

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

SEPTEMBER, 1942.

I.—GENERAL ANATOMY AND MORPHOLOGY.

Variations in origin of trapezius muscle. L. E. Beaton and B. J. Anson (*Anat. Rec.*, 1942, **83**, 41—46).—Dissimilarities between sides and deficiencies in the muscle are recorded. One true anomaly was found, a slip extending from the tip of the arch of the atlas to the deep surface of the muscle; it is regarded as a variety of the uncommon omotransversarius. W. F. H.

Fasciæ of fusion and elements of fused enteric mesenteries in human adult. E. D. Congdon, R. Blumberg, and W. Henry (*Amer. J. Anat.*, 1942, **70**, 251—279).—These fasciæ, described by Toldt in fetuses and children, are in large part preserved in the adult. The colic fasciæ of fusion constantly pass posterior to the segments of the colon to blend with the peritoneum in the region of the paracolic gutter. Topographical relationships also confirm the presence of mesogastric fusional fasciæ and that the greater part of the fused gastric and colic mesenteries are retained in the adult. W. F. H.

Measurements and observations on intestine of rats fed unbalanced and supplemented diets. J. L. Wierda (*Amer. J. Anat.*, 1942, **70**, 433—453).—In rats which received 5 g. of raw liver each day the length of the small intestine increased compared with the length in those which received no meat. On a diet of 33% raw meat or 12% dried meat there was no significant increase in the length of the small intestine. The colon was not altered in length in rats which had received meat. Agar had no effect on the length of the small intestine. Colon and cæcum were definitely longer in the rats on bulky diet than in those on conc. balanced diet. The effect of meat and of agar on the circumference and area of the intestine is detailed. The morphology of intestinal villi is altered by diet, the changes being most marked in the duodenum. W. F. H.

Physical fitness of children. M. C. Hardy, H. H. Boyle, and A. L. Newcomb (*J. Amer. Med. Assoc.*, 1941, **117**, 2154—2161).—Examination of 6438 children of varying economic status in Chicago showed evidence of the need for health supervision and health education in all classes. Poor nutrition, shown by flabby muscles, underwt., round shoulders, fatigue posture, leg deformities, flat feet, carious teeth, etc., was most marked in children at low income levels, in whom the diet was frequently inadequate. C. A. K.

Physical characteristic of children in Marseilles, France, in 1941. H. C. Stuart and D. Kuhlmann (*J. Pediat.*, 1942, **20**, 424—452).—On the basis of the Prior norms, the Marseilles children are, with the exception of 6-year-old boys, appreciably underwt. for body build. Bands of differing densities in the postnatal areas of bone shadows, irregular bone trabeculations, dense lines of interrupted growth, and other indications of faulty or variable depositions of Ca were often seen at the younger ages, even when no signs characteristic of rickets were visible. 6 infants out of 31 under 15 months of age showed poor calcification of the bones. Of the 3-year age group, 3 out of 12 showed such disturbances. By 6 years of age this no. had fallen to 8 out of 61 individuals. C. J. C. B.

Juvenile scapula: further observations. A. Hrdlička (*Amer. J. Phys. Anthropol.*, 1942, **29**, 287—310).—The convexity of the vertebral border and the semilunar and relatively sloping upper border are regarded as foetal survivals. The saddle-shaped superior border and a proportion of the accessory borders are of later though still juvenile development. Late modifications, e.g., scapular subcoracoid bony foramina, are mostly of functional nature, due to muscular action. W. F. H.

Senile osteoporosis of spinal column. J. R. Black, R. K. Ghormley, and J. D. Camp (*J. Amer. Med. Assoc.*, 1941, **117**, 2144—2150).—An account of the clinical picture, laboratory findings (normal serum-Ca, -P, and -phosphatase), pathological and X-ray findings in senile osteoporosis of the spinal column is given. Treatment with Ca salts + large doses of vitamin-D produced symptomatic improvement but no recalcification of the rarefied vertebrae. C. A. K.

Sclerotic areas in skulls affected with Paget's disease. B. Orban (*Arch. Pathol.*, 1942, **33**, 607—618).—6 distinct types of the sclerotic areas are described; the histological details confirm the character-

istic activity in bone involved in Paget's disease, i.e., uncontrolled and repeated alternation of resorption and new formation.

C. J. C. B.
[Congenital] basilar impression. W. T. Peyton and H. O. Peterson (*Radiology*, 1942, **38**, 131—144).—A review of the 26 cases of congenital deformities in the region of the foramen magnum with 3 new cases. E. M. J.

Derangements of deciduous dentition. J. Schwartzman (*Arch. Pediat.*, 1942, **59**, 188—197). C. J. C. B.

Drainage of pulmonary veins into right side of heart. H. Brody (*Arch. Pathol.*, 1942, **33**, 221—239).—Drainage of all or part of the lungs into the major venous system is relatively uncommon. 100 cases of which 35 had total drainage into the right atrium or its tributaries were collected from the literature. 2 additional cases are described; in 1 the pulmonary veins drained into the coronary sinus, and in the other, into the superior vena cava. Of the 37 patients with complete drainage into the right side of the heart or its tributaries, only 8 lived beyond 6 months. In all cases the foramen ovale was open. In half the ductus arteriosus was closed or almost closed. In the latter, all the blood reaching the systemic circulation passed through the aortic valve and, to reach the left side of the heart, passed through the foramen ovale. As the balance between the right and the left side of the heart in these cases had to be maintained through the foramen ovale and the ductus arteriosus, the gradual closing of these, particularly the latter, might have produced imbalance, with decompensation and death. In comparing cases in which there was partial or total drainage into the right side of the heart, it appears that when less than 50% of the pulmonary return is abnormally carried into the major venous circulation, there is little likelihood of decompensation, and such persons reach adult age. C. J. C. B.

Variation of human aortic arch. R. Branster, W. F. Herlihy, D. W. Lawson, and R. J. Nowland (*Med. J. Austral.*, 1942, **1**, 47—48).—In a male cadaver of 78 years, the aortic arch was right-sided, passing behind the trachea and œsophagus, and the left subclavian artery arose from a large bulge on the left antero-lateral aspect of the descending aorta. F. S.

Circulatory anomalies in foetal pig. R. F. MacLennan (*Res. Stud. State Coll. Washington*, 1940, **8**, 121—126).—A description is given of the common circulatory anomalies of the foetal pig. The commonest variation is found in the azygos and hemiazygos system. The presence of an azygos vein in addition to, or instead of, a hemiazygos vein occurs in 10%. Persistent supracardinal veins occur in 6% of cases. Other less common anomalies are described. W. J. H.

Permanent preservation of human heart. R. J. Lebowich, F. A. Opps, and L. Procita (*Arch. Pathol.*, 1942, **33**, 696—704).—A simultaneous soap-wax dehydration and infiltration method is described. C. J. C. B.

II.—DESCRIPTIVE AND EXPERIMENTAL EMBRYOLOGY. HEREDITY.

Early development of goat. E. C. Amoroso, W. F. Griffiths, and W. J. Hamilton (*J. Anat., London*, 1942, **76**, 377—406).—Living eggs of the goat recovered from the uterine tube and uterus had a diameter (internal to the zona) of about 145 μ . First and second cleavages were at 30 and 48 hr. post-coitum. In fixed eggs a central cell was first present at the 13-cell stage, and in later morulae large, probably formative cells were found at one pole while the blastocyst cavity appeared among the smaller trophoblast cells. Later the inner cell mass becomes covered peripherally by trophoblast cells, suggested as derived from the formative cells. Trophoblast cells adjacent to the inner surface of the formative cells probably take part in endoderm formation. D. M. Sa.

Origin of rete apparatus in opossum. R. K. Burns (*Science*, 1941, **94**, 142—144).—The rete apparatus represents a series of persistent nephrostomial canals and is derived from pre-existing mesonephric structures, while the individual rete invaginations and the ostial funnel are morphologically members of a homologous series. E. R. S.

Dystopic ovary in newborn with reference to normal genesis. H. Graber (*Virchow's Arch.*, 1939, 303, 557—569). J. A.

Development of feathers. F. R. Lillie (*Biol. Rev.*, 1942, 17, 247—266).—A review. J. D. B.

Developmental rate of hybrid frogs. J. A. Moore (*J. exp. Zool.*, 1941, 86, 405—422). J. D. B.

Experiments on chemical interference with early morphogenesis of chick. I. Effects of tetanus toxin on morphogenesis of central nervous system. P. Gray and H. Worthing (*J. exp. Zool.*, 1941, 86, 423—439).—Statistical analysis shows that injection of tetanus toxin into the subgerminal cavity differentially affects the central nervous system to produce two types of abnormality: (a) a delay of nervous system development relative to somite no. and (b) a localised destruction of the anterior end. The first and possibly the second effect may be due to an enzyme inhibitor specifically affecting the metabolism of the central nervous system. J. D. B.

Echinoderm bilateral determination in chemical concentration gradients. I. Effects of cyanide, ferricyanide, iodoacetate, picrate, dinitrophenol, urethane, iodine, malonate, etc. D. C. Pearse (*J. exp. Zool.*, 1941, 86, 381—404).—Evidence is presented suggesting that at least part of the cyanide-sensitive respiratory mechanism is the key enzyme system in the determination of the plane of bilateral symmetry. J. D. B.

Oxygen consumption of early chick embryos at various stages of development. F. S. Philips (*J. exp. Zool.*, 1941, 86, 257—289). J. D. B.

Regeneration of planarian head in diluted Ringer's fluid. J. W. Wilson (*J. exp. Zool.*, 1941, 86, 225—245). J. D. B.

Haploidy in salamander larvæ. C. T. Kaylor (*Biol. Bull.*, 1941, 81, 402—419).—Second maturation spindles were removed by puncture following sperm entry. Abnormal haploid eggs were fixed and sectioned at various stages of development. Chromosome irregularities and degeneration of sperm nuclei are described. Incomplete haploidy indicates early mitotic derangement in cleavage. D. M. S.

Sea urchin antifertilizin. A. Tyler and K. O'Melveny (*Biol. Bull.*, 1941, 81, 364—374).—Acidification or heating liberates antifertilizin from sperm which then have much diminished fertilising power, though their O_2 consumption is little affected. Rabbit agglutinins for antifertilizin agglutinate intact sperm. D. M. S.

Prottyrosinase in grasshopper eggs. J. H. Bodine and T. H. Allen (*Biol. Bull.*, 1941, 81, 388—391). D. M. S.

Esterases in grasshopper egg. L. D. Carlson (*Biol. Bull.*, 1941, 81, 375—387).—Glycerol extracts show high ability to hydrolyse methyl butyrate but this lessens after the 10th day of development. Tributyrin hydrolysis is stronger and const. Both esterases are associated with the yolk. D. M. S.

Mating types in *Paramecium caudatum*. L. C. Gilman (*Biol. Bull.*, 1941, 80, 384—402). D. M. S.

Mating reactions of fragments of *Paramecium*. V. Tartar and T. Chen (*Biol. Bull.*, 1941, 80, 130—138). D. M. S.

Autosomal recessive factor inducing semi-sterility in *Drosophila melanogaster* females. U. Fano (*Proc. Nat. Acad. Sci.*, 1942, 28, 119—123).—A wild type strain in which the eggs failed to develop was isolated. It was shown that this behaviour is due to a second chromosome factor which affects the offspring of homozygous parent females independently of the genetic constitution of their mates. W. F. H.

"Ataxia," hereditary nervous disorder of rabbit. P. B. Sawin, M. V. Anders, and R. B. Johnson (*Proc. Nat. Acad. Sci.*, 1942, 28, 123—127).—This degenerative disorder involving the brain stem, which appears to have arisen by a mutation, is transmitted as a simple mendelising unit. By crossing it may be introduced into unrelated families to become manifest in subsequent generations. It may be eliminated by breeding tests accompanied by selection of those segregates free from the defect. W. F. H.

III.—PHYSICAL ANTHROPOLOGY.

Physical anthropology of American negro. W. M. Cobb (*Amer. J. phys. Anthropol.*, 1942, 29, 113—223).—A review of previous studies from 1860. Reference tables include the no. of specimens studied from the various institutions, physical status, physical differences, nutrition growth, etc. W. F. H.

Fissural pattern in brain of negroes and whites. C. J. Connolly (*Amer. J. phys. Anthropol.*, 1942, 29, 225—265).—Fissuration is influenced by the greater length of the lateral fissure of the left hemisphere. There is a difference in the degree of fissuration between the negro brain and the white as represented by the German series. More sulci are present in the latter. The form and course

of sulci are correlated with the shape of the brain in the two racial groups. No correlation of brain wt. and fissuration was observed. W. F. H.

Mid-dorsal hair whorl in Australian of European ancestry. F. Fenner (*J. Anat., London*, 1942, 76, 356—358).—The occurrence of anomalies in the mid dorsal whorl and lower dorsal reversal is reported in an Australian of unmixed European ancestry. W. J. H.

IV.—CYTOLOGY, HISTOLOGY, AND TISSUE CULTURE.

Storage and distribution of iron-containing pigment and problem of segmental differentiation in proximal tubule of rat nephron. A. L. Grafflin (*Amer. J. Anat.*, 1942, 70, 399—431).—The major portion of the proximal tubule exhibits considerable variation in the amount and character of the pigment but the differences are achieved gradually and there is no indication of sharp intersegmental transitions. The terminal part, however, is demarcated by an abrupt alteration in pigment deposition and by the presence of isolated pigment-containing epithelial cells. It is concluded that the proximal tubule is subdivided into at least two distinct segments. W. F. H.

Parathyroid glands of normal and hypophysectomised monkey (*Macaca mulatta*). B. L. Baker (*Anat. Rec.*, 1942, 83, 47—73).—The cellular content of the parathyroids is detailed with special reference to principal cells and oxyphils. Hypophysectomy of male and female monkeys resulted in slight atrophy of the parathyroids. There was no significant effect on the mitochondria, juxta-nuclear body, and distribution of cell types. W. F. H.

Chemical composition of mitochondria. J. R. Baker (*Nature*, 1942, 149, 611—612).—Discussion. E. R. S.

Apparatus for roller-tube tissue culture. D. R. Coman and N. G. Stabler (*Science*, 1941, 94, 569—570).—Construction of a silent and non-vibrating unit which does not develop excess heat in an incubator is described. E. R. S.

Technique of cultures *in vitro*. J. M. P. Soarez (*Arch. Port. Sci. Biol.*, 1938, 4, 231—236). I. C.

Method of staining spermatozoa. G. H. Fetterman (*Amer. J. clin. Path. Tech. Sect.*, 1942, 6, 8).—A smear of fresh spermatic fluid is made on a slide, allowed to dry in air, and fixed for 3 min. in a 10% solution of U.S.P. formaldehyde in water; it is then stained in Harris hæmatoxylin for 1 min., washed in water, and allowed to dry. C. J. C. B.

Iron hæmatoxylin method for tissues. G. Ritchie (*Amer. J. clin. Path. Tech. Sect.*, 1942, 6, 10).—When a 2—4% solution of $Fe^{III} NH_4$ sulphate (violet crystals) is used as a mordant, and the sections are stained with the routine alum hæmatoxylin, results identical with those following the use of Weigert's Fe hæmatoxylin can be obtained. C. J. C. B.

Rapid method of staining myelin in traumatic neuromas and injured nerves. J. Anderson (*J. Path. Bact.*, 1942, 54, 258—259).—Sections are cut at 30 μ . while the tissue is frozen hard, transferred to the following mordant, and heated for 1 hr. at 50°: Weigert's primary mordant ($K_2Cr_2O_7$, 5 g., Cr fluoride 2.5 g., water 100 c.c.) 75 c.c., 4% phosphomolybdic acid 16 c.c., 2% Ca hypochlorite (supernatant fluid) 8 c.c. After washing in water and staining in Kultschitsky's hæmatoxylin at 50° for 30 min., they are transferred directly to 2.5% $K_2Cr_2O_7$ for 2—3 min., washed, differentiated by Pal's method, and counterstained in Anderson's alum-carminé at 50° for 45—60 min. Sections are washed rapidly in distilled water, transferred to 80% alcohol, mounted on slides, dehydrated in abs. alcohol, cleared, and mounted. Alternatively Van Gieson's stain may be used as a counterstain. C. J. C. B.

Routine staining of beta cells of the islets of Langerhans with Masson's tetrachrome stain. P. H. Hartz (*Arch. Pathol.*, 1942, 33, 541—542).—For fixation a mixture of equal parts of Bouin's fluid and a saturated aq. solution of $HgCl_2$ is used for 12—24 hr. Peterfi's methyl benzoate-celloidin method for paraffin embedding is superior to dioxan methods. After removal of the trinitrophenol and the Hg ppt., the sections are stained by Larson and Levin's method (*Arch. Pathol.*, 1940, 29, 272), the only difference being that light-green is replaced by fast-green F.C.F. C. J. C. B.

New method of dissociating cells. E. S. Goodrich (*Quart. J. micros. Sci.*, 1942, 83, 245—258).—A method for the dissociation of cells of metazoan tissues is described which involves treatment with a saturated solution of boric acid in normal saline to which a trace of Lugol's I has been added. J. D. B.

Improved mechanical microtome knife sharpener. F. W. Hartman, jun., and F. W. Hartman (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 167—169).—A modification is described, with drawing, of the mechanical razor sharpener of Fanz and Minot (*J. Lab. Clin. Med.*, 1929, 14, 1194). V. J. W.

Rapid means of preparing uniform tissue sections. A. W. Martin (*Endocrinol.*, 1942, 30, 624—625).—2 razor blades are held in brass holders which are hinged at the top and can be adjusted to any desired distance apart. Slices of any desired thickness can be rapidly cut in succession for tissue respiration experiments.

V. J. W.

V.—BLOOD AND LYMPH.

Preparation of living nuclei from hen erythrocytes. M. Laskowski (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 354—356).—Red cells are haemolysed by "lysolecithin" prepared by incubating lecithin with bee venom. Nuclei are thus obtained free and suspended in saline. They respire and have a Q_{O_2} of 0.2 at p_H 7.3, which is optimal. Q_{O_2} is increased to 0.3 by addition of glucose.

V. J. W.

Effect of saponin on respiration of chicken erythrocytes. F. R. Hunter, S. B. Barber, and E. H. Suito (*J. Cell. Comp. Physiol.*, 1942, 19, 239—242).—Suspension in 1% saponin for 10—15 min. causes a decrease in O_2 consumption which is parallel with increased permeability determined by haemolysis time in 0.3M-glycerin.

V. J. W.

Preparation of red-cell membranes. A. K. Parpart (*J. Cell. Comp. Physiol.*, 1942, 19, 248—249).—Cells are haemolysed with distilled water and mixed with 80 vols. of distilled water saturated with CO_2 at 10°. The "ghosts" settle and, after haemoglobin is washed out by repeated washing with CO_2 -saturated water, can be dried. Lipin content is identical with that of red cells.

V. J. W.

Experimentally induced hæmatopoiesis in anæmic rabbits. H. Gordon, C. H. Crudden, and A. K. Lampton (*J. Lab. Clin. Med.*, 1942, 27, 890—896).—15 rabbits rendered anæmic by repeated bleeding were divided into 3 groups: (1) control, (2) received intravenous transfusions from healthy donors, (3) was given intravenous transfusions from donors previously stimulated by small hæmorrhages. The last 2 groups and especially the third group improved more rapidly than the control. Preliminary phlebotomy of human donors may provide an effective method of treating hypoplastic, aplastic, and refractory anæmia in man.

C. J. C. B.

Absorption of hæmoglobin-iron. D. A. K. Black and J. F. Powell (*Biochem. J.*, 1942, 36, 110—112).—10—25% of the ingested Fe is absorbed on administration of 1 l. of blood by duodenal tube to normal and anæmic (Fe-deficiency) subjects. In anæmic subjects a reticulocytosis and rise in blood-hæmoglobin followed the administration, though a subject exhibiting only 10% Fe absorption showed only a slight increase in the reticulocyte count and no hæmoglobin response.

H. G. R.

Pathological changes following injections of ferrihæmate (hæmatin) in dogs. W. A. D. Anderson, D. B. Morrison, and E. F. Williams, jun. (*Arch. Path.*, 1942, 33, 589—602).—Marked vascular reactions followed injection (particularly intravenous) of ferrihæmate (200 mg.); these consisted of dilatation and congestion of small vessels, hæmorrhages, and thromboses. Small hæmorrhages were common in the central nervous system. Renal lesions were similar to those which may follow marked intravascular hæmolysis, as from transfusion of incompatible blood, but with less marked tubular blockage. These changes were due to vascular injury and obstruction. Siderofibrotic nodules of the spleen (Gandy-gamma bodies) resulted from deposition of ferrihæmate in the spleen. (17 photomicrographs.)

