. Smadel, and T. M. Rivers (*J. Exp. Med.*, 1941, **74**, 69—80, 133—134).—IV. Cytochrome or cytochrome oxidase cannot be demonstrated in purified elementary bodies of vaccinia by either spectroscopic or enzymic techniques. Catalysis of cysteine oxidation is due to the presence of Cu in a concn. of 0·05% of dry wt. of virus. The Cu cannot be separated from the virus by washing, ultra-filtration, dialysis, or electrodialysis and there is a marked increase of the Cu constituent during the process of purification of the virus. No biological rôle can yet be ascribed to the Cu component of the virus.

V. Suspensions of purified elementary bodies of vaccinia exhibit fluorescence in ultra-violet light. The fluorescent constituent is separated from the virus, after denaturation, by chromatography and identified by means of the sp. protein of *d*-amino-acid oxidase as flavin-adenine-dinucleotide. Quantitatively the flavin concn. is 1·1—1·5 mg. per 100 g. of virus. It can only be separated from the elementary bodies by procedures involving inactivation of the virus. A. C. F.

Function of tissue cells in media used for growing vaccinia virus. H. B. Maitland and A. W. Laing (*J. Path. Bact.*, 1941, **53**, 419—430).—Living intact cells initiate growth but once growth is started are not necessary to continue growth. The cells can be damaged after growth is initiated by treatment with KCN, soaking in water, and incubation at 37° in Tyrode's solution. Each of these procedures markedly reduces the respiratory activity of the cells but growth of the virus continued. C. J. C. B.

Optimal spacing of vaccine inoculations. H. Schuetze (*J. Path. Bact.*, 1941, **53**, 443—446).—By increasing the spacing between 2 doses of *S. typhi murium* vaccine from 1 to 4 weeks in mice no decrease in active immunisation occurred. C. J. C. B.

Varicella and herpes zoster. R. M. Campbell (*Brit. J. Child. Dis.*, 1941, **38**, 91—97).—The 3 cases described showed the cutaneous lesions of both herpes zoster and varicella. C. J. C. B.

Electrophoresis of rabbit papilloma virus protein. D. G. Sharp, A. R. Taylor, D. Beard, and J. W. Beard (*J. Biol. Chem.*, 1942, **142**, 193—202; cf. A., 1941, III, 808).—During electrophoresis of rabbit papilloma virus protein in the Tiselius apparatus, the protein concn. gradient curves show that there is a rapid cathodic movement at p_H less than 4·1, and slower anodic movement above 6·54. Moving boundary determinations cannot be made around the isoelectric point owing to insolubility of the protein, but this point is at approx. p_H 5·0. A new method of analysis, which is based on change in standard deviation of the Svensson curve and yields vals. denoted by *H*, is proposed to characterise time-rate of boundary spread in unit electric field. The *H* vals. have the dimensions of mobility. The papilloma protein migrates with a single boundary at all p_H vals. within the range of solubility and stability. At approx. p_H 4·0, the material is very homogeneous, and it is only slightly less so on the alkaline side of the isoelectric point. J. N. A.

Derivatives of tobacco mosaic virus. I. Acetyl- and phenylureido-virus. G. L. Miller and W. M. Stanley (*J. Biol. Chem.*, 1941, **141**, 905—920).—Up to 70% of the amino-groups of the virus can be blocked by acetyl or phenylureido-groups without significant inactivation. This corresponds with 20—40% of the phenol + indole groups, the former primarily being inactivated. Ultracentrifuge and electrophoretic measurements indicate a homogeneity equiv. to that of the unchanged virus, no appreciable amount of which could be detected. Inoculation of Turkish tobacco plants with the virus derivatives produces normal virus on propagation. H. G. R.

Non-precipitating protein antigens. F. C. Bawden and A. Kleczkowski (*Nature*, 1941, **148**, 593).—Tomato bushy stunt virus and whole globulin from human serum were converted into non-pptg. complexes by heating them in the presence of rabbit serum-albumin in physiological saline at p_H 7·0. None of the sera produced by injecting rabbits with solutions of these complexes pptd. the materials used for immunisation, but the serum produced against the virus–albumin complex, pptd. solutions of both unheated virus and virus heated in the absence of rabbit albumin. With antisera prepared against either the virus or the virus–albumin complex solutions of the virus–albumin complex fix complement as strongly as solutions of the virus alone. The globulin–albumin complex fixes complement with antisera to the unheated globulin and with those prepared against the complex itself. This fixation of complement equally by an antiserum with antigens, with which pptn. does and does not occur, demonstrates the independence of the two reactions, and that complement is fixed by the union of antigen and antibody and not by the formation of a ppt. E. R. S.