C. J. C. B.

Rôle of parasite pigment (ferrihæmic acid) in production of lesions in malaria. W. A. D. Anderson and D. B. Morrison (*Arch. Path.*, 1942, 33, 677—686).—In rhesus monkeys infected with *Plasmodium knowlesi* or given injections of ferrihæmate (parasite pigment), the changes are multiple thromboses in small vessels, renal degenerative lesions, and pigment deposits in reticuloendothelial cells. Vascular occlusion superimposed on severe anæmia, with resultant anoxæmia, is the probable mechanism of injury in simian malaria, rather than any direct toxic action of the parasite pigment. (7 photomicrographs.)

C. J. C. B.

Familial acholuric jaundice associated with bone changes. E. L. Cooper (*Ann. int. Med.*, 1941, 15, 858—868).—A family is described suffering from the Chauffard-Minkowski type of familial acholuric jaundice and showing Mongoloid facies and the bone changes in the skull reported in sickle-cell and erythroblastic anæmia. There was marked hyperplasia of the red bone marrow with complete absence of fat cells; in some areas it was partly replaced by scar tissue. There was enormous increase in the thickness of the dioplæ with radial arrangement of bony trabeculae.

A. S.

Histaminase in prevention of reactions to injected liver extract. C. B. Taylor and D. W. Hilger (*J. Amer. Med. Assoc.*, 1941, 117, 1880—1881).—2 patients with pernicious anæmia acquired marked sensitivity to injected liver extract, with generalised pruritus, nausea, and vomiting, which were prevented by giving histaminase by mouth for 2 days before the injection. Temporary reduction of intradermal sensitivity to liver extracts was produced, but there was no change in histamine sensitivity.

C. A. K.

Comparison of capillary and venous red blood cell counts and hæmoglobin determinations in patients with pernicious anæmia in remission under treatment. M. B. Strauss and J. H. Burchenal (*J. Lab. Clin. Med.*, 1942, 27, 937—938).—Venous blood in patients with pernicious anæmia under treatment has 5% less erythrocytes and hæmoglobin than blood obtained from the capillaries.

C. J. C. B.

Recovery from experimental polycythæmia. E. Lowenhaupt (*J. Lab. Clin. Med.*, 1942, 27, 874—877).—In the guinea-pig recovery from polycythæmia induced by low atm. pressure is dependent on subsidence of increased bone marrow activity rather than on excess peripheral destruction of erythrocytes. No rise of serum-bilirubin was found, even in animals in which blood regeneration had been altered by bleeding or by special diet while at low O_2 tension.

C. J. C. B.

Hæmatocrit tube balancing rack. A. C. Stirling (*J. Lab. Clin. Med.*, 1942, 27, 928—930).

C. J. C. B.

Pantothenic acid absorption in pernicious anæmia. C. E. Meyer, I. F. Burton, and C. C. Sturgis (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 363—365).—Renal output of pantothenic acid after oral administration of 100 mg. is only slightly less in these patients than in controls.

V. J. W.

[Classification of blood groups.] Symbols for human genes. R. R. Gates (*Science*, 1942, 95, 17—18).—The ABO system of blood grouping is supported.

E. R. S.

The polycyte. E. Ponder (*J. Lab. Clin. Med.*, 1942, 27, 866—873).—Polycytes and propolycytes are the result of an increase in the rate of maturation of the polymorphonuclear leucocyte. They make their appearance in 10% of cases with acute or chronic infection, usually when the polynuclear count is returning, or about to return, to its normal steady state, and are of favourable prognostic significance.

C. J. C. B.

Cultures of leucocytes in vitro. J. M. P. Soares (*Arch. Port. Sci. Biol.*, 1938, 4, 207—230).—Cultures of chicken leucocytes in homologous plasma showed transformation of monocytes into macrophages and of the latter into both epithelioid and giant cells. Factors influencing such transformations are discussed.

I. C.

Response of bone marrow in *Akh* and *Rfi* mice to nucleic acid. J. Nearles (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 458—460).—Injections of 10—15 mg. of thymonucleic acid cause leucocytosis, but in *Rfi* mice this is preceded by a leucopenia 4 hr. after the injection.

V. J. W.

Agglutination of rabbit leucocytes by *Staph. aureus* toxin. J. T. Weld and L. C. Mitchell (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 370—374).—This toxin agglutinates leucocytes and bone-marrow cells of rabbits, the agglutinating power being parallel with its ability to kill leucocytes as determined by their power to reduce methylene-blue.

V. J. W.

Antileucocytic sheep serum as sensitizing agent in chronic myeloid leukaemia refractory to deep X-ray therapy. J. B. Thiersch (*Med. J. Austral.*, 1942, 1, 225—229).—In 2 such cases deep X-ray treatment of the spleen 40 days after antileucocytic serum revealed a sensitisation resulting in a pronounced decrease in the size of the spleen with an improvement in general health.

F. S.

Eosinophilic granuloma and certain other reticulo-endothelial hyperplasias of bone. P. Gross and H. W. Jacox (*Amer. J. med. Sci.*, 1942, 203, 673—686).—Eosinophilic granuloma of bone is a reticulo-endotheliosis and is probably identical with those cases of Hand-Christian's disease which have been reported to have had solitary lesions.

C. J. C. B.

[Renal changes following] blood transfusion. G. D. Ayer and A. G. Gauld (*Arch. Path.*, 1942, 33, 513—532).—The only progressive renal changes in 7 cases of post-transfusion uræmia were necrosis of the distal convoluted tubules and collecting ducts and infiltration and œdema of the interstitial tissue about these segments of the tubules. These progressive changes and intratubular varicoloured casts are duplicated in the kidneys of jaundiced infants who during life had no oliguria or renal insufficiency. Therefore, it is unlikely that the morphological changes in the kidneys after delayed reaction to transfusion are responsible for the renal failure observed clinically.

C. J. C. B.

Rates of hæmolysis in human blood stored in glucose and other solutions. E. L. DeGowin, J. E. Harris, and J. Bell (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 481—483).—Addition of an equal vol. of 5.4% glucose to citrated blood inhibits hæmolysis during storage at 2°. Sucrose is less effective and KCl and NaCl increase it.

V. J. W.

Osmotic changes in erythrocytes of human blood during storage. E. L. DeGowin, J. E. Harris, J. Bell, and R. C. Hardin (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 484—488).—In citrated blood stored at 2° the cells swell and become more fragile. In glucose (see above) they also swell and, if the glucose is made hypertonic, it diffuses into the cell and causes intravascular hæmolysis by the patient's plasma. Swelling is decreased if cooling is rapid.

V. J. W.

Shock and hæmorrhage. V. H. Moon, D. R. Morgan, M. M. Lieber, and D. McGrew (*J. Amer. Med. Assoc.*, 1941, **117**, 2024—2030).—A review, with emphasis on the points of similarity and difference in shock and hæmorrhage. C. A. K.

Collection of blood and plasma. E. S. Taylor (*J. Amer. Med. Assoc.*, 1941, **117**, 2123—2129).—A preliminary report of the technique for collecting and distributing blood to the U.S. army and navy. C. A. K.

Infusions of blood into bone marrow. L. M. Tocantins, J. F. O'Neill, and H. W. Jones (*J. Amer. Med. Assoc.*, 1941, **117**, 1229—1234).—Citratd blood and physiological NaCl solution were successfully infused through the marrow of the tibia or femur in 9 infants in whom intravenous infusions were indicated but impossible. No local or general reactions were observed. C. A. K.

Dried serum for military use. W. H. Pitcher (*Canad. Chem.*, 1942, **26**, 234—236). C. J. C. B.

Pharmacological properties of serum with reference to its use as blood substitute. G. Reid and M. Bick (*Med. J. Austral.*, 1942, **1**, 245—250).—A smooth muscle-stimulating and vasoconstrictor substance was found regularly in serum prepared by the clotting of whole blood. The substance is liberated from the blood platelets, withstands boiling, and is ultrafilterable. Adenyl compounds were not found in human serum 12 hr. or more after prep. Serum contains an enzyme which inactivates adenosine. It is recommended that serum should be prepared from platelet-free plasma produced either by centrifugation or in a cream separator. F. S.

Test for pyrogen in infusion fluids. Co Tui and M. H. Schriff (*Proc. Soc. Exp. Biol. Med.*, 1942, **49**, 320—323).—Absence of pyrogen is shown by absence of pyrexia in rabbits after intravenous injection of 50—100 c.c. per kg., and its presence by occurrence of leucopenia and temp. rise of 0.5° in dogs after injection of 250—1500 c.c., dose depending on results of a preliminary rabbit test. V. J. W.

Comparative effects of horse serum, horse serum-albumin and -globulin in experimental shock. H. A. Davis and A. G. Eaton (*Proc. Soc. Exp. Biol. Med.*, 1942, **49**, 359—361).—Whole serum and albumin are equally effective in raising blood pressure in dogs after severe hæmorrhage. Globulin is less effective and more toxic. V. J. W.

Desiccated plasma for national defence. J. M. Hill and E. E. Muirhead (*J. Lab. Clin. Med.*, 1942, **27**, 812—819).—A review. C. J. C. B.

Simplification of Benhold's test [Congo-red test] for amyloidosis. A. B. Cohen (*J. Lab. Clin. Med.*, 1942, **27**, 934—936).—2 c.c. of a 1% Congo-red solution are injected intravenously; after 15 min. a few drops of blood are withdrawn from a finger; 1 or 2 drops of the serum are placed into a small white porcelain dish; 1 drop of HCl is added. If the serum contains Congo-red (*i.e.*, no amyloidosis), a blue, quickly fading colour appears at the moment of mixing. C. J. C. B.

Experimental production of hæmophilia-like condition in heparinised mice. A. L. Copley and J. J. Lalich (*Amer. J. Physiol.*, 1942, **135**, 547—556).—200—1000 units of heparin per 20 g. body wt., injected into mice (tail vein), may cause an increase of bleeding and coagulation times. Repeated prickings produced more prolonged bleeding times. An unidentified factor may exist in the skin or tissue fluid which may be exhausted by heparin injection, resulting in prolonged bleeding time. M. W. G.

Assay of heparin. R. H. K. Foster (*J. Lab. Clin. Med.*, 1942, **27**, 820—827).—The method consists in observing the degree of clot formation in recalcified citrated ox plasma to which varying amounts of heparin have been added. The degree of clotting is measured on a suitable clotting scale (4 plus method), after which the data in the form of log concns. and the probits of the % clot formations are plotted to determine the "50% clotting concn." The potency of an unknown prep. is estimated by comparing its 50% clotting concn. with that of a standard. C. J. C. B.

Heparin in retinal vein thrombosis. R. R. Ferguson (*J. Amer. Med. Assoc.*, 1941, **117**, 1351—1352).—Heparin was successfully used in the treatment of thrombosis of the inferior temporal branch of the right retinal vein. C. A. K.

Chemotherapy and heparin in subacute bacterial endocarditis. C. E. Leach, J. M. Faulkner, C. N. Duncan, S. McGinn, R. R. Porter, and P. D. White (*J. Amer. Med. Assoc.*, 1941, **117**, 1345—1350).—41 cases of subacute bacterial endocarditis (positive blood cultures) were treated with sulphonamides and 23 of the cases were also given heparin. 4 of the patients apparently recovered clinically and showed negative blood cultures; 3 of these had received heparin + sulphonamides. All the other cases died. C. A. K.

Heparin in subacute bacterial endocarditis. J. Mclean, B. B. M. Meyer, and J. M. Griffith (*J. Amer. Med. Assoc.*, 1941, **117**, 1870—1875).—Heparin + sulphapyridine was unsuccessfully used in 2 cases of subacute bacterial endocarditis, 1 patient dying of meningal

hæmorrhage. [A review of 67 cases described in the literature suggests that heparin is of no val. in this condition. C. A. K.]

Prothrombin deficiency in pulmonary tuberculosis. R. F. Sheely (*J. Amer. Med. Assoc.*, 1941, **117**, 1603—1606).—Significant prothrombin deficiency was found in 51 of 106 cases of active and chronic pulmonary tuberculosis and was proportional to the severity of the disease, but was not constantly related to the sedimentation rate. Vitamin-K administration was considered helpful in 4 cases with hæmoptysis. C. A. K.

Effect of vitamin-D on prothrombin deficiency in rat. F. S. Grodins and A. C. Ivy (*Proc. Soc. Exp. Biol. Med.*, 1942, **49**, 439—441).—No increase in prothrombin was produced by injection of 500—1000 units of "viosterol." V. J. W.

Improved method of determination of prothrombin time. D. V. S. Reddy and C. Venkataramiah (*Current Sci.*, 1942, **11**, 60—61; cf. Iyengar *et al.*, *A.*, 1942, III, 90). W. McC.

[Blood]-prothrombin [at high altitudes]. J. A. Bar (*Bol. Soc. Quim. Peru*, 1941, **7**, 200—212).—There is a slight increase in blood-prothrombin on climbing to a high altitude, followed by a decrease. The clotting time of plasma kept at 40° changes after 90 sec. owing to destruction of prothrombin. F. R. G.

Prothrombin studies using Russell viper venom. Effect of lecithinised venom on prothrombin clotting time. R. C. Page, E. J. de Beer, and M. L. Orr (*J. Lab. Clin. Med.*, 1942, **27**, 830—834).—Undiluted plasma and 40% plasma were used with venom alone and with venom which had been lecithinised by adding 0.05 c.c. of a 10% alcoholic solution of lecithin (egg) to each c.c. of venom. The addition of lecithin to the venom accelerated the prothrombin clotting time in each plasma studied. The % of reduction in the prothrombin clotting time is greater in plasma with prolonged clotting times than in plasma with rapid clotting times. The use of venom alone may reveal certain prothrombin deficiencies which are not evident when the venom is lecithinised. C. J. C. B.

Prophylactic use of vitamin-K in obstetrics. L. M. Hellman and L. B. Shettles (*Sth. Med. J.*, 1942, **35**, 289—293).—Alternate obstetric admissions were given at least one dose of 2 mg. of 2-methyl-1:4-naphthaquinone by mouth. Infant mortality was 1.9% in 1042 treated and 3.9% in 1206 untreated deliveries. E. M. J.

Prevention of experimental thrombosis by dicoumarin. D. U. Dale and L. B. Jaques (*Canad. Med. Assoc. J.*, 1942, **46**, 546—548).—Intravenous injection of 3:3'-methylenebis-(4-hydroxycoumarin), "dicoumarin," increases the prothrombin time of dogs. The administration in sufficient amounts prevents the formation of intravascular and extravascular thrombi. This demonstrates an intimate connexion between the clotting mechanism and the formation of thrombi (agglutination of platelets). Due to its cheapness, its long action, and its activity on oral administration, dicoumarin possesses many advantages for clinical use in the prevention of thrombosis but the long latent period before it acts and the impossibility of terminating this effect quickly are disadvantages. C. J. C. B.

Significance of fibrinolysis in mechanism of coagulation of blood. H. J. Taguon (*Science*, 1942, **95**, 334).—Fibrinolytic serum was prepared by shaking dog blood with CHCl₃, keeping for 24 hr., and removing the CHCl₃. The globulin pptd. at pH 6 is sol. in isotonic saline, giving a fibrinolytic solution. E. R. S.

Bleeding time, lymphic time, and clot resistance in men. A. L. Copley and J. J. Lalich (*J. Clin. Invest.*, 1942, **21**, 145—152).—A new method for determining bleeding time is described. The normal bleeding time in 95% of subjects was 17—180 sec. In addition to the red or blood flow, there is a whitish flow which may be observed alone or simultaneously with the red flow. The whitish flow, which is a mixture of lymph, tissue fluid, and plasma and is called the lymph time, was measured from the time the wound was inflicted until the flow stopped. The normal lymph flow time was less than 16 min. In normal individuals, the clot, when formed, could not be dislodged by applying 100 mm. Hg cuff-pressure 4 min. after bleeding had stopped. In 2 hæmophiliacs, however, it was possible to dislodge the clot and renew the blood flow 75 min. after the cessation of bleeding. C. J. C. B.

Effect of foreign surfaces on blood coagulation. E. L. Lozner, F. H. L. Taylor, and H. MacDonald (*J. Clin. Invest.*, 1942, **21**, 241—245).—Glass had a greater effect on initiating coagulation than paraffin, collodion, or Lusteroid. No lysis of platelets was found following exposure of plasma rich in platelets for 1 hr. to any of the substances. This suggests that the foreign surface acts by some modification of one of the constituents of cell-free plasma, probably by physico-chemical change. At least one of the plasma factors modified is the plasma-euglobulin fraction. C. J. C. B.

Antihæmorrhagic activity of extract of the European mountain ash berry. G. Y. Shinowara, J. DeLor, and J. W. Means (*J. Lab. Clin. Med.*, 1942, **27**, 897—907).—The administration of the dried berry of the European mountain ash, *Sorbus aucuparia*, L., and its extracts to hæmorrhagic chicks reduced their clotting time. Of 14

patients with various types of biliary and hepatic disease given 15 grains daily of the alcoholic extract (Sorparin), 72% showed a marked increase in prothrombin level, 20% a slight increase, and 8% a decrease. Significant elevation of plasma-prothrombin was observed after Sorparin therapy in all of 7 cases of cholecystitis, with or without cholelithiasis. A case of idiopathic hypoprothrombinemia is reported. C. J. C. B.

Direct biuret method for determination of serum-proteins as applied to photo-electric and visual colorimetry. G. R. Kingsley (*J. Lab. clin. Med.*, 1942, 27, 840—845).—The author's method (A., 1940, III, 96) is modified in some details. C. J. C. B.

Determination of plasma-proteins by sulphosalicylic acid reaction. C. A. Mawson (*Biochem. J.*, 1942, 36, 273—280).—The method described depends on measurement of optical density of the cloud produced by addition of sulphosalicylic acid to a saline dilution. The technique avoids Plotner's objections (A., 1936, 1400) to nephelometric methods, and satisfactory vals. are obtained over a wide range of albumin : globulin ratios. It can be applied to plasma, c.s.f., and urine, though results are less accurate than those obtained by the micro-Kjeldahl method. P. G. M.

Plasma-amino-acid levels in health and in measles, scarlet fever, and pneumonia. L. E. Farr, W. C. McCarthy, and T. Francis, jun. (*Amer. J. med. Sci.*, 1942, 203, 668—673).—The average plasma-amino-acid concn. of 30 normals was 4.5 mg.-% (ninhydrin-CO₂ method). The standard deviation was ± 46 , and the observed range 3.75—5.56 mg.-%. In patients with pneumococcal pneumonia, the plasma-amino-acid-N concn. was low at the time of onset but returned to normal with recovery. In patients with scarlet fever and measles, it was usually within the normal range. C. J. C. B.

Total plasma-fatty acids and -cholesterol during Carrion's disease and bartonellosis in dogs. J. P. Muzzo (*Bol. Soc. Quim. Peru*, 1942, 8, 29—49).—Carrion's disease in man and *Bartonella canis* infection are accompanied by an initial decrease, followed by an increase, in total plasma-fatty acids and -cholesterol. The increase in fatty acids is due to a movement of body fat towards the liver. F. R. G.

Blood-creatinine. G. E. Delory and J. Jacklin (*Biochem. J.*, 1942, 36, 281—282).—The accuracy of the Folin-Wu alkaline picrate method is considerably increased by use of a suitable calculation for the blank due to excess of reagent. Purification of the picric acid is unnecessary. P. G. M.

Diabetic coma with blood-sugar of 1600 mg. per 100 ml. A. Grunberg and A. J. Rhodes (*Edinb. Med. J.*, 1942, [iv], 49, 394—397).—Description of a case. 1415 units of sol. insulin were given in the first 12 hr. H. S.

Tetany with normal blood-calcium. A. Giegel (*Arch. Kinderheilk.*, 1939, 118, 11—12).—A case is reported. H. L.

Blood-lead determinations. E. Kaplan and J. M. McDonald (*Amer. J. Publ. Health*, 1942, 32, 481—486).—The mean normal blood-Pb val. was 0.031 mg.-% with a standard deviation ± 0.012 . Only 11 of 126 controls were above 0.05 mg.-% whereas none of 166 clinical cases were below 0.05 mg.-%. C. J. C. B.

VI.—VASCULAR SYSTEM.

Action of thiamin and cocarboxylase on frog ventricle. B. Jackson and G. Wald (*Amer. J. Physiol.*, 1942, 135, 464—473).—Using Straub prep. of the frog heart, between p_H 6.0 and 5.2 thiamin in concns. 10⁻³ by wt. progressively depresses the heart to complete stoppage. At concn. of 10⁻⁴, the effect is still observed; at 10⁻⁵ it becomes negligible. Cocarboxylase behaves similarly, but depresses the beat by 10—25% at p_H up to 7.6. The depressant effects of thiamin and cocarboxylase are not annulled by atropine. Above p_H 6.0 thiamin in concns. of 10⁻⁵—10⁻³ progressively antagonises the action of acetylcholine. This effect is not shown by cocarboxylase. M. W. G.

Cardiac inhibition of a Cladoceran and action of acetylcholine and physostigmine. V. Obreshkova (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 427—431).—Touching the intestine of *Daphnia* with a needle causes cardiac inhibition, followed for some time by a feeble beat. In this condition the heart is accelerated and augmented by acetylcholine, and recovery is quicker if the animal has received physostigmine previously. V. J. W.

Effect of l-ascorbic acid on isolated frog heart. R. P. Linstead and O. Krayer (*Science*, 1942, 95, 332—333).—l-Ascorbic acid behaves like simple $\alpha\beta$ -unsaturated lactones towards the isolated frog heart. At initial concn. of 1 in 2000 to 50,000 and with replacement rate of 2—2.5 ml. per min. it causes systolic standstill in 2—5 hr. The reaction may be modified by the p_H of the saline. E. R. S.

Measurement of cardiac output by acetylene method. M. Morrissey (*Med. J. Austral.*, 1942, I, 221—225).—The technical difficulties are reviewed and improvements are suggested in analytical technique for mixtures of acetylene and expired air. F. S.

Cardiac output, blood and interstitial fluid volumes, total circulating serum-protein, and kidney function during cardiac failure and after improvement. W. B. Seymour, W. H. Pritchard, L. P. Longley, and J. M. Hayman, jun. (*J. clin. Invest.*, 1942, 21, 229—240).—In 6 cases of congestive heart failure, cardiac output and stroke vol. increased with improvement in all cases. The mean min. output during failure was 31% less than after improvement. Effective peripheral resistance, blood and serum vols. decreased with recovery; the mean change in blood vol. was 25%, and in serum vol. 35%. The serum-proteins, particularly the globulin fraction, increased with clinical improvement, but the total circulating protein decreased, due almost entirely to a decrease in serum-albumin. Inulin clearance showed no significant change with improvement; phenol-red clearance increased to the same degree as the cardiac output. C. J. C. B.

Effect of anoxic anoxia on heart : influence of exercise and effect of acute anoxia at rest. E. J. Van Liere (*J. aviat. Med.*, 1941, 12, 131—135).—Guinea-pigs were exercised by treadmill daily at a barometric pressure of 444 mm. Hg and later at 350 mm. Hg. There was no evidence of cardiac hypertrophy after such exercise continued up to 135 days. F. S.

Anoxæmia test of coronary reserve. R. L. Levy, J. E. Patterson, T. W. Clark, and H. G. Bruenn (*J. Amer. Med. Assoc.*, 1941, 117, 2113—2119).—Breathing of 10% O₂ + 90% N₂ for up to 20 min. was used as a test of coronary reserve in 442 subjects, the onset of cardiac pain or changes in the e.c.g. being taken as signs of coronary insufficiency. Unpleasant, but not serious, reactions occurred in 36 patients. C. A. K.

Electrocardiographic changes after pulmonary artery compression [in dogs]. H. M. Winans, J. V. Goode, and C. T. Ashworth (*Sth. Med. J.*, 1942, 35, 225—231).—In dogs (anæsthetised with Na ethylthiobarbiturate) expansion of the lungs after opening of the chest was maintained by tracheal O₂-insufflation. A Ag wire was passed around the pulmonary artery and brought out again through a capillary tube and the chest closed. Acute compression was obtained by pulling on the wire, the extent of pull giving a measure of the compression. The first e.c.g. changes were seen with 47—83% obliteration and were completely reversible, consisting mainly of depression of S-T₂ and S-T₃ and inversion of T₂ and T₃. The effects of chronic compression were less definite and ended in inversion of T₂ and T₃. If acute pressure was continued beyond a certain point a variety of unpredictable changes occurred, including bundle branch block, auriculo-ventricular block, premature contractions, nodal rhythm, and cardiac standstill. E. M. J.

Electrocardiographic changes in acute pancreatitis. J. Gottesman, D. Casten, and A. J. Beller (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 365—367).—Inversion of the T wave in lead I was observed in several cases of acute pancreatitis in man and of experimental pancreatitis in dogs. V. J. W.

Auricular standstill. R. A. Miller (*Edinb. Med. J.*, 1942, [iv], 49, 384—393).—A description of two cases with congestive cardiac failure, coupled rhythm, and bundle-branch block. Cardiac cycles varied between 0.02 and 0.04 sec. Bradycardia was usual but tachycardia can occur, rate being increased by digitalis and intravenous atropine. H. S.

Lesions in superior mediastinum which interfere with venous circulation. H. C. Hinshaw and D. I. Rutledge (*J. Lab. clin. Med.*, 1942, 27, 908—916). C. J. C. B.

Sudden death from myocardial infarction. G. V. LeRoy and S. S. Snider (*J. Amer. Med. Assoc.*, 1941, 117, 2019—2024).—A review, with 10 illustrative case reports. Experimental occlusion of the circumflex branch of the left coronary artery in dogs produces reflex vasoconstriction in the remaining coronary vessels, which may be largely prevented by deep ether anæsthesia, atropine, or xanthines. Morphine, however, enhances the vasoconstriction. C. A. K.

Relation of kidney to cardiovascular disease. V. Lesions of myocardium. S. H. Durlacher and M. C. Winternitz (*Yale J. Biol. Med.*, 1942, 14, 269—278).—In dogs focal myocardial necrosis followed the experimental production of renal ischæmia and also after the injection of renal extracts. (4 photomicrographs.) F. S.

Cardiac signs in rheumatic infection of childhood. R. Ash (*Amer. J. Dis. Child.*, 1942, 63, 1—14).—The cardiac signs in a group of 553 children with rheumatic infection observed over 10 years since the onset of the infection are described. C. J. C. B.

Regulation of arterial blood pressure in seal during diving. C. Irving, P. F. Scholander, and S. W. Grinnell (*Amer. J. Physiol.*, 1942, 135, 557—566).—Although at the start of diving the seal heart slowed by 80—90% the pressure in the large arteries remained unchanged owing to reflex peripheral vasoconstriction. This constriction is set in operation by many stimuli bearing no relation to respiration. M. W. G.

Smooth muscle motor-units in small blood vessels. G. P. Fulton and B. R. Lutz (*Amer. J. Physiol.*, 1942, **135**, 531—534).—Stimulation of minute nerves with a micro-electrode produces spatially limited vascular responses, generally dilatation followed by constriction, in the small blood vessels of the retrolingual membrane of *Rana pipiens*. M. W. G.

Measurement of pressures in antecubital and popliteal veins during exercise. J. R. Veal and H. H. Hussey (*Med. Ann. Columbia*, 1940, **9**, 71—74).—The direct method is used and described in detail. E. M. J.

Improvement in frog web circulation demonstration. W. A. Hiestand (*Science*, 1941, **94**, 50).—A triangle of glass, cut from the corner of a slide, placed under the web gives a plane field and photomicrographs can be taken. E. R. S.

Automatic device for periodically determining and recording both systolic and diastolic blood pressure in man. W. E. Gilson, H. Goldberg, and H. C. Slocum (*Science*, 1941, **94**, 194).—The usual inflatable cuff is inflated and deflated automatically over a predetermined time interval and the pressures are recorded automatically by an Esterline Angus recorder. The sounds over the brachial artery are picked up, amplified, and recorded by a moving coil type of ink writer. Pressures may be taken every half min. for several hr. without discomfort to the patient and with little interference with the circulation. E. R. S.

Mechanism of closure of ductus venosus. A. E. Barclay, K. J. Franklin, and M. M. L. Prichard (*Brit. J. Radiol.*, 1942, **15**, 66—71; cf. A., 1940, III, 873, 885; 1942, III, 372).—X-Ray cinematographs were taken of lamb foetus near maturity after delivery by Caesarean section and injection of radio-opaque material into one umbilical vein. The film of one animal showed the ductus venosus full and empty at various instants some of which were separated by only $\frac{1}{3}$ sec. A ridge was seen also in other animals at the beginning of the duct and confirmed by macroscopical dissection. E. M. J.

Blood corpuscle stains in demonstration of cerebral circulation. W. Scholz (*Z. ges. Neurol. Psychiat.*, 1939, **164**, 117—139).—Studies of agonal and post-mortem changes in the blood content of the cerebral capillary system in cats by benzidine-stained serial sections (Pickworth's and Slonimski and Cunge's methods) indicated that proper assessment of transitory disturbances of the cerebral circulation by this method is possible only in cases of sudden death and early autopsy. It was possible to confirm by this method the vascular origin of laminar or pseudo-laminar lesions. H. L.

Disturbances of cerebral circulation in generalised convulsions. R. Dreszer and W. Scholz (*Z. ges. Neurol. Psychiat.*, 1939, **164**, 140—161).—Study of benzidine-stained cerebral sections from cats killed at various stages of induced convulsions showed that disturbances of capillary circulation preceded the onset of generalised convulsion (general capillary anaemia with numerous focal lesions). At the height of the tonic phase the capillaries begin to fill again at some places and a patchy hyperaemia is seen during the clonic stage. The areas of focal ischaemia remain, however, more or less unchanged throughout and beyond the convulsive stages. H. L.

Fall in blood pressure associated with intravenous injection of tissue extracts. E. Mylon, H. Hoff, R. Katzenstein, and M. C. Winternitz (*Science*, 1941, **94**, 190—191).—The depressor effects of tissue extracts are related to their effects on blood coagulation. Injection of crude kidney extracts into the dog (nembutal) first increases and then decreases blood coagulability. Intravascular clotting may be produced with associated marked fall in blood pressure. After heparin the depressor effect is nearly abolished; it is also reduced if a second injection is made during the period of decreased coagulability following an initial injection of kidney extract. The remaining slight fall is probably due to histamine. Section of the spinal cord at the level of the first cervical segment produces an effect similar to that of heparin. P. C. W.

Carotid body. H. Russell (*Edinb. Med. J.*, 1942, [iv], **49**, 366—374).—A review of literature with study of 9 tumours of carotid body. (4 coloured photomicrographs.) H. S.

Site of origin of mechanical and chemical carotid reflexes. J. M. de Bettencourt and M. R. Cardoso (*Arch. Port. Sci. Biol.*, 1938, **4**, 155—198).—In dogs under chloralose anaesthesia exclusion of carotid body, by tying the occipital artery and blocking the small vessels of the carotid region with an intracarotid injection of lycopodium powder, did not affect blood pressure reflexes, but abolished or decreased the chemical reflexes (to lobeline and adrenaline). The arteries of the carotid region were tied to establish two culs-de-sac; the posterior one, which included the carotid sinus, was sensitive to mechanical stimuli only; from the anterior, which included the artery of the glomus and the glomus itself, vasomotor and respiratory reflexes were evoked by perfusing it with lobeline or adrenaline. The sensitising action of adrenaline and the depressant action of ethyl alcohol on mechanical carotid reflexes are confirmed and discussed. I. C.

Maternal pulmonary embolism by amniotic fluid. P. E. Steiner and C. C. Lushbaugh (*J. Amer. Med. Assoc.*, 1941, **117**, 1245—1254, 1340—1345).—8 cases of fatal obstetric shock with pulmonary embolism are described. The emboli consisted of mucus (meconium) and in all cases it was assumed that contaminated amniotic fluid had entered the maternal circulation. Injection of such fluid into the vascular system of dogs and rabbits produced pulmonary emboli like those seen in the human cases. C. A. K.

Coarctation of aorta. A. D. Irvine (*Canad. Med. Assoc. J.*, 1942, **46**, 436—441).—Case reports. C. J. C. B.

Value of sympathetic interruption at time of surgical repair of peripheral aneurysms. J. R. Ross (*Med. Ann. Columbia*, 1940, **9**, 227—230).—Removal of the respective section of the sympathetic chain is held to obviate the danger of gangrene after ligation of the main artery of a limb. 3 cases are reported. E. M. J.

Dissecting aneurysm of aorta. S. Sailer (*Arch. Path.*, 1942, **33**, 704—730).—A general review. C. J. C. B.

Nervous factor in burns. H. Kabat and R. F. Hedin (*Proc. Soc. Exp. Biol. Med.*, 1942, **49**, 114—116).—One hind limb of an anaesthetised (Na pentobarbital) cat was burned by a Bunsen flame for 10—15 min. The spinal cord was either intact or divided 30 min. previously between thoracic and lumbar regions. In the intact cats, burning caused a rise of blood pressure which stayed up for 10 hr. and blood concn. increased by 34% in 30 min. In spinal cats burning caused a fall of blood pressure which returned to pre-burn val. in 90 min., and blood concn. increased by only 14.5%. V. J. W.

Physiological properties of Reynolds testicular diffusion factor. F. X. Aylward (*Proc. Soc. Exp. Biol. Med.*, 1942, **49**, 342—346).—This substance is shown by microscopical observation of the rabbit's ear, and by intravenous injection of dyes, to increase capillary permeability. It has no effect on blood pressure or smooth muscle. V. J. W.

Methylcellulose atheromatosis and thesaurosis. W. C. Hueper (*Arch. Path.*, 1942, **33**, 1—17).—Intravenous injection of 10—30 c.c. of a 5% solution of methylcellulose into dogs causes reduction in no. of erythrocytes, in amount of haemoglobin, and in vol. of packed erythrocytes, increased sedimentation of erythrocytes and coagulation time, acute transitory leucopenia, persistent myeloid leucocytosis, and increased viscosity of plasma. There is retention and accumulation of methylcellulose in the liver, spleen, lymph nodes, kidney, and vascular walls (thesaurosis). The arteries of rabbits and dogs given injections of methylcellulose over a long period show marked atheromatosis which is the result of an impairment of the oxygenation and nutrition of the vascular wall caused by the formation of methylcellulose films on the surface of the intima and of the erythrocytes. (7 photomicrographs.) C. J. C. B.

Vasodilatation tests in peripheral vascular disease. A. Gootnick, G. Saland, K. Klein, and H. Zurrow (*J. Lab. Clin. Med.*, 1942, **27**, 878—882).—In 75 subjects, NaNO₂ injected intravenously and the hot water-bath were both found useful as preliminary tests for vasospasm. Nerve block is reserved for patients in whom heat or NaNO₂ failed to induce normal vasodilatation. C. J. C. B.

Biochemical studies of atheromatous animals. G. J. Martin and W. C. Hueper (*Proc. Soc. Exp. Biol. Med.*, 1942, **49**, 452—455).—Intravenous injection of polyvinyl alcohol in dogs or oral administration of cholesterol to rabbits, both being film-forming agents and causing atheroma (A., 1941, III, 337), delays O₂ uptake by the red cells. V. J. W.

Vascular pathology of spinal cord. I. M. Staemmler (*Z. ges. Neurol. Pathol.*, 1939, **164**, 179—194).—In advanced generalised arteriosclerosis, the arteries of the spinal cord and its meninges usually remain unaffected. Mild arteriosclerosis does not give rise to cord lesions. A frequent finding in old age is hyaline degeneration, with or without fatty degeneration and calcification, of the veins of the meninges, spinal roots, and white matter, beginning in the adventitial layer, usually not involving the intima, and sometimes associated with a diffuse nodular gliosis of the posterior columns and sclerosis of the nerve roots. Meningeal endarteritis obliterans was found in 2 out of 600 consecutive autopsy cases. H. L.

Blood-pressure-reducing property of extracts of kidneys in hypertensive patients and animals. I. H. Page, O. M. Helmer, K. G. Kohlstaedt, G. F. Kempf, W. D. Gambill, and R. D. Taylor (*Ann. Int. Med.*, 1941, **15**, 347—389).—Ground fresh kidneys were extracted with acetic acid-salt solution, the mixture was heated to 56°, and the filtrate pptd. with (NH₄)₂SO₄ between 0.25 and 0.6 saturation. The pptn. was repeated twice and the product dialysed free from (NH₄)₂SO₄. Ether extraction removed the lipids; the product was finally put through a Seitz filter. These extracts were injected into 280 dogs made hypertensive by the silk perinephritis method, and 13 patients with malignant and 6 patients with essential hypertension. Some of the patients were treated for 1 year. In the dog, there is no immediate fall in blood pressure;

a fall of pressure begins within 2—4 days, its extent depending on the amount of extract given. Extracts of 400—900 g. of fresh pig kidney are required to reduce the blood pressure of a 12-kg. dog from 200 to 130 mm. Hg. A shock-like syndrome appears if larger doses are given. The animal loses appetite, becomes weak, and tachycardia appears, followed, after the blood pressure has fallen to 70 mm. Hg or less, by anuria and increased blood-urea-N. If the extract is discontinued after the blood pressure has reached normal levels, the pressure may remain low for several days, sometimes weeks, until it reaches its original hypertensive level. Reduction of blood pressure to 150 mm. Hg is initially associated with a rise in renal blood flow, but if the pressure continues to fall, renal flow rapidly declines and increases again when arterial pressure rises. Blood-urea-N usually decreases, but there may be no significant change. If treatment is not started too late, dogs with malignant hypertension can be saved; vision returns, reattachment of the retina occurs, papilloedema disappears, and intraocular haemorrhages are absorbed. Similar observations were made in hypertensive rats. Continued clinical administration leads to a progressive fall in blood pressure to normal or near normal levels; once the pressure is reduced it is maintained with smaller amounts of extract; the diastolic pressure usually falls proportionately more than the systolic; if the extract is discontinued, in most patients the pressure begins to rise within several days to a week. The size of the heart is reduced when the pressure is reduced; inverted T-waves in leads I and II were restored to the upright position. Dyspnoea is lessened, circulation time diminished (saccharin method). Urea clearance was not greatly influenced. In the 6 patients with essential hypertension renal blood flow increased by 40% in 3 and by 20% in the other patients; the increase of flow in 9 patients with malignant hypertension averaged 15%; there was evidence of relaxation of the efferent arterioles. 10 patients showed no change, 5 a decline, and 4 an increase in the Addis renal concn. test. Dramatic improvement of vision occurred within several days or weeks; there was only moderate relaxation of constricted fundus arterioles; disappearance of haemorrhages, exudates, and papilloedema was the most characteristic feature. The no. of red cells in the urine was often sharply diminished; proteinuria may be reduced simultaneously. The progressive fall in haemoglobin was usually checked; plasma-proteins increased. There were 2 types of severe reaction to the injections: (1) generalised flushing of the skin and lachrymation, stinging sensation spreading from the face downward, fall in blood pressure with dyspnoea and retrosternal pain or choking, perspiration, pallor, slow heart rate; after termination of the reaction body-temp. may be increased for several hr. (adrenaline was given in these patients); (2) blood pressure and pulse rate rise, pain radiates from site of injection, and spasm of muscles, flushing, and perspiration were observed; the reaction lasted 3—7 min. and was often relieved by intravenous injection of papaverine. There is no relationship between the hypertensive effect of the extracts and the occurrence of reactions to injections. The reactions are due to sensitivity to foreign proteins. There was a rough quant. relationship between the amount of extract administered and the severity of the reaction. A. S.

“Pepsitensin,” hypertensin-like substance produced by peptic digestion of proteins. H. Croxatto and R. Croxatto (*Science*, 1942, 95, 101—102).—A substance similar to hypertensin in physiological, physical, and chemical properties was produced from hypertensinogen (A., 1940, III, 566), or renin activator (Kohlstaedt *et al.*, A., 1939, III, 152) or various proteins, by incubation with pepsin. It is a polypeptide with a phenolic function. E. R. S.

Formation of angiotonin-like pressor substance from action of crystalline pepsin on renin-activator. O. M. Helmer and I. H. Page (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 389—391).—Results of Croxatto (preceding abstract) with commercial pepsin are confirmed with cryst. pepsin. V. J. W.