Capillary cell for measuring the rate of sedimentation of virus particles in a centrifugal field. A. Polson (*Nature*, 1941, **148**, 593—594).—The cell described and illustrated eliminates the disturbing effects occurring in Elford's inverted capillary method ("Handbuch der Virusforschung," J. Springer, 1938). L. S. T.

Lymphogranuloma venereum. M. J. Costello and J. A. Cohen (*Arch. Dermat. Syphilol.*, 1941, **44**, 391—397).—Mouse brain antigen

is as reliable as human antigen for intradermal Frei test. A control test with normal mouse brain is essential. Sulphanilamide by mouth and Frei antigen intravenously or both was the most efficacious means of controlling this disease in 187 cases. C. J. C. B.

Mester's test in rheumatoid arthritis and spendylitis rhizomelique. M. E. Green and R. H. Freyberg (*J. Lab. clin. Med.*, 1941, **27**, 81—82).—Mester's test (*Wien. med. Woch.*, 1937, **87**, 228) is grossly unreliable as an aid in the diagnosis of rheumatoid arthritis and spondylitis rhizomelique. C. J. C. B.

Choice of complement-antigen combination for use in Kolmer complement fixation test. A. Harris (*J. Lab. clin. Med.*, 1941, **27**, 97—102).—The suitability of a guinea-pig complement for use with a sp. Kolmer antigen may vary, within broad limits, in some guinea-pigs during 14- to 23-day intervals. As demonstrated by 16 hr. incubation period at 6°, the anti-complimentary action of 2 lots of Kolmer antigen, having identical test dose titres, was not similar on all complement tested. It is recommended that the guinea-pigs be tested beforehand and the most suitable bled. C. J. C. B.

Phytopharmacological index in pemphigus. F. W. Sansome and L. Forman (*Brit. J. Dermat. Syph.*, 1939, **51**, 63—69).—The phytopharmacological test of Pels and Macht for the diagnosis of pemphigus was repeated. No statistically significant differences in the increments of growth of lupin seedlings were observed between normal serum and pemphigus serum cultures. A. S.

Experimental studies on pemphigus. L. Fleck and F. Goldschlag (*Brit. J. Dermat. Syph.*, 1939, **51**, 70—76).—Serum from pemphigus blisters was injected into 10 rabbits (6 suboccipitally, 3 intravenously, 1 intraperitoneally). The changes in the nervous system were not different from those after suboccipital injection of normal serum. The Urbach, Brandt, and Wolfram complement fixation reaction is non-sp.; an inhibition of hæmolysis in the presence of carbolised rabbit's brain antigen was not only produced by serum of pemphigus patients, but also in 25% of syphilitic sera and several other control sera. A. S.

Active anaphylaxis in chick embryo. F. W. Wittich (*J. Allergy*, 1941, **12**, 523—527).—1/3 of the isolated chick embryo hearts sensitised with alum-ppts. and saline and isotonic glucose extracts of proteins manifested anaphylactic responses 14—18 days after the sensitising dose with a marked slowing of the heart, decreased amplitude, and cardiac standstill in diastole. C. J. C. B.

Influence of thyroid hormone on anaphylactic shock in guinea-pigs.—See A., 1942, III, 228.

Neuropathologic changes associated with experimental anaphylaxis in monkey.—See A., 1942, III, 219.

Nature of allergy. B. Ratner (*Trans. New York Acad. Sci.*, 1941, II, **4**, 45—54).—A lecture reviewing the types of allergic reaction in animals and man. C. J. C. B.

Nature of the ragweed pollen allergen. H. A. Abramson (*Trans. New York Acad. Sci.*, 1941, II, **4**, 55—62).—By electrophoresis in man sensitive to ragweed pollen, a highly skin-reactive major unpigmented negatively charged, slowly migrating compound, "trifidin," was found in dialysed ragweed pollen extracts. There were also 6 minor pigmented components. The trifidin was present at p_H 3·5—7·5 without dissociation. It was electrophoretically homogeneous and in the ultracentrifuge at 1,500,000*g*. showed a single band with the Foucault–Toepler scanning method. From giant ragweed only one pigmented component has so far been isolated (FPG). It is difficult to separate the other minor pigments as their electric mobilities lie very close together. Trifidin and FPG diffuse rapidly compared with proteins like serum-albumin, indicating their relatively low mol. wts. Both components cause hay fever and asthma. C. J. C. B.