Effect of preparation of amine oxidase on experimental hypertension. H. A. Schroeder (*Science*, 1942, 95, 306—307).—The blood pressure of hypertensive rats and dogs fell to normal after intravenous injection of a hog liver prep. containing active amine oxidase, whilst that of normal rats and dogs was less affected. E. R. S.

Arterial hypertension: symptom of intracranial tumours. F. Morgan and A. Schuller (*Med. J. Austral.*, 1942, I, 44—45).—Const. arterial hypertension was present in 2 cases of brain tumour; one patient was aged 43 years and had a meningioma of the posterior fossa; the other was aged 19 years and had an occipital astrocytoma. After the successful removal of the tumours the blood pressure dropped to normal levels. F. S.

Occurrence of atheroma in aorta in rabbits with renal hypertension. L. V. Dill and C. E. Isenhour (*Arch. Path.*, 1942, 33, 655—660).—Atheromatous plaques were found in the aorta of rabbits which have had persistent elevation of blood pressure over long periods, produced by constriction of the aorta proximal to the origin of the renal arteries. The plaque formation was proportional to the severity of the elevation of pressure and the length of time that

this acted; it was also seen more frequently in animals in which frequent pregnancies have occurred. C. J. C. B.

Hypertension electrocardiograms experimentally produced and anatomically explained. J. S. Robb and R. C. Robb (*Amer. J. med. Sci.*, 1942, 203, 625—641).—A review with confirmatory reports. C. J. C. B.

Hypertension and pyelonephritis of children. G. C. Kimmel (*Amer. J. Dis. Child.*, 1942, 63, 60—75).—Hypertension associated with chronic pyelonephritis in children was present in 10% of 75 cases. Nephrectomy or the relief of obstruction to urinary flow in cases of unilateral pyelonephritis and hypertension is frequently followed by a fall in blood pressure to normal. There was no correlation between the level of blood-urea and blood pressure. Many pyelonephritic kidneys show arteriosclerosis in the presence of normal blood pressure. C. J. C. B.

Thiocyanates in hypertension. M. H. Barker, H. A. Lindberg, and M. H. Wald (*J. Amer. Med. Assoc.*, 1941, 117, 1591—1594).—The results of thiocyanate therapy in 246 patients with hypertension are recorded after 2—10 years' observations. 47.5% of patients showed symptomatic relief and reduced blood pressure with adequate but safe blood-CNS' concns. of 8—12 mg.-%. Improvement should occur in 2—4 weeks. Persistent toxic effects were seen in 18 patients and included nervous symptoms, *e.g.*, depression, ataxia, and asthenia, skin manifestations, *e.g.*, widespread scaly eruptions, and anaemia. There were no toxic deaths. Severe thiocyanate intoxication in dogs, with blood levels of 40—65 mg.-%, produced damage in liver and bone marrow only. C. A. K.

Surgical treatment of hypertension. W. W. Woods and M. M. Peet (*J. Amer. Med. Assoc.*, 1941, 117, 1508—1515).—76 patients with essential or malignant hypertension were followed for 5—7 years after supradiaphragmatic splanchnic nerve section + lower dorsal sympathetic ganglionectomy. All cases were classified preoperatively according to retinal appearances (Keith, *Trans. Amer. Acad. Ophth.*, 1932, 37, 37) and the results were compared with those of medical treatment reported by Wagener and Keith (*Medicine*, 1939, 18, 317). The effects of operation were most successful in patients with marked retinal angiospasm where 57% of surgical patients survived 5 years as compared with 20% of medical patients, and were least successful in those patients with retinal arteriosclerosis without angiospasm. 33% of cases with malignant hypertension survived 5 years after operation as against 1% of medically treated cases. Statistical results of blood pressure reduction, retinal changes, relief of symptoms, and incapacitation are also presented. C. A. K.

Body fluid changes in neurogenic hypertension and total paravertebral sympathectomy. P. W. Schafer (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 327—329).—In dogs made hypertensive by removal of carotid sinuses and section of both depressor and one vagus nerves, blood vol. is increased through an increase in blood cells. Blood pressure and vol. return to normal after sympathectomy. After sympathectomy alone blood pressure falls and there is slight increase in blood vol. due to an increase in plasma. V. J. W.

VII.—RESPIRATION AND BLOOD GASES.

Breathing mechanism of turtles. I. B. Hansen (*Science*, 1941, 94, 64).—Inspiration is accomplished by two flank muscles which enlarge the coelom, and expiration by two pairs of muscles connected by a tendinous band which compress the viscera against the lungs in the box turtle. E. R. S.

Breathing mechanism of turtles. F. H. McCutcheon (*Science*, 1941, 94, 609).—Discussion. E. R. S.

Drug prophylaxis against lethal effects of severe anoxia. II. Alcohol, amylal, and pentobarbital. G. A. Emerson, E. J. Van Lier, and J. L. Morrison (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 376—379; *cf.* A., 1940, III, 478).—60 c.c. of 10% alcohol, given intraperitoneally, reduced mortality from anoxia which caused 50% mortality in controls, provided that it was given not more than 1 hr. previously. Amytal and pentobarbital were ineffective. V. J. W.

Effect of low atmospheric pressure on adrenals, thymus, and testes of rats. F. C. Dohan (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 404—408).—Rats exposed to low atm. pressures (235 mm. Hg) for 15—22 hr. daily showed after 2 days an increase in adrenal wt. and decreases in wts. of thymus and testes. V. J. W.

Reflex changes in respiration induced by distension of small intestine. R. T. Crowley (*Arch. Surg., Chicago*, 1942, 44, 707—714).—Rapidly induced intestinal distension (150 mm. Hg) in dogs produced an arrest of respiratory rhythm and a fall in blood pressure for a few sec. followed by increased respiratory vol. and a rise in blood pressure as long as distension continued. These changes were eliminated by section of the splanchnic radicals or the spinal cord. F. S.

Oxygen in eclampsia. R. E. Nicodemus (*J. Amer. Med. Assoc.*, 1941, 117, 1238—1239).—13 patients with eclampsia were successfully treated by O₂ administration (50% O₂ in O₂ tent) + sedation.

C. A. K.

Unilateral paralysis of diaphragm without involvement of brachial plexus. R. J. Blattner (*J. Pediat.*, 1942, 20, 223—229).—A fatal case of so-called "isolated" phrenic nerve injury with paralysis of the diaphragm in a 6 month-old infant with onset of symptoms at 4 months of age is reported. The likely cause was prenatal compression injury of the phrenic nerve.

C. J. C. B.

Difficulty in beginning respiration in infants delivered by Caesarean section. A. Blossom (*J. Pediat.*, 1942, 20, 215—222).—42 infants in 100 Caesarean sections, compared with 18 out of 100 normal deliveries, required resuscitation.

C. J. C. B.

Bronchoscopic aspect of asthma in children. E. L. van Loon and S. Diamond (*Amer. J. Dis. Child.*, 1942, 63, 217—224).—No evidence of bronchospasm or bronchoedema was seen in any of 100 patients; non-sp. inflammatory changes were present in 91; accentuation of the physiological expiratory narrowing occurred in 36; mucopurulent or thick mucoid secretion was found in 60. There was no characteristic bacteriological picture. Of 20 patients on whom bronchography was done, 5 had bronchiectasis. The only const. feature of the endoscopic appearance in children examined in the course of an acute attack was the presence of thick, viscid intraluminal secretion.

C. J. C. B.

Air embolism in artificial pneumothorax. T. R. Jones and J. A. Lockhart (*J. Amer. Med. Assoc.*, 1941, 117, 2064—2069).—17 cases of air embolism during artificial pneumothorax therapy of pulmonary tuberculosis are reported. They were mostly patients with adhesions and poor collapse; 7 died.

C. A. K.

VIII.—MUSCLE.

Copper content of fish [muscle]. K. C. Saha (*Ann. Biochem. Exp. Med.*, 1941, 1, 79—82).—The muscle tissues of 24 varieties of Bengal fish were analysed for Cu content. Koi (*Anabas testudineus*) contained the highest amount (0.162 mg. per 100 g.) and the Bhole (*Sciaccia coitor*) the lowest (0.053 mg. per 100 g.).

P. C. W.

Optical determinations and leptonic analysis of muscle contraction in vitro. H. H. Pfeiffer (*Naturwiss.*, 1942, 30, 106—107).—The decreases in diffracting polarisation and anisotropy of muscle fibres due to contraction show that the lattice of the myofibrils of the fibres is formed from parallel situated myosin chains which are stretched because of the electrostatic repulsion of the at. groupings.

J. N. A.

Action of monoiodoacetic acid on skeletal and cardiac muscle. K. Gomes and F. B. Pereira (*Arch. Port. Sci. Biol.*, 1938, 4, 126—133).—In curarised frogs iodoacetic acid was injected into the lymphatic sac (0.4—0.8 mg. per g. body wt.). On subsequent rapid faradic stimulation of the gastrocnemius the range of contraction decreased and eventually the muscle went into rigor. The same results were obtained after dipping the gastrocnemius of non-curarised frogs into an isotonic solution of NaCl containing a few drops of 2% iodoacetic acid, and stimulating it faradically. Rigor may be prevented by stopping faradic stimulation before rigor has appeared, or by washing the muscle with isotonic saline before iodoacetic acid poisoning is complete. Perfusion of the heart of tortoise with Ringer's solution to which a few drops of 0.25% iodoacetic acid have been added brings about arrest in diastole; after faradic stimulation a state of rigor sets in and the organ stops in systole. If iodoacetic acid poisoning is incomplete and the heart is washed with saline, recovery of heart beat is still possible.

I. C.

Removal of thymus in myasthenia gravis. A. Blalock, A. M. Harvey, F. R. Ford, and J. L. Lillenthal (*J. Amer. Med. Assoc.*, 1941, 117, 1529—1533).—3 of 6 cases of myasthenia gravis were clinically improved after thymectomy, no prostigmine or other therapy being required. Objective tests, e.g., the state of neuromuscular conduction, and the intra-arterial injection of prostigmine (which produces weakness of hand muscles in normal subjects and increased power in myasthenics) confirmed the improvement. The technique of the operation is described, and the persistent thymus tissue showed definite hyperplasia in all but one case. No adenomas were present.

C. A. K.

Respiration in myasthenia gravis. D. Laslo and F. C. Redlich (*Amer. J. med. Sci.*, 1942, 203, 693—698).—The vital capacity is greatly reduced owing to inefficiency of the diaphragm and accessory muscles concerned in breathing. Changes in vital capacity parallel closely alterations in the general state. It is a reliable measure of the severity of the disease and the efficacy of therapeutic procedures. Despite extreme reduction in vital capacity there is no interference with oxygenation of blood in the lungs.

C. J. C. B.

Vitamin-B₁₂ in treatment of pseudohypertrophic muscular dystrophy among children. H. M. Keith (*J. Pediat.*, 1942, 20, 200—207).—

Intramuscular injection of vitamin-B₁₂ in amounts from 100 to 200 mg. weekly for 2—8 months did not increase muscular strength.

C. J. C. B.

Prevention by α -tocopherol of "cod-liver oil muscular dystrophy" in rabbit. C. G. MacKenzie, J. B. MacKenzie, and E. V. McCollum (*Science*, 1941, 94, 216—217).—Muscular dystrophy produced by 2 ml. of cod-liver oil administered orally at 48-hr. intervals to rabbits is not affected by 6 mg. of α -tocopherol but is prevented by 40 mg. at 48-hr. intervals.

E. R. S.

IX.—NERVOUS SYSTEM.

Metabolic basis for stabilisation of resting [nerve] potentials by calcium. A. M. Shames (*J. Cell. Comp. Physiol.*, 1942, 19, 249—252).—Presence of 0.013M-Ca maintains resting potential in frog's sciatic nerve in spite of anoxia or iodoacetate. Addition of Ca to a nerve already poisoned by iodoacetate has no effect until pyruvate is added, when p.d. is restored (cf. A., 1942, III, 445).

V. J. W.

Effect of sub-threshold stimuli on spontaneous oscillations in excitability of nerve fibres. G. M. Schoepfle (*J. Cell. Comp. Physiol.*, 1942, 19, 252—255).—Application of a sub-threshold shock to a single fibre of frog nerve causes an increase in oscillations of excitability similar to that caused by cooling or strychnine.

V. J. W.

Localisation of enzymes in nerve fibres. D. Nachmansohn and H. B. Steinbach (*Science*, 1942, 95, 76—77).—90% of the succinic dehydrogenase in the giant fibre of squids is in the axoplasm. The concn. in the head ganglion is 10 times that in the fibre, whereas the choline-esterase concn. is several hundred times greater in the fibre. Cocarboxylase (diphosphothiamin) concn. in the sheath is twice that in the axoplasm. Vitamin-B₁ may participate in the formation of acetic acid from acetylcholine.

E. R. S.

Autologous plasma clot suture of nerves. I. M. Tarlov and B. Benjamin (*Science*, 1942, 95, 258).—Rabbit plasma is superior to cockerel and human plasma for nerve suture in rabbits. Autologous plasma clot suture of nerves compares favourably with silk suture in the amount of tissue reaction.

E. R. S.

Experiments on nerve regeneration. B. Kilvington (*Austral. N.Z. J. Surg.*, 1941, 10, 266—272).—Evidence is presented showing aberrant growth of regenerating fibres after simple division and suture and of efferent fibres down afferent paths after nerve anastomosis. Fibre counts above and below the suture showed that bifurcation of regenerating efferent fibres may further complicate the end results after anastomosis.

H. L.

Myelinated nerve bundles of pial and spinal cord blood vessels. M. Staemmler (*Z. ges. Neurol. Psychiat.*, 1939, 164, 669—677).—Myelinated nerves are described which arise from the anterior roots, reach the larger arteries at the region of the pial plexus, entering the cord at the anterior septum, and accompanying or coiling around the branches of the central arteries. They were more frequent in thoracic than in other segments and seemed to have no pathological significance. They were not found in children and adolescents.

H. L.

Radiation effects on nervous system and Roentgen pigmentation of gold-fish. C. Davison and F. Ellinger (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 491—495).—Gold-fish which have been darkened by X-ray exposure show degenerative changes in the medulla extending into the anterior horns.

V. J. W.

Sodium diphenylhydantoinate and experimental epilepsy. H. Moussatché (*Rev. Brazil. Biol.*, 1941, 1, 301—304).—Na diphenylhydantoinate (0.10—0.15 g. per kg.) injected into the lymphatic sac of *Leptodactylus ocellatus* prevents convulsions from acute freezing of the spinal cord and from chemical stimulation by a 20% solution of NaCl.

I. C.

Convulsive attacks following acute freezing of spinal cord. M. Ozorio de Almeida, H. Moussatché, and M. Vianna Dias (*Rev. Brazil. Biol.*, 1941, 1, 393—407).—The convulsive attacks produced by acute freezing of the spinal cord of *Leptodactylus ocellatus* are facilitated by cutaneous mechanical stimuli and by acid solutions applied to the skin. Labyrinthine reflexes may facilitate or inhibit the attacks. Injection of conc. NaCl solutions into the lymphatic sac has an inhibitory action. Dehydration of the animals changes the form of the attacks.

I. C.

Myeloscapy. J. L. Poole (*Bull. Neurol. Inst. New York*, 1938, 7, 178—189).—A method is described for inspecting the cauda equina by means of a miniature endoscope.

H. L.

Sensory nerve root pain. L. M. Eaton (*J. Amer. Med. Assoc.*, 1941, 117, 1435—1439).—Sensory nerve root pain from tumours and other spinal lesions is produced or intensified by a sudden increase in intra-abdominal and intrathoracic pressure, e.g., in coughing, sneezing, straining at stool, or by stretching of the involved nerve roots by various movements. The pain is not produced by a rise of c.s.f. pressure and is probably due to engorgement of the veins in the epidural space.

C. A. K.

Restoration of dorsal root potential by strychnine after abolition by partial sectioning of spinal cord. F. T. Dun (*Proc. Soc. Exp. Biol. Med.*, 1942, **49**, 479—480).—E.m.f. changes produced in the 3rd dorsal root of the toad by stimulation of the 9th are abolished by partial section of the cord between the two, but are restored by applying dil. strychnine solution to the cord. The response after strychnine is larger than before section but has a long latent period.

V. J. W.

Neurohistological basis for sensation of pain provoked from deep fascia, tendon, and periosteum. G. Weddell and J. A. Harpman (*J. Neurol. Psychiat.*, London, 1940, **3**, 319—328).—In methylene-blue preps. of deep fascia, 3 types of nerve-endings were found: (i) fine medullated and non-medullated fibres forming a loose-meshed plexus and giving rise to free nerve terminals, (ii) Golgi-Mazzoni and (iii) Vater-Paccini corpuscles, the last receiving frequently, in addition to the principal thick medullated fibre, a fine non-medullated accessory nerve fibre which terminates by forming a coil with and around the principal nervous component of the ending. In tendon from extensor muscles of the rabbit leg Golgi endings were found in the vicinity of the musculo-tendinous junctions; the ending is attached to a single thick, usually medullated, nerve fibre which is always accompanied by an accessory nerve fibre which, proximal to the ending, is thin and non-medullated and gives rise in the neighbourhood of the neuro-tendinous ending to fine, varicose-free nerve terminals; the accessory fibre extends distal to the Golgi ending and may become medullated. In periosteum (rat mandible) medullated and non-medullated fibres arranged in single plexiform manner were found, giving rise to free nerve endings. Pain of 2 main varieties can be aroused from deep fascia, peritendinous connective tissue, and periosteum; pain from tendon substance is of only one variety.

H. L.

Optic pathways of superior corpora quadrigemina. A. Juba (*Z. ges. Neurol. Psychiat.*, 1939, **164**, 273—285).—In a case in which one eye had been enucleated some weeks before death, the stratum medullare superficiale of the contralateral superior colliculus showed the same degree of Marchi degeneration as the affected optic nerve. In a case with recent lesions of the medial surfaces of the occipital lobes Marchi degeneration was found in the stratum zonale and stratum medullare superficiale of the superior corpora quadrigemina and is regarded as descending degeneration of the cortico-quadrigeminal opto-motor path; the latter probably originates from the area parastriata.

H. L.

Sense of taste. C. A. Elsberg and H. Spontitz (*Bull. Neurol. Inst. New York*, 1938, **7**, 174—177).—Equations are derived expressing the relationship between stimulus and reaction time for the sense of taste. They are similar to those found for the other special senses and it is suggested that exponential relations of cube roots and multiples of cube roots are of great significance for the activity of the central nervous system.

H. L.

Avian thiamin deficiency. II. Changes in brain and cranial nerves (especially vestibular) and their relation to clinical behaviour. R. L. Swank and M. Prados (*Arch. Neurol. Psychiat.*, 1942, **47**, 97—131).—Nerve degeneration was studied in acute and chronic thiamin-deficient pigeons. Degeneration first occurs in the distal part of the axon which swells and forms varicosities, and changes in the myelin are secondary; degeneration proceeds centrally and the cell body shrinks; large nerve fibres degenerate first, the small usually remaining intact; opisthotonos may not be attended by any neurologic lesions. In moderately acutely deficient birds degeneration is found in the sensorial epithelium of the labyrinth, especially of the posterior crista, and in the central endings of the vestibular nerve fibres, especially in the lateral part of the nucleus magnocellularis. Opisthotonos is due to selective release of the central vestibular centres from labyrinthine control. In both acute and chronic deficient pigeons basket terminations and moss fibres in the cerebellum degenerate; this may be associated with staggering. Degeneration of cell bodies may be found in the optic lobes, nucleus rotundus of the thalamus, reticular formation and secondary vestibulocochlear centres, and in chronic experiments in the cell bodies and periphery of the 3rd and 4th cranial nerves. Some of the neuronal degenerations, particularly if early, allow a complete return to normality on administration of thiamin. Brain haemorrhages are considered secondary to changes in the axones and cells and appear to have no relation to clinical behaviour.

W. M. H.

Liver function in hepatolenticular degeneration. W. H. Sweet, S. J. Gray, and J. G. Allen (*J. Amer. Med. Assoc.*, 1941, **117**, 1613—1619).—Tests of liver function were performed in 9 cases of hepatolenticular degeneration. The serum colloidal Au tests of Gray (*A.*, 1940, **III**, 502), the prothrombin time, and the bilirubin excretion test were more sensitive indicators of liver damage than the galactose-tolerance, bromsulphalein, or hippuric acid tests. Plasma-protein levels and the cholesterol-cholesterol ester partition were of little val. in these cases.

C. A. K.

Experimental obesity in dog [from hypothalamic and pituitary lesions]. P. Heinbecker and H. L. White (*Proc. Soc. Exp. Biol. Med.*, 1942, **49**, 324—327).—Obesity results from destruction of the

caudal parts of the paraventricular hypothalamic nuclei, and is increased by destruction or denervation of the neurohypophysis. Removal of the pars distalis does not cause obesity, and its presence favours production of obesity by hypothalamic lesions. V. J. W.

Early use of implanted electrodes for stimulation of cortex cerebri. S. L. Clark (*Science*, 1941, **94**, 187—188).

E. R. S.

Palm patterns and handedness. D. C. Rife (*Science*, 1941, **94**, 187).—There is a correlation, within families, between pattern *D* in the fourth interdigital area and functional handedness.

E. R. S.

Effect of artificial changes in brain of maze-learning in white rat. C. J. Warden, S. Ross, and S. Zamenhof (*Science*, 1942, **95**, 414—415).—Male and female rats with increased no. of cortical neurones (40% increase over controls, produced by injecting the mothers with pituitary growth hormone) did not show any difference from controls in maze behaviour.

E. R. S.

Vasospasm and focal cerebral ischaemia: experimental study. F. A. Echlin (*Arch. Neurol. Psychiat.*, 1942, **47**, 77—96).—The local spasm of pial vessels caused by mechanical and electrical stimuli (in cats, a dog, and monkeys) is independent of a neuro-vascular mechanism and is not propagated, and causes a diminished blood flow in the cortex. Intravital staining shows the resulting focal cerebral ischaemia. In the etherised cat clinical epileptiform signs were lacking when ischaemia was produced in the temporal, parietal, and occipital cortex.

W. M. H.

Distribution of lipid pigment in normal human cerebral cortex at different ages. L. Keller (*Z. ges. Neurol. Psychiat.*, 1939, **164**, 259—272).—Distribution and amount of lipid pigment varies considerably from case to case and is not related to age.

H. L.

Cerebral activity including conscious sensation as physico-chemical process; vital processes expressed in simple mathematical relationships. C. A. Elsberg (*Bull. Neurol. Inst. New York*, 1938, **7**, 212—244).—The equations expressing the relations between intensity or duration of a stimulus and response for visual and olfactory sense are applicable to many reactions in animal and plant life and to many inorg. reactions; conscious sensation seems therefore based on physico-chemical processes. The cube root and square root relationships may be due to vol. and surface reactions respectively.

H. L.

Physiology of intellect illustrated by Jacksonian seizures. R. M. Brickner (*Bull. Neurol. Inst. New York*, 1938, **7**, 245—259).—A case showing fits of forced thinking is taken to illustrate that thoughts can appear as forced phenomena consequent to disturbed neural function; this supports the concept of a neuro-intellectual apparatus acting similarly to the neuro-motor and -sensory apparatus.

H. L.

Theory of disturbed word-finding and effect of latter on thinking in aphasic individuals. F. Lotmar (*Schweiz. Arch. Neurol. Psychiat.*, 1940, **45**, 341—396).—The author's hypothesis that the primary disturbance in aphasia is difficulty in finding words ("linguistic disturbance") is upheld against criticisms by Binswanger, Goldstein, and Kleist who placed more emphasis on the associated disturbance of thinking ("noetic disturbance").

H. L.

Subjective foveal hemianopsia during dark adaptation in patients with tumours of temporal lobe. H. Spontitz (*Bull. Neurol. Inst. New York*, 1938, **7**, 170—173).—The phenomenon was observed in 3 cases in whom tangent screen and hand perimeter tests had failed to reveal a field defect.

H. L.

Pavlov reflexes in mental diseases. M. Schröter (*Z. ges. Neurol. Psychiat.*, 1939, **164**, 501—515).

H. L.

Histamine in treatment of case of vascular headache. W. M. Yater (*Med. Ann. Columbia*, 1940, **9**, 165—166).—Subcutaneous injection of 1 c.c. of a 1:10,000 solution of histamine phosphate twice daily caused cessation of attacks of severe headaches.

E. M. J.

Convulsant action of acetylcholine. H. Moussatché and M. Vianna Dias (*Rev. Brazil. Biol.*, 1941, **1**, 457—462).—In unanaesthetised dogs a 10% solution of acetylcholine applied to the motor cerebral cortex causes contractions of isolated muscles and generalised convulsions. Morphine potentiates this action of acetylcholine.

I. C.

Electro-encephalographic studies on finer structure of cerebral cortex. Z. Drohocki (*Z. ges. Neurol. Psychiat.*, 1939, **164**, 657—668).—Analysis of normal encephalograms indicates that each cyto-architectural field is composed of "primary structures" which are the morphological basis of certain automatisms. Several primary structures are involved simultaneously and successively in the spontaneous potential differences of the quiescent cortex. The irregularity of the normal waves is due to the fact that the no. of functioning primary structures is constantly changing in an unpredictable manner.

H. L.

Effects of reduced atmospheric pressures on electro-encephalogram. R. S. Lyman, W. A. Carlson, and O. O. Benson (*J. aviat. Med.*, 1941, **12**, 115—125).—Periods of general flattening of the brain

waves were common in men subjected during gradual decompression down to pressures equiv. to altitudes of 35,000—40,000 ft. F. S.

Nonobstructive hydrocephalus. Treatment by endoscopic cauterisation of choroid plexuses. J. E. Scarff (*Amer. J. Dis. Child.*, 1942, **63**, 297—334).—48 operations were performed on 20 children. The case mortality was 15% and the operative mortality 6%. 10 children had satisfactory results. Of the 9 children now living, 4 have essentially normal mental development, 3 show moderate retardation, and 2 show marked retardation. C. J. C. B.

Continuous recording of cerebrospinal fluid pressure levels: effects of intravenous therapy in treatment of cerebral oedema. F. F. Ellis (*Austral. N.Z. J. Surg.*, 1940, **10**, 20—26).—An apparatus is described by which movements of a diaphragm covering a metal cap which is connected to a spinal needle are magnified and transmitted to a moving film by which they are recorded as a finely traced graph. In secondary cerebral oedema intravenous administration of 50 c.c. of 25% sucrose had no effect on intracranial tension during the 21 min. following the injection. Successive gradual decompressions by lumbar puncture are recommended; they are not contraindicated with blood-stained c.s.f. as capillary oozing decreases when the pressure is reduced to normal. H. L.

Occurrence of dystrophic, neural, and spinal forms of progressive muscular atrophy in one family. I. Stern (*Schweiz. Arch. Neurol. Psychiat.*, 1940, **45**, 447—456).—Of 6 siblings one was affected by progressive muscular dystrophy, a second by spinal progressive muscular atrophy, and a third by peroneal muscular atrophy. Progressive muscular dystrophy is attributed to a lesion of sympathetic cells in the lateral horns and of parasympathetic cell groups between anterior horn and substantia gelatinosa. H. L.

Myotonia congenita (Oppenheim). F. H. Lewey (*Amer. J. Dis. Child.*, 1942, **63**, 76—88).—3 cases are described. Examination of the spinal cord showed the characteristic changes; in addition various signs of developmental retardation and malformation were found in several organs. In 2 instances congenital extramedullary tumours in the spinal canal and in 1 instance congenital aplastic disease of the cerebral hemispheres and the brain stem were noted. (7 microphotographs.) C. J. C. B.

Progressive subcortical encephalopathy (Schilder's disease). J. J. O'Donnell (*J. Amer. Med. Assoc.*, 1941, **117**, 2252—2253).—Case report with measurement of intelligence before and after onset of the disease, and autopsy. C. A. K.

Anatomical basis of Korsakow's syndrome. L. Benedek and A. Juba (*Schweiz. Arch. Neurol. Psychiat.*, 1941, **46**, 178—184).—Lesions of the corpora mamillaria were found in one case. In 2 others, complicated by disturbances of sleep, lesions in the wall of the 3rd ventricle were additional findings. H. L.

Pancreatic encephalopathy. N. O. Rothermich and E. von Haam (*J. clin. Endocrinol.*, 1941, **1**, 872—881).—A series of 8 cases is described with a neurological syndrome of anxiety and agitation, clouding of consciousness, muscular rigidity, and speech disturbance. The neuropathological lesions were primarily capillary necrosis and petechial hemorrhages with perivascular and subependymal gliosis. All 8 cases had organic pancreatic disease which autopsy showed to consist of areas of glandular or fatty necrosis with chronic interstitial pancreatitis. A sp. syndrome is postulated and nicotinic acid deficiency suggested as the immediate cause of the neurological symptoms. P. C. W.

Arachnoid sarcoma of cerebellum. O. Foerster and O. Gagel (*Z. ges. Neurol. Psychiat.*, 1939, **164**, 565—580).—4 cases are reported. H. L.

Hypertonic saline in treatment of delirium tremens and acute alcoholic hallucinosis. I. J. Silverman (*Med. Ann. Columbia*, 1940, **9**, 291—297).—100—150 c.c. of 5% saline solution were given intravenously twice daily after an initial dose of 200—250 c.c. and the mortality was reduced from 3% in over 1500 untreated cases to less than 0.5% in over 300 cases. E. M. J.

Macroglial, microglial, and oligodendroglial counts in general paralysis of the insane. F. Morel and Duman (*Schweiz. Arch. Neurol. Psychiat.*, 1941, **46**, 276—287).—Data are given on the density of the 3 elements in the various layers of Economo's area FDM (31 cases). H. L.

Electrocardiographic findings in cardiazol shock treatment of schizophrenia. G. Forschbach (*Z. ges. Neurol. Psychiat.*, 1939, **164**, 722—734). H. L.

Common neurological syndromes produced by pressure from extrusion of intervertebral disc. K. G. McKenzie and E. H. Botterell (*Canad. Med. Assoc. J.*, 1942, **46**, 424—435).—A lecture. C. J. C. B.

Familial formes frustes of disseminated sclerosis and hereditary anomalies of abdominal reflexes. H. Wellach (*Z. ges. Neurol. Psychiat.*, 1939, **164**, 392—403).—11.9% out of 229 relatives of 105 individuals affected by disseminated sclerosis had anomalies of abdominal reflexes as compared with 1.7% in a control series. H. L.

Histopathology of diffuse sclerosis. G. Weber (*Schweiz. Arch. Neurol. Psychiat.*, 1941, **46**, 288—306).—A detailed case-report. H. L.

Vascular pattern of lesions of multiple sclerosis. R. S. Don and G. Berglund (*Arch. Neurol. Psychiat.*, 1942, **47**, 1—18).—60 lesions in 5 cases of multiple sclerosis were studied in serial section and their relationship to the vascular system was noted. 20 were oriented about a normal-looking vein and only 9 were about a vein in which a thrombus could be found. The lesions in these cases were not peculiar in size, shape, degree of remyelination, or phagocytic cellular response. When a vein was found within an ellipsoid or cylindrical lesion it was oriented along the long axis of the lesion. The theory that vascular changes, particularly thromboses, are essential in the pathogenesis of the plaques seems untenable. It is suggested that thrombi are the result of the local absorption of thromboplastic substances released by the rapid breakdown of myelin sheaths. W. M. H.

Pre-ganglionic components of first thoracic nerve: their rôle in sympathetic innervation of upper extremity. A. Kuntz and J. B. Dillon (*Arch. Surg., Chicago*, 1942, **44**, 772—778).—In cats and rhesus monkeys, reflex vasoconstriction in the digits of the upper extremity was demonstrated following extirpation of the second and third thoracic segments of the sympathetic trunk. The first thoracic nerve, consequently, must include preganglionic components which are involved in the sympathetic innervation of the upper extremity. F. S.

Complementary action of eserine and acid in neurohumoral activation. R. Gesell, C. R. Brasserie, and E. T. Hansen (*Proc. Soc. Exp. Biol. Med.*, 1942, **49**, 464—466).—Inhalation of 10% CO₂ or administration of eserine increases cardiac inhibition produced in dogs by stimulation of the superior laryngeal nerve. Both effects can be summated. V. J. W.

Sensitisation of submaxillary gland to acetylcholine by section of chorda tympani. J. H. Wills (*Amer. J. Physiol.*, 1942, **135**, 523—526).—After section of the chorda tympani in cats the submaxillary gland is sensitised to acetylcholine 10 days after the operation for 17 days. M. W. G.

Nerve control of bladder. J. P. Evans (*J. Amer. Med. Assoc.*, 1941, **117**, 1927—1930).—A review.

Transurethral resection of vesical neck for bladder difficulties in tabes. J. L. Emmett and J. B. Beare (*J. Amer. Med. Assoc.*, 1941, **117**, 1930—1934).—Good results in 35 cases are described. C. A. K.

Surgical treatment of autonomous neurogenic bladder. R. M. Nesbit and W. G. Gordon (*J. Amer. Med. Assoc.*, 1941, **117**, 1935—1937).—A lecture with case illustrations. C. A. K.

Sex-determination in Melandrium and Lymantria. R. Goldschmidt (*Science*, 1942, **95**, 120—121).—Discussion. E. R. S.

X.—SENSE ORGANS.

Effects of eyestalk removal on *Cambarus clarkii*.—See A., 1942, III, 462.

Pigment migration in moth eye. M. F. Day (*Biol. Bull.*, 1941, **80**, 275—291).—Accessory pigment cells in eyes of *Ephesia kuehniella* migrated proximally when exposed to light. This can also be produced by low temp., chloretone, or by cutting the optic tract. Movements are not general but restricted to the lighted region; no reaction to light is found once the optic tract has been severed. A nervous mechanism is postulated. D. M. SA.

Optical method for obtaining variable magnification in ophthalmic use. K. N. Ogle (*J. Opt. Soc. Amer.*, 1942, **32**, 143—146).—A lens system is described which gives a continuous change up to 5% in the size of the image, its apparent distance remaining fixed. The principle is that a single convex lens if moved over a small distance causes the real image of a fixed object to change slightly in size but remain almost at the same position in space; a concave lens placed between this lens and the eye causes this image to coincide with the object itself. A 5% change in magnification was obtained using a visual distance of 6 m., and lenses of the meniscus type, convex side next to the eye, mounted in a cell with a helical groove in which moves a pin attached to one lens. K. J. W. C.

Dysostosis multiplex (Hurler's disease: lipochondroplasia, gargoylism). F. C. Cordes and M. J. Hogan (*Arch. Ophthalm.*, 1942, **27**, 637—664).—5 cases are reported; 2 of them (male, female) had unaffected twin sisters and one affected sibling. H. L.

Devic's disease (ophthalmoneuromyelitis). H. H. Noran and C. G. Polan (*Arch. Ophthalm.*, 1942, **27**, 707—715).—Clinical and post-mortem findings of a case are given. H. L.

Vitamin therapy in ophthalmology. A. M. Yudkin (*Amer. J. Ophthalm.*, 1942, **25**, 284—290).—A short survey. H. L.

Early detection of avitaminosis A by gross or biomicroscopic examination of conjunctiva. M. L. Berliner (*Amer. J. Ophthalm.*,

1942, 25, 302—308).—No conjunctival changes were found in 6 infants with low plasma-vitamin-A levels. 15 adults with conjunctival lesions attributed by Kruse to -A deficiency ("spots" or pingueculæ, variations in visibility and configuration of vessels, thickness, and transmission of light) showed normal blood-A concn.; these conditions represent common presenile or senile alterations. H. L.

Strabismus in the New Haven dispensary. C. C. Clarke (*Yale J. Biol. Med.*, 1942, 14, 291—295).—In 379 cases of strabismus, $\frac{1}{2}$ were esotropias and $\frac{1}{2}$ exotropias. Vertical anomalies were present in 45%. F. S.

Two cases of orthoptic interest. E. B. Alabaster, C. Rudd, and M. Tree (*Brit. J. Ophthalmol.*, 1942, 26, 304—309).—The first case described is that of a boy with a small degree of alternating convergent strabismus, which persisted in spite of nearly 3 years of orthoptic training, but which (either as a late result of such training or because of the natural decrease of hypermetropia with age) had completely disappeared 4 years later. The second case is that of a man who had about 1 cm. of downward displacement of the right eye due to an old fracture of the orbit, but who (in spite of a moderate amount of heterophoria demonstrable by the Maddox rod) had none of the asthenopic symptoms usually attributed to muscle imbalance. J. H. A.

Obstacles to squint training—amblyopia. J. B. Feldman and A. F. Taylor (*Arch. Ophthalmol.*, 1942, 27, 851—868).—Findings are given for visual acuity, visual fields, angle of squint, and grade of binocular vision in children and adults with squint and/or amblyopia. Different vals. for visual acuity were often obtained on testing with different charts; when the differences were marked it was usually due to different fixation in reading the charts. Scotomata were not frequent in amblyopic cases but suppression areas were common and were also found in squint without amblyopia. Binocular vision was much better in amblyopic children than in adults. H. L.

Position of muscles after operation for strabismus. S. R. Gifford (*Arch. Ophthalmol.*, 1942, 27, 443—459).—The following findings were obtained in cases requiring a second operative exposure. 4 cases showed after tenotomy slipping back of the internal rectus on the sclera; this was repaired several years after the first operation by isolating the tenotomized muscle and replacing it, or slightly in front of, its normal insertion; when divergence has existed for a long period, secondary contracture of the opposing muscle requires recession of that muscle. In 2 of the cases in which recession of the internal rectus with advancement and resection of the external rectus had been performed for concomitant convergent squint, over-effect resulted from adhesions of separate bands of muscle to the sclera behind the calc. insertion, while in one of the cases of internal rectus recession an insufficient effect was due to adhesions of muscle fibres in front of the scleral sutures. Most cases of recession showed a new insertion at or very near to the scleral suture. After Reese resection and tucking, adhesions were found far behind the original insertion, nullifying the effect of the operation, while in a case of resection and advancement, adhesions occurred between the point of advancement and the previous insertion only. After myotomy of the inferior obliquus, reattachment near its origin can be prevented by resecting 4 mm. of the muscle and freeing it completely from fascial attachments. In 2 cases of tendon transplantation for abducens paralysis the tendon slips were in good position and not adherent at any point except the insertion. Slipping back of the superior oblique muscle at, and above, its sutured position after Wiener's operation can be prevented or repaired by freeing the muscle from fascia far back in the orbit and making it pass horizontally to its new insertion. Coagulation for retinal detachment may cause scleral adhesions of resected or non-resected muscles which do not prevent deviation of the eye in the direction of the adherent muscle when a tendency to divergence is present. H. L.

Binocular vision tests. F. P. Fischer and J. W. Wagenaar (*Ophthalmologica*, 1942, 103, 129—142).—Testing of binocular vision requires: (1) examination of heterophoria with Maddox cross and Maddox cylinder for distant, and with reduced Maddox scale (Bielschowsky) or a similar appliance for near, vision, (2) examination of exclusion with red and green Snellen letters and with the cross-lattice figure (Helmholtz, "Handbook of Physiological Optics," III, Table VI, Fig. W), and (3) examination of binocular vision with full (Hering-Donders apparatus), horopter, and Pulfrich pendulum tests. H. L.

Anomalous retinal correspondence. D. E. Dicke (*Amer. J. Ophthalmol.*, 1942, 25, 585—587).—By using the Bielschowsky after-image test, diplopic test, and major amblyoscopes, anomalous retinal correspondence was found in 57% of squint cases. Treatment by both const. occlusion and regular orthoptic exercises (bimacular massage, stimulation on one of the major amblyoscopes) should be given prior to surgical correction. H. L.

Muscle imbalance in myopia. W. W. Baum (*Amer. J. Ophthalmol.*, 1942, 25, 291—295).—Out of 50 cases of myopia of 0.50 to 6.00

dioptries, predominantly spherical, 20 were esophoric and 24 exophoric. The first group showed ability to converge without accommodating and inability to accommodate without converging while the opposite was found in the latter group. In 8 cases of progressive myopia, the myopia remained stationary after institution of orthoptic treatment. H. L.

Myopia. A. Cowan (*Trans. Amer. Acad. Ophthalmol. Otolaryngol.*, 1942, 197—205).—Simple myopia is merely a form of ametropia (when abs. visual acuity is normal and no evidence of disease is present); it can neither be prevented nor arrested. H. L.