Multiple serum allergy in atopic individuals. A. I. Kleinman and H. Markow (*J. Lab. clin. Med.*, 1941, **27**, 187—195).—Of 40 allergic persons, 5% were sensitive to one or more sera of the horse, goat, rabbit, or sheep. A 4-plus skin and conjunctival reaction to a serum proves sensitivity; its avoidance or extreme care in its use is indicated. Sensitivity to an animal dander often coincides with a sensitivity to the corresponding serum. There was little difference in the frequency of positive reactions to horse serum in allergic persons who previously had serum injected (diphtheria and tetanus antitoxin and diphtheria toxin–antitoxin), and in those who never received any serum. Extreme care should be exercised in the use of therapeutic sera in any allergic patient. C. J. C. B.

Allergic skin reactions to mammalian sera. F. A. Simon (*J. Allergy*, 1941, **12**, 610—615).—Among 3630 patients having or suspected of having clinical allergy 22 gave large skin reactions to horse serum, horse dander, or both. Skin tests with 7—14 different mammalian sera performed on these 22 patients demonstrated that 7 patients were sensitive to horse serum but not to any other sera; 7 were sensitive to all the mammalian sera used; the rest were sensitive to some sera only. Positive skin reactions to the various sera were often accompanied by transferable reagins. C. J. C. B.

Gastro-intestinal allergy: review of 134 cases. J. W. Thomas and C. P. Wofford (*Amer. J. digest. Dis.*, 1941, **8**, 311—313).—Cabbage was the food most likely to cause gastro-intestinal symptoms, but milk, beans, eggs, chocolate, and wheat were also frequent offenders. The food gave a positive skin test in 40% of the cases. Many of the patients had definite gastro-intestinal lesions, other allergic manifestations, and an allergic family history. N. F. M.

Allergy of abdominal organs. M. Walzer (*J. Lab. clin. Med.*, 1941, **26**, 1867—1877).—A review, particularly of previous work by the author and his colleagues. C. J. C. B.

[Tachycardia in] familial nonreaginic food allergy. A. F. Coca (*J. Lab. clin. Med.*, 1941, **26**, 1878—1891).—Tachycardia was so regularly associated with clinical symptoms of familial nonreaginic food allergy (urticaria, headache, gastro-intestinal upset) in 31 cases studied that it could be used as an objective criterion to identify the sp. excitants (foods). C. J. C. B.

Henoch's purpura based on food allergy. S. F. Hampton (*J. Allergy*, 1941, **12**, 579—591).—2 cases of purpura associated with gastro-intestinal and joint symptoms are described. The symptoms could be induced regularly by certain foods. In one patient, between or during attacks, milk feeds produced gastric retention, hypermotility, and spasm of the colon. C. J. C. B.

Blocking antibody of Cooke in treatment of hay fever. M. A. Scully and F. M. Rackemann (*J. Allergy*, 1941, **12**, 549—558).—The work of Cooke (*ibid.*, 1940, **11**, 225) is confirmed. C. J. C. B.

Immunologic studies with conjugated ragweed pollen extracts. M. B. Strauss and W. C. Spain (*J. Allergy*, 1941, **12**, 543—548).—Sera of rabbits immunised with the regular ragweed extract or with diazotised sulphanilic acid–ragweed extracts failed to give positive ring precipitin tests with the diazotised compound after incubation at 37° for 1—2 hr. Patients sensitive to ragweed tested with the same protein strength of the regular ragweed extract and the sulphanilic and arsanilic acid–diazotised ragweed extracts gave parallel results. Sera from ragweed-sensitive patients were used to test the neutralising capacity of these conjugated extracts along with regular ragweed extract. The immediate reactions and the neutralisation point on retesting 24 hr. later were the same with the regular and the conjugated extract. C. J. C. B.

Absorption of injected pollen antigens. Comparison of the subcutaneous and intramuscular routes. S. J. Levin and L. E. Heideman (*J. Allergy*, 1941, **12**, 616—622).—In the nonimmune, nonsensitive person aq. pollen extracts are absorbed more rapidly after subcutaneous injection than after intramuscular injection, as shown by Feinberg and Bernstein's technique (*ibid.*, 1937, **8**, 523). C. J. C. B.

Abortion after grass pollen injection. N. Francis (*J. Allergy*, 1941, **12**, 559—563).—In the case reported, the symptoms of severe hay fever came when no grass pollen was in the air; the attack was therefore attributed to rapid absorption of injected grass pollen into the systemic circulation. Cramps in the lower abdomen and vaginal bleeding came on the same day and were followed by abortion 3 days later. C. J. C. B.