Ocular absorption of sulphonamide derivatives after local application. S. Y. P'an (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 384—386).—The powdered substances were applied to the normal rabbit's eye for 60 min. N⁴-Nicotinylsulphanilamide was not absorbed by any ocular tissue or fluid. Sulphathiazole, sulphaguanidine, and sulphadiazine were satisfactorily absorbed by conjunctiva and cornea only. Sulphanilamide and N¹-nicotinylsulphanilamide were well absorbed by all tissues and fluids except the vitreous humour, while sulphapyridine and N¹N⁴-dinitotinylsulphanilamide were efficiently absorbed by cornea, conjunctiva, sclera, and aq. humour. H. L.

Penetration of sulphathiazole into eye [cat]. H. G. Scheie and I. H. Leopold (*Arch. Ophthalmol.*, 1942, 27, 997—1004).—Concn. in the aq. humour was the same when microcryst. or ordinary sulphathiazole was given intraperitoneally (about 24% of blood concn.). Penetration into the aqueous was greatly increased by ocular inflammation and vasodilator drugs. H. L.

Effect of certain chemotherapeutic agents on experimental eye lesions produced by *Staphylococcus aureus*. J. M. Robson and G. I. Scott (*Nature*, 1942, 149, 581—582).—Intracorneal inoculations were made in rabbits with a 24-hr. broth culture of a virulent coagulase-positive strain, diluted to contain 1500 organisms per c.c. One eye was treated with the therapeutic agent and the fellow eye with saline. Corneal ulceration invariably developed in the control eyes, associated in 90% of the cases with hypopyon. One series was treated with a 30% Na sulphacetamide solution, a second with a 15% solution of solubilised sulphathiazole, and a third with a penicillin solution. The best results were obtained in the last series, but good effects were also produced by Na sulphacetamide; sulphathiazole effects were disappointing. H. L.

Cornea. I. Transfer of water and sodium chloride by osmosis and diffusion through excised cornea. II. Transfer of water and sodium chloride by hydrostatic pressure through excised cornea. D. G. Cogan and V. E. Kinsey (*Arch. Ophthalmol.*, 1942, 27, 466—476, 696—704).—I. Measurements were made on whole cornea and on cornea with epithelium and/or endothelium and Descemet's membrane removed. Excised cat corneas were tied to the flared ends of 5-c.c. graduated pipettes; about 385 sq. mm. of corneal surface was exposed to the lumen of the pipette. The tubes were partly filled with one fluid and the ends holding the cornea immersed in flasks containing the second fluid. Transfer of water was indicated by changes in the fluid level in the tube while transfer of NaCl was shown by change in the Cl content of the flask fluid; concn. gradients in the tube were prevented by an apparatus producing continuous stirring. A net transfer of water by osmosis was found in the posterior to anterior direction only, depending on the maintenance of the osmotic pressure by intact epithelium; absence of transfer in anterior-posterior direction is attributed to formation of bullæ and epithelial damage due to higher NaCl concn. on the posterior as compared with anterior surface. Experiments with D₂O indicated that water is transferred by diffusion in both directions. An appreciable transfer of NaCl by diffusion was observed in either direction only when the epithelium was damaged or removed.

II. Pressure was exerted by compressed air travelling through a tube with tubular outlets on the underside which were connected by rubber tubing to the pipettes holding the corneas. Up to at least 400 mm. Hg hydrostatic pressure the corneas were impermeable to 1% NaCl in the out-in direction when the epithelium was intact; in the in-out direction the cornea was permeable to this solution under various pressures, probably owing to epithelial damage by the pressure. The amount of fluid transferred was directly proportional to the hydrostatic pressure. H. L.

Medical treatment of keratoconus. M. Wiener (*Diseases Eye, Ear, Nose, and Throat*, 1942, 2, 120—124).—Adrenaline is recommended for early cases. H. L.

Two cases of megalocornea. L. H. Savin (*Brit. J. Ophthalmol.*, 1942, 26, 265—271).—In one of the cases (grandfather of the 2nd) intracapsular extraction of the associated cataract was carried out successfully. H. L.

Riboflavin for corneal disease. K. W. Cosgrove and P. L. Day (*Amer. J. Ophthalmol.*, 1942, 25, 544—557).—Interstitial keratitis, phlyctenular keratitis, and some cases of unknown aetiology cleared up more rapidly when riboflavin was included in the treatment. No effect was seen in allergic cases and linear keratitis. H. L.

Crystalline dystrophy of cornea. A. R. Sherman (*Arch. Ophthalm.*, 1942, 27, 692—695).—A case is described showing numerous vari-coloured microscopic crystals resembling cholesterol throughout the anterior portion of the cornea. There were no opacities, inflammatory signs, or visual disturbances and the condition did not change during 5 years' observation. H. L.

Lipoid degeneration of the cornea. H. C. Donahue (*Amer. J. Ophthalm.*, 1942, 25, 261—264).—A case is reported showing in both eyes plaque-like, yellow tissue in the deeper corneal layers producing almost complete opaqueness; there was no family history. H. L.

Pupillographic studies. I. Present state of pupillography; its method and diagnostic significance. O. Löwenstein and E. D. Friedmann (*Arch. Ophthalm.*, 1942, 27, 969—993).—A survey is given of Löwenstein's study (by cinematographic pupillography) of the pupillary reflexes (latency period, phenomena of fatigue and psychosensory restitution, Westphahl-Piltz phenomenon, tonohaptic reaction, cogwheel contraction on light stimulation, comparison of physiological fatigue and pathological phenomena, anisocoria). H. L.

Influence of intensity of white light on pupil diameter of man and rabbit. I. H. Wagman and L. M. Nathanson (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 466—470).—An infra-red photographic method made measurements of pupil diameter possible under any condition of light or dark adaptation. The subjective visual threshold could also be determined by this method. Results were obtained after the subject had been dark adapted for 20—30 min. Data are given for measurements at 9 intensities over a range of about 9 log units for man and 8 intensities over a range of about 7 log units for the rabbit. In man a 0.5-mm. contraction occurred at -3.75 log units which was 1000 times the average threshold val. while in the rabbit the same contraction occurred at -0.40 log units, *i.e.*, at an intensity about 2200 times that required for man. H. L.

Contrasting effects of local application of adrenaline on denervated iris of the cat and the monkey. E. A. Wernstein and M. B. Bender (*Amer. J. Physiol.*, 1942, 135, 535—538).—Local application of 0.1% adrenaline does not affect the normal pupil of the cat or monkey, whereas introduction into the conjunctival sac or subconjunctival injection dilates the sympathetically denervated iris of the monkey but not the cat. In the completely denervated iris local adrenaline produces a marked mydriasis which is more conspicuous in the cat than in the monkey. It is inferred that the conjunctival vessels of the cat constrict much more readily with adrenaline than the same vessels of the monkey. T. F. D.

Glaucoma. L. H. Lanier (*Eye, Ear, Throat*, 1942, 21, 75—77). H. L.

Gonioscopy in primary glaucoma and its bearing on choice of operation. A. Bangerter and H. Goldmann (*Ophthalmologica*, 1941, 102, 321—350).—A method is described for estimating the angle of the anterior chamber by means of slit-lamp and a special contact glass. In simple glaucoma (40 cases) the angle was always open though showing characteristic changes (pigmentation, "matting" of the ciliary body) in about half of the cases. In decompensated cases (39) it was completely closed during an attack and only slightly open when pressure was reduced by miotic drugs. Examinations after iridectomy or cyclodialysis showed that the latter was successful only when the angle was not too narrow while the former (basal iridectomy, including the iris root), freeing the corneo-scleral trabeculum, seemed the method of choice in decompensated glaucoma. In inflammatory glaucoma normal pressure was obtained by cyclodialysis at the site of the iridectomy. In simple glaucoma with narrow angle iridectomy in the coloboma region prior to cyclodialysis is recommended. H. L.

Relation of field contraction to blood pressure in chronic primary glaucoma. A. B. Reese and J. S. McGavie (*Arch. Ophthalm.*, 1942, 27, 845—850).—Findings in 132 cases indicated that contraction of visual fields tends to be more rapid when the quotients of systolic and diastolic pressures to intraocular pressure are below 5.75 and 3.25 respectively. H. L.

Causes of high vitamin-C content of aqueous humour and lens. J. H. B. M. Huysman and F. P. Fischer (*Ophthalmologica*, 1942, 103, 21—39).—Data are given indicating that the high concn. in these organs is due to vitamin-C production by the lens; the latter can also reduce large quantities of oxidised ascorbic acid. An external circulation of aqueous through the lens and an internal circulation within the lens produce const. deoxygenation of ascorbic acid. These circulations are important sources of energy and prove that ascorbic acid in lens and aqueous acts as a redox system. H. L.

Marfan's syndrome. (Arachnodactyly coupled with dislocation of the lens.) A. Rados (*Arch. Ophthalm.*, 1942, 27, 477—538).—7 cases are reported and 204 cases from the literature are tabulated and discussed. H. L.

Alterations in capsular epithelium in immature cataracts. C. A. Clapp (*Amer. J. Ophthalm.*, 1942, 25, 437—445).—Nearly all of 70

cases of immature cataract removed in their capsule showed atrophy of the capsular epithelium while proliferative changes were infrequent; migration of the nuclei of the capsular epithelium was often marked. It is suggested that the capsular epithelial alterations are a cause rather than the result of the lenticular changes. H. L.

Visual prognosis for ageing lens. R. von der Heydt (*Amer. J. Ophthalm.*, 1942, 25, 576—578).—An account is given of the prognostic significance of slit-lamp findings in nuclear sclerosis, cortical changes, and posterior complicated cataract. H. L.

Carbonic anhydrase in mammalian ocular tissues. A. Bakker (*Ophthalmologica*, 1941, 102, 351—360).—Vals. in lens and retina differed considerably from species to species but were const. within each species. No parallelism was found between enzyme concn. and retinal vascularisation. H. L.

Does carbonic anhydrase in ocular tissues cause hydration of carbon dioxide or dehydration of carbonic acid? A. Bakker (*Ophthalmologica*, 1942, 103, 88—94).—Hydration of CO_2 and dehydration of H_2CO_3 are equally catalysed by carbonic anhydrase; the effect of the latter is activated in both reactions by cysteine, histidine, histamine, and glutathione. In the lens and retina dehydration of H_2CO_3 seems to play a greater rôle than hydration of CO_2 . H. L.

Respiratory metabolism of lens and vitreous body. J. H. B. M. Huysman and F. P. Fischer (*Ophthalmologica*, 1941, 102, 275—286).—Thermoelectric measurements of O_2 and CO_2 changes of the freshly enucleated lens (rabbit, monkey, man) showed that its respiratory quotient is unity. The differences in ascorbic acid, glucose, and lactic acid content between the freshly enucleated lens and the fellow lens 6 hr. after transplantation and in the glucose content of the culture medium at the beginning and end of that period indicated that the lens consumes carbohydrates which are partly oxidised, partly glycolysed, and partly used for ascorbic acid production; an additional portion of the consumed glucose could not be accounted for. The vitreous body was found to have no gaseous metabolism. H. L.

Temporary lens changes in diabetic coma [and other dehydrations]. R. D. Lawrence, W. Oakley, and I. C. Barne (*Lancet*, 1942, 243, 63—65).—Certain temporary lens changes observed in cases of diabetic coma and other dehydrations, ranging from fine linear striations to complete opacification, are described. It is suggested that these changes are due to diffusion of water out of the lens owing to increased osmotic pressure of the aqueous, since they disappear if the dehydration is treated at once with intravenous fluids. The rôle of such water changes in the production of permanent diabetic cataracts is discussed. J. H. A.

Choline-esterase of choroid plexus and ciliary processes. H. Herrmann and J. S. Friedenwald (*Johns Hopkins Hosp. Bull.*, 1942, 70, 14—18).—Both the choroid plexus and ciliary processes show moderate choline-esterase activity. Bovine organs showed 20—25% less activity than those from pig. Cell for cell, the stroma showed a greater activity than the epithelium in these organs. There is no evidence that the secretory activity of either organ is cholinergic. Aq. humour and c.s.f. showed only slight activity. T. F. D.

Distribution of enzymes in choroid plexus. J. S. Friedenwald, H. Herrmann, and R. Buka (*Johns Hopkins Hosp. Bull.*, 1942, 70, 1—13).—The choroid plexus is the site of intense enzymic activity. The plexus was separated into epithelial and stroma tissue by treatment with saturated Na_2SO_4 solution; 90% of cytochrome oxidase, succinic dehydrogenase, and fumarase activity was located in the epithelium. Cell for cell, the activity of lactic and malic dehydrogenases was as great in stroma as in epithelial tissue. No activity was found using glucose, pyruvate, or citrate as substrate. The results suggest a possible source of energy for the secretion of the c.s.f. since a difference in redox potential exists between the epithelial and stroma tissue. T. F. D.

Mechanism of accommodation. M. P. Koke (*Arch. Ophthalm.*, 1942, 27, 950—968).—Intraocular structures of intact living eyes in cats were visualised on the X-ray film by thorotrast injection into the vitreous. In adult animals X-ray films show 3 distinct divisions of the vitreous. Study of the changes after eserine instillation indicated that accommodation in the cat is produced by compression of the posterior periphery of the lens when the tertiary vitreous (anterior portion) is forced anteriorly and towards the axis by the ciliary muscle. H. L.

Ocular signs of nutritional oedema. R. Weekers (*Ophthalmologica*, 1942, 103, 81—87).—In 15 cases with low plasma-proteins and reduced albumin-globulin ratio intraocular pressure was normal or low. This would indicate that the vitreous body is not a simple dialysate. H. L.

Moore's subjective "lightning streaks." F. H. Verhoeff (*Amer. J. Ophthalm.*, 1942, 25, 265—268).—A self-observation is recorded. The phenomenon, elicited only by ocular motion, is not rare among individuals with numerous senile vitreous opacities. It is attributed

remains substantially the same but an increasing no. undergo threshold displacement, while the centre of the resonating region remains const. and is associated with pitch. If the pitch rises the longer fibres at the upper end remain quiescent while those below the lower end commence to vibrate, and vice versa. As the amplitude of displacement increases it does so most rapidly in those fibres which have reached, or are reaching, threshold degree. The provision of serial rows of cells which reach threshold distortion seriatim as the displacement increases allows for any necessary degree of perfection in differentiation; the membrana tectoria subjects the rows of hair cells to threshold distortion from within out as the amplitude of displacement increases. H. L.

Effect of small lesions of organ of Corti on cochlear potentials. E. M. Walze and J. E. Bordley (*Amer. J. Physiol.*, 1942, **135**, 351—360).—The effects of localised lesion of cat's organ of Corti on the thresholds of cochlear potentials show that near the threshold the response to any frequency is localised in a small part of the organ of Corti, but that with increase in intensity there is a spread of the response to adjacent areas, greater for low than for high tones. The regions of optimal response for successive octaves are spaced at equal distances along the organ of Corti; cochlear potentials originate in the hair cells of the organ to Corti. M. W. G.

Evaluation of audiometer in hearing tests. C. C. Swann (*Sth. Med. J.*, 1942, **35**, 280—285). E. M. J.

Hearing aids. C. C. Bunch (*Trans. Amer. Acad. Ophthalm. Otolaryngol.*, 1942, **163**—178).—The val. of vac.-tube air conduction aids is illustrated by audiograms of selected cases. H. L.

Electroaudiography. Analysis and interpretation of audiogram. B. C. Trowbridge (*Arch. Otolaryng.*, 1942, **35**, 899—914).—A survey. H. L.

Estimating percentage loss of useful hearing. P. E. Sabine (*Trans. Amer. Acad. Ophthalm. Otolaryngol.*, 1942, **179**—196).—Tables are presented for computing % of weighted hearing loss in the speech hearing range. H. L.

Occupational deafness: audiometric observations on aural fatigue and recovery. D. Chamberlain (*Arch. Otolaryng.*, 1942, **35**, 595—602).—Recovery from aural fatigue in boilermakers is not always complete after 15 hr. rest from noise. High tones are usually much more affected than low tones but where there is a permanent high tone loss before exposure to noise the lower tones may be the only ones showing significant fatigue. H. L.

Treatment of deafness by irradiation (radium). E. B. Emerson, jun., A. H. Dowdy, and C. A. Heatly (*Arch. Otolaryng.*, 1942, **35**, 845—852).—A method is described of Ra treatment of the Eustachian orifices for deafness due to hypertrophy of lymphoid tissue at these sites. H. L.

Allergy as a contributing factor to biologic deafness. C. Y. Mao (*Arch. Otolaryng.*, 1942, **35**, 582—586).—28.5% out of 535 seriously deafened children showed positive allergic skin reactions. [No control series.] H. L.

Studies on pupils of Pennsylvania School for the Deaf. IV. Mechanism of inheritance of deafness. W. Hughson, A. Ciocco, and C. E. Palmer (*Arch. Otolaryng.*, 1942, **35**, 871—882).—Differentiation between inherited and acquired deafness is possible from history of onset and immediate cause of deafness. Deafness was inherited in about 35% out of 535 cases; transmission seems to involve a single recessive gene. H. L.

Intravenous histamine in treatment of Ménière's syndrome. D. W. Ingham (*Med. Ann. Columbia*, 1940, **9**, 241—242).—Report of 2 cases. E. M. J.

Clinical application of vestibular tests. J. K. Leasure (*Arch. Otolaryng.*, 1942, **35**, 766—771).—Differential characteristics are given of peripheral and central lesions. Differentiation between supra- and infra-tentorial lesions is only reliable at an early stage of the disease. H. L.

Development of olfactory nerve in man. A. A. Pearson (*J. Comp. Neurol.*, 1941, **75**, 199—217).—A detailed description of the development of the olfactory nerve and olfactory bulb. A. Gl.

Distribution of taste buds on tongue of kitten, with particular reference to those innervated by the chorda tympani branch of facial nerve. E. R. Hayes and R. Elliott (*J. comp. Neurol.*, 1942, **76**, 227—238).—The distribution of taste buds was studied in 2-month-old kittens after unilateral lingual nerve section. Gustatory fibres from the intact side pass beyond the midline for 1.3 mm. near the tip of the tongue and for 0.7 mm. immediately anterior to the circumvallate region; between these areas they reach only to the midline. Most of the glossopharyngeal fibres end in the circumvallate papillae but a few overlap 2—2.5 mm. into the area innervated by the chorda tympani. The average no. of taste buds innervated by the chorda tympani greatly exceeded that found in kittens at birth. Taste buds associated with fungiform papillae were found on the tops of the papillae, averaging 4 per papilla, but some typical fungiform papillae had no buds. Taste buds were also found on tops and sides of circumvallate papillae. H. L.

Anatomy and physiology of cutaneous sensibility. F. M. R. Walshe (*Brain*, 1942, **65**, 48—112).—A crit. review. W. T. A.

XI.—DUCTLESS GLANDS, EXCLUDING GONADS.

Adequacy of iodised salt for goitre prevention. E. L. Sevringhaus and J. H. Barbour (*J. clin. Endocrinol.*, 1941, **1**, 850—851).—Urinary I output was estimated in 10 children (1.7—12 years of age) from a goitre area on a diet containing iodised salt. Results indicate that the I intake was adequate. P. C. W.

Sterol balance in hypothyroidism. W. Fleischmann and L. Wilkins (*J. clin. Endocrinol.*, 1941, **1**, 799—803).—2 patients with hypothyroidism and one with dwarfism not associated with thyroid deficiency were fed on a vegetable diet practically free from cholesterol. The fall in serum-cholesterol during thyroid administration and the rise after withdrawal of treatment were unaffected by this diet and are not due to increased intestinal excretion, absorption, or retention. P. C. W.

Creatine metabolism in hypothyroid infants and children. H. G. Poncher, I. P. Bronstein, H. W. Wade, and J. C. Ricewasser (*Amer. J. Dis. Child.*, 1942, **63**, 270—296).—The creatinuria produced in 4 hypothyroid children by thyroid therapy continues throughout treatment. C. J. C. B.

Thyroid globulin in treatment of menstrual irregularities. R. C. Foster and M. A. Foster (*J. clin. Endocrinol.*, 1941, **1**, 836—837).—28 patients with basal metabolic rates of -2 to -22% but with no other signs of hypothyroidism were given thyroid globulin for menstrual irregularities. Results of treatment were similar to those with desiccated thyroid. 6 patients developed nervousness and palpitation with the desiccated thyroid but not with the globulin. P. C. W.