Contrast colour method of examining unstained pollen grains. R. O. Alford (*J. Allergy*, 1941, **12**, 572—578).—Detail through colour is secured by the use of colour contrast filters without staining agent of any kind. C. J. C. B.

Chemistry of allergens. V. Amino-acid content of active protein and polysaccharidic protein fractions from cotton-seed. J. R. Spies (*J. Amer. Chem. Soc.*, 1941, **63**, 2994—2996; cf. A., 1941, III, 1081).—The cotton-seed used in this and previous work was *Gossypium hirsutum* (not *G. herbaceum*; A., 1939, III, 668). Two fractions (*CS*-51*R* and *CS*-52*R*) of specifically active protein containing less than 1% and one (*CS*-56*H*) containing 37% of carbohydrate are analysed for humin, amide-NH_2, and NH_2-acid. They are essentially similar and characterised by high (29·5—33·2%) arginine content, thus resembling proteins from nuts and other oil-bearing seeds. R. S. C.

Mesquite wood dermatitis. E. C. Fox (*Arch. Dermat. Syphilol.*, 1941, **44**, 1098—1100).—The case was caused by sawdust from the wood. C. J. C. B.

Hyposensitisation to poison ivy. B. Shelmire (*Arch. Dermat. Syphilol.*, 1941, **44**, 983—996).—20 persons sensitive to poison ivy ingested, over several months, 1 oz. of a 1 : 25 or 1 : 10 dilution of poison ivy leaf or root oleoresin in corn oil. Pretreatment and post-treatment quant. patch tests demonstrated that varying degrees of reduction of cutaneous sensitivity followed ingestion of the sp. oil but no reduction in the controls. The results of oral therapy paralleled those usually attained in the percutaneous treatment of asthma and hay fever. C. J. C. B.

Solubility of dermatitis-producing fraction of poison ivy. J. B. Howell (*Arch. Dermat. Syphilol.*, 1941, **44**, 665—666).—Abs. alcohol and CCl_4 produce oleoresins 1/5—1/10th as potent as those extracted

with ether or acetone. The dermatitis-producing fraction of the oleoresin is highly sol. in ether and only slightly sol. in acetone. C. J. C. B.

Poison ivy plant and its oleoresin. B. Shelmire (*J. Invest. Dermatol.*, 1941, **4**, 337—346).—The irritative and antigenic properties to man of the fresh saps and the ether-extracted oleoresins of the various so-called species of poison ivy and poison sumac are identical. The dermatitis-producing fraction of the ivy sap or ether-extracted oleoresin deteriorates slowly, if at all, in the presence of air. Portions of the dried plant and its ether-extracted oleoresin also deteriorate slowly in the presence of tap water. The potency of ivy oleoresin is lessened by prolonged heating at high temp. C. J. C. B.

Match dermatitis in an unusual location. H. J. Templeton (*Arch. Dermat. Syphilol.*, 1941, **44**, 676).—The ear was the site of the dermatitis, which was shown by patch tests to be due to scratching the ear with matches (type unspecified). C. J. C. B.

Psyllium seed sensitivity. M. S. Ascher (*J. Allergy*, 1941, **12**, 607—609).—3 of 342 consecutive allergic persons gave positive reactions to psyllium seed. One of these manifested clinical sensitivity. C. J. C. B.

Dermatitis caused by tincture of merthiolate. C. B. Cherry (*Arch. Dermat. Syphilol.*, 1941, **44**, 1105—1106).—A case report. C. J. C. B.

Dermatitis due to inguinal truss. M. S. Hartman (*Arch. Dermat. Syphilol.*, 1941, **44**, 912).—The sensitising substance was the leather of the truss. C. J. C. B.

Parasitology of scabies. P. A. Buxton (*Brit. Med. J.*, 1941, II, 397—401).—The anatomy, life history, and relation to man of *Sarcoptes scabei*, var. *hominis*, is described in detail. C. A. K.

Transmission of scabies. K. Mellanby (*Brit. Med. J.*, 1941, II, 405—406).—Experiments with human volunteers showed that transmission of scabies by underclothing and blankets is rare. Personal contact is probably the commonest cause. C. A. K.

XXVI.—PLANT PHYSIOLOGY.

Field *versus* controlled freezing as a measure of cold-resistance of winter wheat varieties. R. O. Weihel and K. S. Quisenberry (*J. Amer. Soc. Agron.*, 1941, **33**, 336—343).—Laboratory freezing tests of hardiness in autumn-sown wheats showed closest agreement with field observations when the tests were made in December. The seasonal trend of increased hardiness differed with the variety examined. A. G. P.

Physiological studies of Jerusalem artichoke tubers with special reference to the rest period. C. E. Steinbauer (*U.S. Dept. Agric. Tech. Bull.*, 1939, No. 657, 52 pp.).—The rest period of tubers was shortened by treatment with 20% alcohol, 5% thiourea, 2% ethylene chlorohydrin, or CS_2 vapour, or by storage at 0—2·2° before planting. Chemical and physiological changes in the treated tubers were examined every 15 days for periods up to 3½ months. A. W. M.

Effect of photoperiod on growth of lespedeza. G. E. Smith (*J. Amer. Soc. Agron.*, 1941, **33**, 231—236).—Short-day (winter) conditions accelerate maturation and seeding of lespedeza plants. To prevent fruiting a min. 14-hr. day is necessary. The significance of these observations in the choice of seed grown in different areas is discussed. A. G. P.

Growth habits and chemical composition of brome grass, *Bromus inermiss*, Leyss, as affected by different environmental conditions. J. M. Watkins (*J. Amer. Soc. Agron.*, 1940, **32**, 527—538).—Application of N to brome grass in field plots increased the rate of leaf production, the height and total no. of shoots, no. of fertile shoots, and dry wt. of tops but diminished the no. of rhizomes and wt. of underground parts. Shade decreased the no. of shoots, rhizomes, and fertile shoots but increased the no. of elongated internodes and the height of the plants. Associated growth of lucerne lowered the no. of shoots and rhizomes and the dry wt. of the plants. At the bloom stage both fertilised and control plants showed low % N and high % carbohydrate, the abs. vals. being higher in the fertilised plants. Shaded plants had high % N and low % carbohydrate. Short-day conditions produced the greatest no. of shoots per plant; the no. of fertile shoots was max. under normal day conditions. Max. nos. of rhizomes were obtained with a normal day length but the size and length of rhizomes were greatest under long-day conditions. The dry wt. of plants increased with the no. of light hr. per day. Long-day conditions are associated with max. proportions of carbohydrate in the plants. The % N was highest in short-day plants although the abs. amount of N per plant was not greatly affected by day length. A. G. P.

Evolution of sex in flowering plants.—See A., 1942, III, 189.

Absorption, translocation, and ultimate fate of lithium in the wheat plant. N. L. Kent (*New Phytol.*, 1941, **40**, 291—298).—Wheat seedlings supplied with LiCl accumulate Li in the roots in a few days. Later, Li accumulates in the oldest leaves where it seems to be immobilised. When Li-containing plants are repotted in Li-free soil, Li moves from the roots to the soil. L. G. G. W.

Some effects of volume rate of solution supply and of potassium concentration on growth of white clover. G. H. Ahlgren (*Soil Sci.*, 1941, **52**, 229—235).—Yields of sand-cultured Ladino white clover increased with the $[K^+]$ of the nutrient solution and its rate of flow up to 16 p.p.m. and 4 l. daily respectively. With higher $[K^+]$ (64—256 p.p.m.) the rate of flow had no effect on growth rate or yield. Deficiency symptoms, evident with $[K^+]$ of 16 p.p.m. and a flow rate of 1 litre daily, disappeared when the flow was increased to 4 l. daily. With the same rate of flow the green and dry wts. of the plants increased proportionately with rise in $[K^+]$ from 1 to 256 p.p.m. High $[K^+]$ and high rates of flow are associated with high water contents in the plants. A. G. P.

Importance of sodium for plant nutrition. I. J. J. Lehr (*Soil Sci.*, 1941, **52**, 237—244).—Although having no sp. function, Na is important in plant nutrition. Na–K relationships within the plant are discussed. The rôle of Na is probably concerned with the cation balance. A. G. P.

Division of the lucerne cross-inoculation group correlating efficiency in nitrogen fixation with source of *Rhizobium meliloti*. J. C. Burton and L. W. Erdman (*J. Amer. Soc. Agron.*, 1940, **32**, 439—450).—*R. meliloti* isolated from lucerne and sweet clover failed to effect fixation on burr clover or fenugreek. Strains isolated from burr clover or fenugreek were equally effective on all four hosts. Organisms associated with lucerne and sweet clover lose a substance unessential for high N fixation on these legumes but necessary for fixation on burr clover or fenugreek. Nodule-forming activity is unaffected by association with either host. A. G. P.