Hyperthyroidism in adolescent. J. B. Black and B. Webster (*J. clin. Endocrinol.*, 1941, **1**, 859—871).—18 cases of hyperthyroidism in children under 18 years are analysed. There was raised systolic and lowered diastolic pressure in the pre-operative condition. No abnormalities of the leucocytes were observed. Conservative, non-surgical treatment failed to arrest the disease in 5 of 6 cases. Post-operative recurrence or persistent hyperthyroidism occurred in 3 of 16 cases treated surgically. Operative procedure is recommended. P. C. W.

Galactose-tolerance test in thyrotoxicosis. T. E. Wilson (*Med. J. Austral.*, 1942, **1**, 33—44).—On the basis of 62 tests, 37 of which were on patients suffering from thyrotoxicosis, it is concluded that the derangement of galactose metabolism in thyrotoxicosis consists chiefly in accelerated intestinal absorption due to intestinal hypermotility, and to a smaller extent in impairment of glycolytic function of the liver (91 references). F. S.

Hepatic function in thyrotoxicosis. F. H. Mills (*Med. J. Austral.*, 1942, **1**, 195—198).—In 30 consecutive cases of thyrotoxicosis, the hippuric acid test showed in general depression of the detoxicating function of the liver. There was a variation ranging from 25% function up to 100% function in 3 cases. F. S.

Increased susceptibility to chloroform poisoning produced in the albino rat by injection of crystalline thyroxine. M. A. McIver and E. A. Winter (*J. clin. Invest.*, 1942, **21**, 191—196; cf. A., 1941, III, 571).—The increased susceptibility to CHCl₃ poisoning in the hyperthyroid rat is not due to the low level of liver-glycogen found in these animals and a high-protein diet does not afford protection against CHCl₃ poisoning to the liver of animals receiving thyroid hormone. C. J. C. B.

Hyperthyroidism treated by oestrogens. W. E. Shute and E. V. Shute (*Canad. Med. Assoc. J.*, 1942, **46**, 441—444).—3 out of 4 hyperthyroid patients treated with oestrogens were improved. C. J. C. B.

Clinical applications of studies in experimentally induced exophthalmos of anterior pituitary origin. H. B. Friedgood (*J. clin. Endocrinol.*, 1941, **1**, 804—812).—Review and discussion. P. C. W.

Constitutional manifestations of thyrotoxicosis. H. J. Morgan (*Sth. Med. J.*, 1942, **35**, 232—239).—A review and report of cases of osteoporosis, myopathy, ophthalmoplegia, and avitaminosis. E. M. J.

Osteodystrophia fibrosa combined with precocious puberty and exophthalmic goitre. W. H. Sternberg and V. Joseph (*Amer. J. Dis. Child.*, 1942, **63**, 748—783).—A case report with complete autopsy. (20 photomicrographs.) C. J. C. B.

Tetany of newborn. A. Capper (*Arch. Pediat.*, 1942, **59**, 148—156).—A review with case reports. C. J. C. B.

Convulsive mechanism in idiopathic hypoparathyroidism. I. McQuarrie, A. E. Hansen, and M. R. Ziegler (*J. clin. Endocrinol.*, 1941, **1**, 789—798).—A patient with idiopathic hypoparathyroidism suffered from convulsions when injected with 0.5 ml. of pitressin every 3 hr. for 2 days or when injected with typhoid vaccine.

Fever *per se* was not responsible. The convulsive measures were ineffective when the patient was given a high-mineral diet or treated with parathormone. The severity of the pitressin-induced convulsions was decreased by NaCl administration. The various measures had little effect on the serum-electrolyte concn. but did affect the mineral balance.
P. C. W.

Activated sterols and calcium salts in treatment of parathyroid tetany. E. L. Sevringhaus (*Amer. J. med. Sci.*, 1942, 5, 726—731).—In 4 patients with tetany large doses of vitamin-D controlled serum-Ca and -P levels adequately; the cost is 2—6 times that required for similar success with dihydrotachysterol. Use of CaCl₂ is advocated, as a 25% solution in the syrup or elixir of glycyrrhiza.
C. J. C. B.

Fat of inter-renal body of Selachiens. A. Nunes Aboim (*Bull. Soc. Port. Sci. Nat.*, 1939, 13, 61—66).—The origin of the fat is discussed.
I. C.

Effect of adrenaline on semen production in fowl. N. C. Wheeler, G. L. Searcy, and F. N. Andrews (*Endocrinol.*, 1942, 30, 369—374).—In cocks receiving daily injections of 0.6 c.c. of 1:1000 adrenaline per kg. there was an immediate decrease in vol. of semen per ejaculate, reaching 48% after 30 days. Total spermatozoa also decreased 50—70% and their survival time 50%. Seminal vol. rose to normal immediately the injections ceased, but spermatozoa count did not reach normal after 7 weeks and tubular epithelium was atrophied and dissociated.
V. J. W.

Hormonal activity of steroid compound [relation to adrenal cortex hormones]. H. Selye (*Science*, 1941, 94, 94).— Δ^3 -3-Hydroxy-21 acetylpregnen-20-one injected daily in a dose of 2 mg. prevented haemoconcn., decrease in blood-Cl, hypoglycemia, and rise in blood non-protein-N in adrenalectomised immature rats. Assayed by its ability to maintain life and growth in adrenalectomised immature rats it was slightly less active than deoxycorticosterone acetate. It did not cause adrenal cortical atrophy when injected in intact female rats. Δ^3 -3-Hydroxypregnen-20-one possesses similar activity.
P. C. W.

Sodium chloride restriction test in Addison's disease. D. M. Willson, F. J. Robinson, M. H. Power, and R. M. Wilder (*Arch. intern. Med.*, 1942, 69, 460—469).—In 10 of 16 patients with Addison's disease the NaCl restriction test produced symptoms of crisis; 5 of the patients showed high Na and Cl concns. in the final 4-hr. specimen of urine. In 43 of 44 patients with no Addison's disease there were no unfavourable reactions and the urinary Na and Cl vals. were low. 3 cases of Addison's disease who were treated with deoxycorticosterone acetate behaved like normal subjects. The test is sometimes dangerous where adrenal cortical deficiency exists.
C. A. K.

Effect of deoxycorticosterone acetate on glucose tolerance in normal individuals and patients with Addison's disease. T. H. McGavack, G. P. Charlton, and S. Klotz (*J. clin. Endocrinol.*, 1941, 1, 824—830).—The average glucose-tolerance curve was heightened at the 1st hr. and depressed in the 3rd—5th hr. in 11 normal men receiving daily injections of 15 mg. of deoxycorticosterone acetate for 7 days. The responses of 3 patients with Addison's disease to the administration of various amounts of deoxycorticosterone and NaCl are recorded. By trial and error a curve has been constructed relating the optimal dosage of the 2 substances. The curve conforms to a parabola with the formula Na (in g.) = 45/deoxycorticosterone acetate (in mg.), with limits of 12 g. Na and 30 mg. acetate. The effects of varying Na and K intakes and deoxycorticosterone acetate administration on the glucose-tolerance curves are recorded. Increasing doses of the acetate tend first to depress, later to restore to normal, the curve in stabilised patients.
P. C. W.

Insulin ferrihaemochromogen. R. D. Barnard (*J. Lab. clin. Med.*, 1942, 27, 754—777).—Water-sol. conjugates formed by the reaction of insulin and ferrihaeme (haematin) chloride in anhyd. NH₃ were prepared. Insulin combines with ferrihaeme to a max. ratio of 1:8 (1 insulin-N to 1 ferrihaeme-Fe atom). The combination is similar to that formed by nicotines and ferrihaeme, where the N of the former is co-ordinated in the 4_p electronic orbit of the Fe (ferrihaemochromogen linkage) and is different from that formed between haemochromogen and ferrihaeme where the N is polar covalent with the 3_p orbit (ferrihaemide linkage). The mol. wt. of 1:8 insulin-ferrihaemochromogen is calc. as 315,000. It resembles in physiological action the "depot" forms of insulin; even with intravenous or intraperitoneal injection, administration to rats and rabbits results in hypoglycemia which is delayed in its onset and prolonged in duration. Repeated administrations in rabbits showed neither acute nor chronic toxic effects other than the hypoglycaemic convulsions induced, and this is considered as evidence against the reputed toxicity of ferrihaeme.
C. J. C. B.

Increased glucose appetite of normal rats treated with insulin. C. P. Richter (*Amer. J. Physiol.*, 1942, 135, 781—789).—Progressively increasing doses on insulin (from 2 to 16 units daily for 26 days) given to 11 adult rats caused a marked increase in their appetite for a 40% glucose solution (from 14.6 c.c. before to 31.5 c.c. daily at the end of the injection period). Glucose appetite decreased

temporarily to almost zero level after discontinuance of insulin treatment, but rose slowly so that after several weeks it was greater than during the pretreatment period, indicating a mild hyperinsulinism.
T. F. D.

Changes in islets of Langerhans of albino rat induced by insulin administration. J. S. Latta and H. T. Harvey (*Anat. Rec.*, 1942, 82, 281—295).—Increasing doses of insulin produced at first a vascular congestion of the islets and swelling of the cytoplasm of the β cells. Later there was a shrinkage in cell vol., an increase in the no. of sp. granules, and disappearance of the canalicular apparatus, all suggestive of suppression of secretory activity. Eventually the nuclei of many β cells become pyknotic, indicating almost complete suppression of metabolic activity in these cells. β cells regained their normal secretory ability when the administration of insulin was stopped; α cells remained unchanged throughout the experiments.
W. F. H.

Partial pancreatectomy and concentration of insulin in pancreatic remnant. H. J. Bell, C. H. Best, and R. E. Haist (*J. Physiol.*, 1942, 101, 11—16).—The concn. of insulin in the free splenic end of the dog's pancreas is 4.2 units per g., in the attached duodenal portion 3.1 units per g., and in the free duodenal end 2.2 units per g. When a sufficient amount of the gland is removed to produce diabetes the concn. in the remnant is 0.16 unit per g., but if enough gland is left to prevent diabetes the concn. in the remnant is within the normal range (average 2.6 units per g.). In two hypophysectomised, partially depancreatized dogs, one of which had only a very small remnant of pancreas, the concn. was normal. Allen's conclusion that the changes in the islet cells of the remnant after extensive partial pancreatectomy are due to overstrain, is supported.
J. A. C.

Effect of diet poor of potassium and rich in sodium on adrenalectomised cats. F. de Mira and J. Fontes (*Arch. Port. Sci. Biol.*, 1938, 4, 199—206).—In one adrenalectomised cat, a diet poor in K and rich in Na prolonged the survival period indefinitely.
I. C.

Sensitivity to protamine zinc insulin. W. Wolf (*Arch. Dermat. Syphilol.*, 1942, 45, 4).—A case report.
C. J. C. B.

Effect of insulin on pyruvic acid formation in depancreatized dogs. E. Bueding, J. F. Fazekas, H. Herrlich, and H. E. Himwich (*Science*, 1942, 95, 282).—There was a rise in blood-pyruvate after intravenous injection of 2 g. of glucose per kg. of body wt. in normal dogs, but no rise in depancreatized dogs unless insulin was given also (with 40 units, blood-pyruvate rose from 1 to 3 mg.-%). After an initial glucose injection and 3—5 hr. perfusion of 5% glucose in a depancreatized dog the blood-pyruvate increased to a const. level in 1—2 hr. and was increased further by insulin. Insulin increases the formation of pyruvic acid after glucose administration.
E. R. S.

Anti-insulin effect of blood in cases of schizophrenia. L. J. Meduna, F. J. Gesty, and V. G. Urse (*Arch. Neurol. Psychiat.*, 1942, 47, 38—52).—An anti-insulin substance is shown in the blood of schizophrenic patients. The test used consists in injecting fasting rabbits with 20 c.c. of blood intraperitoneally and following the blood-sugar response to 1 unit of insulin. The lowering of blood-sugar in the first hr. is significantly greater for animals injected with blood of schizophrenics than for those with blood of normal subjects.
W. M. H.

Laurence-Moon-Biedl syndrome. N. L. Anderson (*J. clin. Endocrinol.*, 1941, 1, 905—911).—A case with complete autopsy is described. Chief features were: polydactylism, bilateral cataracts with blindness, bilateral genu valgum, hypospadias, hydronephrosis and hypertension with markedly increased basophil cells in the pituitary, colloid goitre with hypothyroidism, hyperparathyroidism secondary to renal insufficiency, decreased carbohydrate tolerance, obesity, and genital hypoplasia.
P. C. W.

Lack of effect of thyroxine on blood-sugar and glycogen stores of fasted hypophysectomised rats. V. V. Herring, H. Fraenkel-Conrat, and H. M. Evans (*Endocrinol.*, 1942, 30, 483—484).—Neither thyrotropic hormone nor thyroxine prevented hypoglycemia during fasting.
V. J. W.

Liver fats and glycogen of hypophysectomised rats on high-carbohydrate and high-fat diets. L. T. Samuels, R. M. Reinecke, and H. A. Ball (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 456—458).—The liver on a high-fat diet contains less carbohydrate than on a high-carbohydrate diet but it does not disappear so quickly on fasting. Hypophysectomised rats have less liver fat and more body fat than controls and their liver fats have a larger mol.
V. J. W.

Comparative diabetogenic action of hypophysis from various animals. B. A. Houssay, F. S. Smyth, V. G. Foglia, and A. B. Houssay (*J. Exp. Med.*, 1942, 75, 93—106).—The hypophysectomised dog with 4 g. of residual pancreas is the best mammal for test of diabetogenic action. Human anterior lobe extract in doses of 10—15 mg. per kg. body wt. per day is more diabetogenic than that of toad, rat, or chicken; blood-sugar over 150 mg.-% indicates diabetogenesis. Corticosterone (30, 40, or 60 mg. in 4 days), de-

oxycorticosterone (80 mg. and 200 mg. in 4 days), prolactin (100 mg. in 4 days), adrenotropic extract (Collip, 250 units), follicle-stimulating hormone (150 mg.), and luteinising hormone (100 mg.) were all diabetogenically negative. Hypophysectomised and pancreatectomised toads, the most sensitive biological reactors for testing diabetogenic action, show various hypophyseal extracts to have the following decreasing order of potency: man, dog, toad, white rat, guinea-pig, ox, serpent, and fish. A. C. F.

Extraction and assay of lactogenic hormone in post-partum urine. J. Meites and C. W. Turner (*J. clin. Endocrinol.*, 1941, 1, 918—923).—The lactogenic hormone content of urine may be assayed by the micro pigeon test if the urine be pptd. with alcohol or dialysed and concd. The urine of 10 normal lactating women during the first 2 weeks post-partum contained 4—12 i.u. of lactogen per day. The amount of lactogen in the urine was usually related to the amount of milk secreted. Pregnancy urine contained only $\frac{1}{16}$ as much lactogen. P. C. W.

Increased liver-arginase on administration of adrenocortical and corticotropic hormones. H. Fraenkel-Conrat and H. M. Evans (*Science*, 1942, 95, 305—306).—The arginase content of hypophysectomised rat livers was raised by 15 daily injections of pituitary extracts rich in adrenocorticotrophic activity or of cortin. This supports the view that the adrenal cortex plays a predominant rôle in hormonal control of gluconeogenesis. E. R. S.

Diabetic dwarfism. R. Wagner, P. White, and I. K. Bogan (*Amer. J. Dis. Child.*, 1942, 63, 667—727).—A classification of 118 retarded diabetic children according to causation showed hypopituitary-like dwarfism, 55%; constitutional type 11%, undernutrition 2.5%; congenital anomalies 1.7%, neglect 0.9%, and tertiary syphilis 0.9%. The clinical picture of hypopituitary-like diabetic pseudodwarfism is described in detail. The average incidence among all juvenile diabetic patients is 4.6%. Essential symptoms are stunted stature, abnormal proportions, delayed differentiation, and hypogenitalism. The best therapeutic results are obtained by early and thorough treatment with an anterior pituitary extract containing the growth hormone and with thyroid. C. J. C. B.

Response to growth hormone of hypophysectomised rats when restricted to food intake of controls. W. Marx, M. E. Simpson, W. O. Reinhardt, and H. M. Evans (*Amer. J. Physiol.*, 1942, 135, 614—618).—Hypophysectomised rats treated with a purified growth hormone prep. from the anterior pituitary gained significantly more wt. than their untreated controls, when care was taken to secure an identical food intake, indicating increased deposition of tissue substance, not as a consequence of increased food intake, but through better utilisation of the consumed food. All internal organs examined were heavier in the groups treated with growth hormone. They grew at the same rate as did the body as a whole with the exception of the thymus, which grew considerably faster. T. F. D.

Assay of hypophyseal growth-promoting extracts employing rats treated with diethylstilbestrol. M. Griffiths and F. G. Young (*J. Endocrinol.*, Lond., 1942, 3, 96—106).—The technique of Freud and Levie (A., 1938, III, 902), which involves the measurement of the rate of tail elongation as an index of skeletal growth, was successfully applied to the assay of growth-promoting extracts of the anterior pituitary, both in normal female and in hypophysectomised male rats. Young rats stunted by stilbestrol implantation were injected with growth-hormone preps. The dose-body-wt. response curve was satisfactory but the resultant changes in body wt. and tail length were not proportional. P. C. W.

Amount of iodine in blood and urine in patients with diabetes insipidus. H. Blotner (*Amer. J. med. Sci.*, 1942, 203, 708—717).—In 15 untreated patients with diabetes insipidus with polydipsia and polyuria, blood-I was 5.8 $\mu\text{g.-%}$ (range 3.0—12.6); the 24-hr. excretion of I in the urine was 0.319 mg. (range 0.028—0.936 mg.). When pituitrin was administered, blood-I was 9.4 $\mu\text{g.-%}$ (range 4.2—17.8) and the 24-hr. excretion of I in the urine was 0.189 mg. (range 0.078—0.466 mg.). The relation of org. to inorg. blood-I was normal. C. J. C. B.

Pitressin-inhibiting substance in serum of patient with transient diabetes insipidus. R. B. Rutherford and J. Q. Griffith (*J. clin. Endocrinol.*, 1941, 1, 916—917).—A case is described with recurring bouts of diabetes insipidus and spontaneous recovery; 3—4 bouts occur per year. During the diabetic phases the patient's serum inhibits the anti-diuretic action of pitressin; during the phases of remission the serum exhibits antidiuretic activity itself. P. C. W.

Elimination of pars nervosa without eliciting diabetes insipidus. A. D. Keller (*Endocrinol.*, 1942, 30, 408—422).—It was found possible in dogs and cats to remove the whole hypophysis, or to cut its connexion with the hypothalamus, without causing diabetes insipidus provided that the hypothalamus was itself uninjured. Section of the nerve connexion between the hypothalamus and the infundibulum does not always cause degeneration of the cells of the supraoptic nuclei. V. J. W.

Isolation of a protein from pars neuralis of ox pituitary with constant oxytocic, pressor, and diuresis-inhibiting properties. H. B. Van Dyke, B. F. Chow, R. O. Greep, and A. Rothen (*J. Pharm. Exp. Ther.*, 1942, 74, 190—209).—The isolation of a protein from frozen posterior lobes of oxen is described. Evidence that the protein is pure is shown by const. solubility and by "schlieren" patterns in the ultracentrifuge. The mol. wt. is about 30,000. The isoelectric point is $p_{\text{H}} 4.8$. Elementary analysis showed C 48.64, H 6.63, N 16.32, NH_2 0.054, P 0.027, S 4.89, Cl 0.02, ash 0.58, O (by difference) 22.89%. S is present almost entirely as part of cystine. Oxytocic, vasopressor, and diuresis-inhibiting activities are all present in ratios resembling those of U.S.P. standard. 10 $\mu\text{g.}$ of N or 61 $\mu\text{g.}$ of solids are equiv. to 1 U.S.P. unit. Reduction of the cystine in the protein by thioglycolic acid nearly abolishes the activity. H. H. K.

Effect of pressor and oxytocic fractions of pituitary extract on loss of water administered to rats. E. M. Boyd and N. D. Garand (*Endocrinol.*, 1942, 30, 433—436).—In young rats which received by mouth 5% of their wt. of water, retention was brought about by min. doses of 0.005 c.c. per kg. of pitressin and 0.05 c.c. per kg. of oxytocin. V. J. W.

XII.—REPRODUCTION.

Intrinsic expansibility of fertilisation membrane of echinoderm ova. R. Chambers (*J. Cell. Comp. Physiol.*, 1942, 19, 145—150).—Enlargement of the membrane after fertilisation is due to growth and not to distension. V. J. W.