Amino-acids of cottonseed globulin. T. D. Fontaine, H. S. Olcott, and A. Lowy (*Ind. Eng. Chem.*, 1942, **34**, 116—118).—Three methods for the alkaline extraction of globulin (16·7—17·9% N) from the seeds are described. Of the amino-acids of the globulin 80% were determined. The approx. contents were arginine 12, leucine 9, phenylalanine 8, valine 6, lysine 5, and *iso*leucine 2%; histidine, methionine, tyrosine, serine, and threonine each approx. 3%; tryptophan and cystine approx. 1%; dicarboxylic acids approx. 18%. The nutritive val. of the globulin was less than that of the parent cottonseed meal. W. McC.

Mechanism of glycolysis in barley. W. O. James and A. H. Bunting (*New Phytol.*, 1941, **40**, 268—275).—Barley sap, poisoned to inactivate the carboxylase, gives an increased CO_2 output after the addition of adenylic acid. Additions to a mixture of sap and extracted residue of both phosphoglycerate and hexose diphosphate increase the CO_2 output. NaF, which inhibits the enzymic conversion of phosphoglycerate into pyruvic acid, also inhibits the formation of additional CO_2 when hexose diphosphate is added to a mixture of barley sap and extracted residue. It is suggested that glycolysis consists of the formation first of adenyl phosphate from adenylic acid and H_3PO_4 and that this reacts with pyranoses derived from sucrose, raffinose, or fructose, to give adenylic acid and hexose diphosphate. This is converted into phosphoglycerate, which breaks down to give H_3PO_4 and pyruvic acid, and the latter gives acetaldehyde and CO_2. L. G. G. W.

Germination habits of sand-hill plants in Nebraska. W. L. Tolstead (*Ecology*, 1941, **22**, 393—397).—Seed of the winter annuals studied germinated in the autumn without exposure to low temp. A further group germinated without low temp. but exposure to low temp. accelerated germination, whilst a third group germinated only after low-temp. treatment. L. G. G. W.

Interference of ammonia, released from sugar-beet seed balls, with laboratory germination tests. M. Stout and B. Tolman (*J. Amer. Soc. Agron.*, 1941, **33**, 65—69).—Washing of seed in water for 6 hr. is recommended in all cases in which the % germination differs appreciably from the % of filled seed balls as shown by the cracking test. A. G. P.

Zymasis. VIII. Aërobic hydrogen cyanide zymasis in apples treated with hydrogen cyanide. IX. Influence of hydrogen cyanide on respiration of apples and some evaluations of the Pasteur effect. M. Thomas and J. C. Fidler (*New Phytol.*, 1941, **40**, 217—239, 240—261).—VIII. Apples in air containing HCN absorb the HCN and HCN zymasis is induced so that ethyl alcohol and acetaldehyde accumulate in the flesh of the fruit. In the presence of HCN under both aërobic and anaërobic conditions the conversion of acetaldehyde into alcohol is retarded. Acetaldehyde accumulation is so marked that it may be great enough to aggravate the toxic effects of relatively high HCN concns. It is suggested that HCN (like high CO_2 concns., H_2S, or absence of O_2) poisons oxidation enzymes that normally act in concert with zymase. The inhibition disappears when HCN-treated apples are returned to normal air.

IX. Apples in which HCN zymasis is induced show an accumulation of acetaldehyde and ethyl alcohol in the flesh of the fruit and a reduced O_2 intake and reduced CO_2 output from aërobic respiration. HCN zymasis is always accompanied by a rise in the

R.Q. owing to a lowered O_2 intake and sometimes an increased CO_2 output or a CO_2 output depressed less than the O_2 intake is depressed. HCN by inhibiting oxidation may stimulate hexose catabolism, giving evidence of the existence of a Pasteur effect in the normal aërobic metabolism of carbohydrates in apples. L. G. G. W.

Depressant effect of carbon dioxide on photosynthesis. L. A. T. Ballard (*New Phytol.*, 1941, **40**, 276—290).—*Ricinus* cotyledons and *Ligustrum* leaves give high temp. coeffs. (8—10 and 4 respectively) for apparent assimilation rates over the temp. range 6—16°. At 6° 2% CO_2 depresses the assimilation rate of *Ligustrum* especially at high light intensities. At 16° concns. up to 5% have no depressing effect. With *Ricinus* similar depressions at 6° are found. It is suggested that CO_2 acts as an inhibitor of the HCN type by combining with a catalyst that normally facilitates the breakdown of a light-activated compound of CO_2 and some cell constituent. L. G. G. W.

Non-fermenting type of tea plant, *Camellia thea*, Link. P. R. Perera (*Current. Sci.*, 1941, **10**, 485).—A genetic factor for fermentation occurring in tea has been shown to exist, by the discovery of non-fermenting characteristics in each of two bushes from the same split seedling. It is connected with the presence or absence of a sp. oxidase. P. G. M.

Relation of tea fermentation to respiration.—See A., 1942, III, 264.

Auxin production during development of grain of cereals. E. S. J. Hatcher and F. G. Gregory (*Nature*, 1941, **148**, 626).—Data recorded for spring and winter varieties of Petkus rye show that no diffusible or extractable auxin appears in the developing carpel until 2 weeks after anthesis. Rapid production of auxin then occurs, reaching a hundredfold max. in 5—6 weeks. The max. is simultaneous with the stage of complete differentiation of the embryo; it is followed by a rapid fall which is related closely to desiccation of the grain and is associated with its germinating capacity. The hormone is confined to the endosperm. The large hormone content of dry maize endosperm has been confirmed. L. S. T.

Straight-growth method of auxin determination in plants. E. D. Brain (*Nature*, 1941, **148**, 666—667).—In the method described pieces of plant material to be tested are applied by means of lanoline to the top of cut pea shoots grown in soil in pots. Growth induced in the cut shoots by growth substance that diffuses from the plant material applied on the lanoline is measured. Results obtained by this upright-growth method are recorded for various seedlings. The method is simpler but less accurate than the *Avena* test method, with which it is correlated. L. S. T.

XXVII.—PLANT CONSTITUENTS.

Iron in plants, with special observations on the chlorophyll : iron ratio. R. Hill and H. Lehmann (*Biochem. J.*, 1941, **35**, 1190—1199).—The Fe and chlorophyll contents of the leaves of elder, chestnut, dead nettle, and *Claytonia perfoliata* have been determined throughout the season, and those of other plants at certain times. Fe precedes chlorophyll in appearance and disappearance. Blossoms do not appreciably affect the Fe content. The chloroplasts of *Claytonia* leaves have 4 times the expected Fe content. Fe storage in evergreens precedes that of chlorophyll. The P : Fe ratio is the same in all leaves. Most of the water-sol. Fe of leaves reacts at once with 2 : 2′-dipyridyl, some after boiling in acid, and some only after ashing. A. Li.

Carboxylase and cocarboxylase in barley. A. H. Bunting and W. O. James (*New Phytol.*, 1941, **40**, 262—267).—Sap pressed from 12—14-day-old green barley seedlings, after freezing at −12°, possesses low carboxylase activity. Barley powder obtained by grinding dried barley leaves has much greater carboxylase activity. The sap contains most of the sol. cocarboxylase, whilst the apoenzyme remains in the pressed residue, which has only a very low carboxylase activity. The low activity of the washed, pressed residue is not fully restored by the addition of cocarboxylase from yeast. Barley sap was shown by the thiochrome test to contain the equiv. of 3·0 μg. of cocarboxylase per 100 g. of original tissue. L. G. G. W.

Deterioration of corn germ sterol. A. C. Kimball (*J. Lab. clin. Med.*, 1941, **27**, 83—84).—This sterol may deteriorate with age (time not given). C. J. C. B.

Lipins isolated from lucerne-leaf meal. H. G. Petering, P. W. Morgal, and E. J. Miller (*Ind. Eng. Chem.*, 1941, **33**, 1428—1432).—The β-carotene contained in the concentrate of unsaponifiable constituents from lucerne (cf. A., 1942, III, 75) is completely utilised by rats as a source of vitamin-*A*; the concentrate contains sterols which can be activated by ultra-violet light to produce antirachitic activity in rats. From 1 ton of lucerne leaf-meal a concentrate is obtained which contains approx. 34×10^7 i.u. of -*A* (as β-carotene) and approx. $12—16 \times 10^6$ i.u. of -*D*. Irradiation of the concentrate does not appreciably destroy the carotene. The prep. is described of Na Mg *iso*chlorophyllin, and phytochlorin *e*–phytorhodin *g* from the green Ba sludge obtained during the $Ba(OH)_2$ saponification of the chlorophyll. R. G. W.

Genistin (an *iso*flavone glucoside) and its aglucone, genestein, from soya beans.—See A., 1942, II, 134.

Starch of glutinous rice.—See A., 1942, II, 82.

Seed mucilage of *Plantago arenaria*.—See A., 1942, II, 135.

Lignin and related compounds. LIX. Aromatic aldehydes from plant materials. R. H. J. Creighton, J. L. McCarthy, and H. Hibbert (*J. Amer. Chem. Soc.*, 1941, **63**, 3049—3052; cf. A., 1942, II, 158).—Treatment of wood with 8% aq. NaOH and nitrobenzene (cf. Freudenberg *et al.*, A., 1940, II, 352) gives the following yields of aldehydes : (*a*) gymnosperm (spruce) 25, (*b*) angiosperms, dicotyledons (maple, sassafras, aspen, jute) 40—45, and (*c*) angiosperms, monocotyledons (rye-straw, maize-cobs, bamboo) 25—31% (calc. on Klason lignin). In (*b*) the syringaldehyde–vanillin ratio is 1 : 3 and in (*c*) 1 : 1, which may be of botanical significance. Isolation and separation of the products is improved. R. S. C.

Synthesis and properties of glucosides related to lignin.—See A., 1942, II, 134.

Isomerisation of polyene acids and carotenoids. Preparation of β-elæostearic and β-licanic acid.—See A., 1942, II, 130.

Prolycopene, a naturally occurring stereoisomeride of lycopene.—See A., 1942, II, 126.

Inheritance of purple pigment at the base of anthers in sorghum. G. N. R. Ayyangar, M. A. S. Ayyar, and A. K. K. Nambiar (*Current Sci.*, 1941, **10**, 491—492).—A gene, A_b, is responsible for the occurrence of purple at the base of the anthers. All plants which have this purple have also brown grains, whilst those with pure yellow anthers have white grains. P. G. M.

Anthochlor pigments. II. Pigments of *Coreopsis gigantea*. T. A. Geissman (*J. Amer. Chem. Soc.*, 1941, **63**, 2689—2690; cf. A., 1941, III, 543).—Flower-heads of *C. gigantea* contain butein and an amorphous (?) pentahydroxychalkone hexoside (*acetate*, m.p. 172·5—173°); the hexoside is fairly sol. in water but extracted therefrom by butyl alcohol; it gives a deep red solution in alkali. A similar water-sol. substance may be present in *C. Douglasii* (*loc. cit.*). R. S. C.

XXVIII.—APPARATUS AND ANALYTICAL METHODS.

Colour preservation by combination of the Klotz and Kaiserling methods. E. E. Aegerter (*Amer. J. clin. Path. Tech. Suppl.*, 1941, **5**, 147—150).—The specimen is first placed in Klotz solution for 2—24 hr. and then fixed in Kaiserling solution. This method preserves the colour better than either alone. C. J. C. B.

300-kilovolt magnetic electron microscope.—See A., 1942, I, 157.

Increasing the depth of focus in photomicrography by incident light.—See A., 1942, I, 155.

Microprojection screen [for counting dust samples]. C. R. Williams and L. Silverman (*J. Ind. Hyg.*, 1941, **23**, 452—453).—An unlimited no. of copies of the required rulings could be made on celluloid foil and mounted for use between 2 sheets of glass. E. M. K.

New form of chromatogram employing two liquid phases. I. Theory of chromatography. II. Application to micro-determination of higher monoamino-acids in proteins.—See A., 1942, I, 160.

Rapid determination of water in animals and plants. A. G. Lowndes (*Nature*, 1941, **148**, 594—595).—The animal or plant is heated in a distilling flask to about 135° with several vols. of xylol, and the water in the distillate measured. Larger quantities of water can be dealt with by using an ordinary Soxhlet extractor provided with an outlet tap. The water in hen's egg found by this method is 65·4%. Paraffin cannot be substituted for xylol. Dehydration in an oven is less satisfactory than this method, which can be used without injury to the tissues concerned. L. S. T.

Use of Hengar selenised granules in digestion procedure for microgasometric determination of nitrogen. E. J. Poth and G. A. Elliott (*J. Lab. clin. Med.*, 1941, **27**, 266).—The use of a single Hengar selenised granule in 2 c.c. of a mixture consisting of 3 vols. of H_2SO_4 (sp. gr. 1·84) and 1 vol. of H_3PO_4 (sp. gr. 1·71) insures complete digestion in 10—15 min. Oxidation is catalysed by the Se, but bumping is eliminated by the porous granule. This digest is neutralised and treated with hypobromite in the manometric apparatus in the ordinary way. 0·5—1·5 mg. of N can be determined with an accuracy of 0·5%. C. J. C. B.

Modification of Pucher–Sherman–Vickery method for determination of citric acid. B. Josephson and U. Forssberg (*J. Lab. clin. Med.*, 1941, **27**, 267—268).—Pure glycerol is used instead of pyridine in Pucher's method (A., 1936, 535). C. J. C. B.

Photometric determination of sugar in biological fluids by ferricyanide reduction. A. Saifer and F. Valenstein (*J. Lab. clin. Med.*, 1941, **26**, 1969—1977).—The method used is an adaptation and modification of that of Klendshoj and Hubbard (A., 1941, III, 7). C. J. C. B.

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