Growth and sex hormones. M. A. Goldzieher (*J. clin. Endocrinol.*, 1941, 1, 924—927).—Excessive growth was successfully curbed by oestrogen treatment in a girl and by androgen treatment in a boy. Growth was accelerated by androgen treatment in 9 male adolescents and in 2 female cases of infantilism and one of nanosmia by stilbestrol treatment. P. C. W.

Intersexuality. A. I. Weisman and A. Schwarz (*J. Amer. Med. Assoc.*, 1941, 117, 2248—2251).—A patient with unusual intersexuality had all the appearances of a female but the gonads were abnormally retained immature testes and there was no ovarian tissue or uterus (shown at operation). The blood and urine concns. of oestrogen and gonadotropin were normal. Oestrogen therapy produced enlargement of the breasts and stimulated sexual desire, previously absent. C. A. K.

Effect of oestradiol benzoate on serum-lipin of rats on a high-fat diet. H. G. Loeb (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 340—342).—Male rats on a diet containing 71% of fat without unsaturated fatty acids, and receiving 5—30 $\mu\text{g.}$ of oestradiol benzoate daily for 4 weeks, had a blood-lipin content of 531—566 mg.-% as against 351 mg.-% in controls on the same diet. V. J. W.

Action of oestrone on uterus of guinea-pigs; synergism between oestrone and pituitrin. J. Fontes, B. Pereira, and K. Gomes (*Arch. Port. Sci. Biol.*, 1938, 4, 148—154).—Both spontaneous and pituitrin-evoked contractions of the isolated uterus of ovariectomised guinea-pigs are enhanced following oestrone treatment (26,000—60,000 i.u. of oestrone for 3—8 days). I. C.

Blood-oestrogenic hormone determinations in premenstrual asthma. G. L. Waldbott and L. J. Bailey (*J. Allergy*, 1942, 13, 125—134).—63% of blood-oestrogen determinations on 79 allergic patients were negative (*i.e.*, relative oestrogen deficiency) compared with 5% in 42 non-allergic women. Administration of large doses of theelin and lipolutin premenstrually only benefited a few patients who had symptoms exclusively before and during the menstruation. C. J. C. B.

Oestrogen implantation for menopause. U. J. Salmon, S. H. Geist, and R. I. Walter (*J. Amer. Med. Assoc.*, 1941, 117, 1843—1849).—Implantation with loose crystals and compressed pellets of α -oestradiol, α -oestradiol benzoate, and α -oestradiol dipropionate was performed in 180 menopausal patients. Symptomatic relief was produced for several months and in a few cases for 2 years; the duration of oestrogenic activity, as measured by proliferative changes in endometrium and vagina and by the duration of suppression of gonadotropic hormone excretion, averaged about 6 months. Similar dosage of the hormones in oil, injected into 18 patients, produced effects lasting less than 2 months. Loose crystals are more effective than compressed pellets of the same compound. Oestradiol was the most effective substance implanted subcutaneously in doses of 10—25 mg. of the loose crystals. Undesirable clinical effects were tenderness and pain in the breasts and uterine bleeding; there was no evidence of any carcinogenic action on breasts or genital tract. C. A. K.

Biologic assay of blood-oestrogens by intravaginal application of extracts and desiccated material. A. S. Albrieux (*J. clin. Endocrinol.*, 1941, 1, 889—892).—Amounts of oestrogen equiv. to 5—50 i.u. of oestrone per 100 ml. were found in acetone-ether extracts of whole blood from patients with various gynaecological disorders when tested by intravaginal application in spayed rats. Vals. 3 times higher were obtained by inserting a tablet of dried blood mixed

with 10% of sesame oil into the vagina. The tablet was absorbed within 24 hr. P. C. W.

Distribution of oestrogens in blood of pregnant and non-pregnant women. A. S. Albriex (*J. clin. Endocrinol.*, 1941, 1, 893—894).—Oestrogen content of blood cells and serum was determined by insertion of pellets of the dried material in the vagina of spayed rats. In non-pregnant women the blood cells contained twice as much oestrogen as the serum per unit vol. In the pregnant women the oestrogen was equally distributed. There was no difference between the oestrogen content of red cells alone or of a mixture of red and white cells in either pregnant or non-pregnant women. P. C. W.

Control of menopausal symptoms with oestradiol benzoate. E. G. Waters (*J. clin. Endocrinol.*, 1941, 1, 895—898).—Analysis of 40 cases. P. C. W.

Relation of dose and type of oestrogen to nausea and vomiting. R. R. Greene and E. M. Dorr (*J. clin. Endocrinol.*, 1941, 1, 821—823).—127 patients were treated with oral stilbœstrol (0.1—2 mg. daily) and 136 with parenteral stilbœstrol dipropionate (0.5—10 mg. daily). In both series the % of cases with nausea and vomiting was proportional to the dosage. P. C. W.

Diethylstilbœstrol. C. M. MacBryde, D. Castrodale, E. Loeffel, and H. Freedman (*J. Amer. Med. Assoc.*, 1941, 117, 1240—1242).—Diethylstilbœstrol gave good relief of hypogonadal symptoms in 128 of 150 women (85%), complete restoration of the normal vaginal smear not usually being necessary to insure max. subjective improvement. Interrupted is better than continuous therapy in most cases, e.g., 1 mg. daily by mouth for 14—21 days each month, and good responses may sometimes be obtained by 0.3—0.5 mg. daily. Studies of liver function, blood, and urine showed no evidence of toxic effects. Nausea occurred in 20% of cases given continuous, and in 8.5% of cases given interrupted, therapy. C. A. K.

"Stilbœstrol" and "diethylstilbœstrol." Council on Pharmacy and Chemistry (*J. Amer. Med. Assoc.*, 1941, 117, 1625).—The name "stilbœstrol" should apply to 4:4'-dihydroxystilbene and the name "diethylstilbœstrol" to 4:4'-dihydroxy- $\alpha\beta$ -diethylstilbene. C. A. K.

Cushing's syndrome treated with stilbœstrol. A. E. Rakoff, A. Cantarow, and K. E. Paschkis (*J. clin. Endocrinol.*, 1941, 1, 912—915).—2 female cases of Cushing's syndrome were treated with stilbœstrol (1—1.5 mg. daily). The first showed marked improvement with reduction of blood pressure, return of glucose tolerance to normal, and reduction of androgen excretion; the symptoms recurred after 3 months' treatment. The other (milder) case showed persistent improvement during a year's treatment with a return of normal menstrual function, some loss of wt., and reduced obesity and body-hair. P. C. W.

Treatment of recurrent and threatened abortion. J. Kotz, E. Parker, and M. S. Kaufman (*J. clin. Endocrinol.*, 1941, 1, 838—849).—The series comprised 226 cases, of which 42 were treated prophylactically for recurrent abortion or primary sterility. Of 184 cases of threatened abortion 139 were treated. Treatment consisted of twice-weekly injections of 1 mg. of progesterone for the first 3 months in the prophylactic group and once- or twice-daily injections of 1—5 mg. in the cases of threatened abortion. 33 of the prophylactic group went to term with no bleeding, 4 bled and had premature delivery, and the remaining 5 cases aborted. In the cases of threatened abortion receiving treatment 64 went to term, 10 were premature, and 65 aborted; there were 17 abortions in the control group of 42. In the cases of threatened abortion the incidence of abortion was higher the longer was the duration of bleeding. P. C. W.

Double uterus with pregnancy. G. C. Schaffler (*J. Amer. Med. Assoc.*, 1941, 117, 1516—1520).—The course of 32 pregnancies in 11 patients with duplex anomalies of the uterovaginal tract is described. Fertility was high but abortions were frequent (in 17 pregnancies). C. A. K.

Effect on urogenital sinus of mouse embryos of sex hormones injected into mother during gestation. A. Raynaud (*Compt. rend.*, 1941, 213, 187—189).—Testosterone propionate and dehydroandrosterone injected into pregnant mice cause abnormal development of female fœtuses which consequently acquire urogenital organs similar to those of males. Injections of oestradiol dipropionate and dehydrostilbœstrol cause abnormal development of the urogenital sinus so that male fœtuses acquire organs similar to those of females, and in female fœtuses normal development of the urogenital organs is inhibited, possibly because part of the injected hormone is transformed into an androgenic or bisexual substance. When testosterone propionate and oestradiol dipropionate are injected simultaneously, male fœtuses retain a male urogenital sinus and female fœtuses are usually masculinised (although female characteristics are often retained) if the dose of male hormone is not greater than 7 mg. and that of the oestrogenic hormone is 1—4 mg. When the dose of male hormone is 25—10 mg. and that of

the oestrogenic hormone is 7.5—14 mg., the urogenital sinus acquires masculine form in fœtuses of both sexes. W. McC.

Management of primary amenorrhœa in hypopituitarism. E. A. Ornstein (*J. clin. Endocrinol.*, 1941, 1, 899—904).—4 cases and their treatment are described. Cyclic bleeding with development of secondary sexual characters and psychological benefit were produced by continuous oestrogen (oestradiol) injections with spaced progesterone injections. Implantation of an oestradiol benzoate tablet with oral pregnenolone was also effective. Stopping the injections or substitution of gonadotrophin therapy (pregnant mares' serum, chorionic or pituitary gonadotrophins alone or in combination) caused cessation of cyclic bleeding and regression of secondary characters. P. C. W.

Androgenic and oestrogenic substances in urine of eunuchoid and castrate men. J. B. Hamilton, R. I. Dorfman, and G. R. Hubert (*J. Lab. clin. Med.*, 1942, 27, 917—927).—The average daily androgenic activity of the urine of 7 eunuchoids (18.8 i.u.) was less than $\frac{1}{2}$ that of normal young men; that of 4 castrates was still lower (7.7 i.u.). The average daily oestrogenic activity of the urine was also subnormal (27.4 in eunuchoids, and still less in castrates). Daily injection of 20 mg. of testosterone propionate increased urinary androgens to normal. Urinary oestrogenic activity was also increased as a result of conversion of testosterone into phenolic oestrogenic substances. Recovery in the urine of the administered androgen following intramuscular injections in oil is less than that obtained on implantation of pellets of testosterone propionate, but is greater than that occurring after ingestion. C. J. C. B.

Endocrine treatment of cryptorchidism. W. O. Thompson and N. J. Heckel (*J. Amer. Med. Assoc.*, 1941, 117, 1953—1956).—If cases of pseudocryptorchidism (migratory testis) are excluded, treatment of undescended testes with chorionic gonadotropin is successful in 25% of cases. The majority of good results were obtained with testes which were inside the inguinal canal or between the lower end of the canal and the scrotum; descent was rarely seen with intra-abdominal testes. Although testes which descend after endocrine therapy would probably come down at puberty in any case, it is desirable to give treatment as early as possible so that the testis may grow in its normal environment, the scrotum, and even if glandular therapy fails, from mechanical obstruction to descent, operation can follow at once under optimum conditions for success. C. A. K.

Peroral use of methyltestosterone. S. A. Vest and B. Barelare (*J. Amer. Med. Assoc.*, 1941, 117, 1421—1424).—Methyltestosterone (20—30 mg. daily) was effective when given by mouth to a 48-year-old castrate and a 39-year-old eunuchoid for 18—20 months. Changes in genitalia etc. were comparable with those produced by subcutaneous injection of testosterone propionate. Toxic effects were negligible. C. A. K.

Angenital pruritus in male climacteric: treatment with testosterone propionate. R. Turell (*J. clin. Endocrinol.*, 1941, 1, 851—852).—A successful case. P. C. W.

Pubertal increase in response of accessory sex organs to steroid hormones. H. Selye and S. Albert (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 361—363).—In male rats castrated before puberty ethinyltestosterone stimulates the accessory sex glands more than Δ^5 -androstenediol. The reverse is the case if castration takes place after puberty. V. J. W.

Effect of various androgens on regenerating anal fin of adult *Platycephalus maculatus* females. C. Grobstein (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 477—478).—Descending order of effectiveness is androsterone, testosterone propionate, and methyltestosterone. V. J. W.

Creatine-creatinine metabolism in older patients with benign prostatic enlargement [relation to androgen deficiency]. M. B. Sutton (*J. clin. Endocrinol.*, 1941, 1, 882—888).—The retention of creatine in the 24 hr. after the oral administration of 2 g. of creatine hydrate is above 70% in young males, and elderly normal or prostatic patients. The creatinine-N coeff. is lowered in old age. There is no evidence of androgen deficiency in prostatic disease. P. C. W.

Androgen therapy in gynaecology. S. H. Geist and U. J. Salmon (*J. Amer. Med. Assoc.*, 1941, 117, 2207—2215).—Testosterone, testosterone propionate, and methyltestosterone were given to 422 women, normal and with various gynaecological disorders. Testosterone propionate in doses of more than 500 mg. monthly suppresses gonadotropin production by the pituitary and so influences follicle growth, ovulation, and dependent uterine and vaginal changes; such doses also produce masculinising effects, e.g., hypertrichosis, acne, deepening of the voice, and slight enlargement of the clitoris. Androgens in doses of less than 300 mg. monthly were effective in the treatment of functional menorrhagia, functional dysmenorrhœa, premenstrual tension, premenstrual mastopathies, postpartum engorgement of the breasts, and certain types of menopause syndrome and only rarely produced arrhen-

mimetic (masculinising) effects. It is suggested that the conditions which responded were due to a disturbance of the normal androgen-œstrogen balance.
C. A. K.

Near-fatal reaction to pregnant mare serum. W. Bickers (*J. clin. Endocrinol.*, 1941, 1, 852—853).—A patient collapsed after an intravenous injection. Preliminary skin test is advocated.
P. C. W.

Gonadotropic hormone: urine assays during menstrual cycle in normal women. E. J. Heller (*J. clin. Endocrinol.*, 1941, 1, 813—820).—Gonadotropin content of the daily urine excreted by 19 normal women during 22 menstrual cycles was assayed. The gonadotropin was pptd. with alcohol and injected into immature rats; uterine and ovarian wts. were criteria of gonadotropic activity. Gonadotropin was excreted at low levels throughout the cycle and there were periodic increases during the cycle in all but 1 case. The time, no., and magnitude of the increases were inconst.
P. C. W.

Normal and pathological proliferation in breast with special reference to cystic disease. H. Ingleby (*Arch. Pathol.*, 1942, 33, 573—588).—A description of varieties of normal and cystic proliferation. (18 photomicrographs.)
C. J. C. B.

XIII.—DIGESTIVE SYSTEM.

Case of Plummer-Vinson syndrome with ulcer œsophagi pepticum. A. Elkeles (*Brit. J. Radiol.*, 1942, 15, 122—123).—An associated hyperchromic œmia yielded to treatment with Fe and injections of liver, the dysphagia disappeared, and the œsophageal ulcer healed. Achlorhydria was also present.
E. M. J.

Radiological observations on post-cricoid obstruction. A. S. Johnstone (*Brit. J. Radiol.*, 1941, 14, 177—180).—A post-cricoid web was seen on screening during Ba-swallow in 4 cases of sideropenic dysphagia.
E. M. J.

Modification of method of Hollander and Jemerin for making Pavlov pouches. R. A. Gregory, G. A. Hallenbeck, and C. F. Code (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 400—403).—The original method (A., 1939, III, 62) is modified so that the posterior wall of the stomach is untouched and little damage is caused to the nerves of the anterior wall. The stomach becomes subdivided by a mucous membrane partition, parallel to the greater curvature, and a rubber catheter can be left in the pouch. Stages are illustrated by drawings.
V. J. W.

Rate of emptying of rat's stomach following intragastric administration of glucose solutions. H. B. Pierce, L. F. Haeghe, and P. F. Fenton (*Amer. J. Physiol.*, 1942, 135, 526—530).—Intragastric 50% solutions of glucose in pentobarbital-anæsthetised rats are diluted rapidly by fluid secreted by the stomach and duodenum; the final concn. of glucose in the stomach is 20%. Rate of gastric discharge decreases with time; it is rapid for the first 15 min. and then decreases, reaching a const. state after 45 min.
M. W. G.

Chronic alcoholic gastritis. L. H. Berry (*J. Amer. Med. Assoc.*, 1941, 117, 2233—2238).—Gastroscopic studies in 100 chronic alcoholics of long standing showed that 30% had no signs of gastritis, 35 had mild superficial gastritis, and 35 had unequivocal chronic gastritis.
C. A. K.

Gastric motility in disease. F. E. Hamilton and G. M. Curtis (*J. Amer. Med. Assoc.*, 1941, 117, 2228—2233).—Balloon recording showed hypermotility of the stomach during late postoperative nausea, "gas pains," "pylorospasm" due to obstructive duodenal ulcer, biliary colic, and in other conditions, and was associated with varying degrees of clinical discomfort. Atropine produced hypomotility and relieved symptoms.
C. A. K.

Acute gastric ulcer after exposure to sulphur dioxide gas [in mouse and guinea-pig]. F. R. Weedon (*N.Y. Sta. J. Med.*, 1942, 42, 620—623).—No changes were seen in the stomach after continued exposure to an atm. containing less than 65 p.p.m. of SO₂. With 100 p.p.m. the stomach was distended and in 2 cases there were large perforations. 150 p.p.m. caused distension of the stomach of the guinea-pigs within 48 hr. 15% of the animals that died showed multiple ulcers from pin-point size to 0.3 cm. diameter. With 300 p.p.m. all animals showed larger and more numerous ulcers with subjacent hæmorrhages. 1000 p.p.m. caused distension of the stomach within 3 hr. and at the 50% lethal point (23.5 hr. for guinea-pigs and 4.3 hr. for mice) the guinea-pig stomachs showed multiple small ulcers and hæmorrhages whereas in mice the lesions were rare and pin point in size.
E. M. J.

Kaolin granuloma of stomach. A. L. Cohn, A. S. White, and H. B. Weyrauch (*J. Amer. Med. Assoc.*, 1941, 117, 2225—2227).—Gastroscopy showed in a patient who had taken kaolin for a long time a prepyloric tumour which microscopical studies showed to be a granuloma with the type of foreign body giant cell present in the lesions of silicosis. SiO₂ was found in the gastric tissues. Similar lesions were produced in rabbits by SiO₂ irritation.
C. A. K.

Nitrogen content and total osmotic activity of gastric juice. N. Lifson, R. L. Varco, and M. B. Visscher (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 410—415).—N was determined in the samples previously described (A., 1942, III, 29). Pilocarpine juice has lower osmotic pressure and more N than histamine juice, and juice from a pyloric pouch is richest in N. There is partial correlation between N content and osmotic pressure.
V. J. W.

Digestion of protein by gastric mucus. N. V. Timofeev (*Vses. Inst. Exp. Med., K Neuro-Hum. Reg. Sekr. Shel.*, 1936, 113—123).—Alkaline gastric mucus collected from Pavlov pouches or stomach fistulæ of dogs, before feeding, had no peptic activity but acquired it on acidification with HCl. Probably the enzyme is, or accompanies, a N-containing compound not higher than a simple polypeptide. The digestive activity depended specifically on HCl (optimum pH 1.0, or 2.0 for ash-free prep.); extraction with ether, alcohol, or CHCl₃, or addition of Mg, K, Na, or Ca ions (decreasingly), destroyed the activity.
Ch. Abs. (el)

Determination of trypsin in duodenal contents with Evelyn colorimeter. R. Kolm, H. Shay, J. Gershon-Cohen, and H. Siple (*J. Lab. Clin. Med.*, 1942, 27, 835—839).—The method of Anson and Mirsky (A., 1934, 111) is modified for use with the Evelyn photocolormeter.
C. J. C. B.

Pancreatic enzymes in duodenal juice in œliac syndrome. D. H. Andersen (*Amer. J. Dis. Child.*, 1942, 63, 643—658).—Trypsin is present in normal amounts in the duodenal juice of patients with other varieties of the œliac syndrome and of normal infants. It is present in smaller amounts in extreme marasmus and is always low or absent in congenital pancreatic deficiency. Amylase may occasionally be present in patients with pancreatic fibrosis, because of the failure of salivary amylase to be destroyed in passing through the stomach. Lipase is present in normal infants of all ages. The concn. is reduced in congenital pancreatic deficiency, but the assay is less reliable for diagnosis because of low vals. in occasional control cases and technical difficulties. Determination of serum-amylase is of no val. in the diagnosis of congenital pancreatic deficiency. In 3 patients with severe marasmus the trypsin, amylase, and lipase levels were all depressed but returned to normal with clinical improvement.
C. J. C. B.

Motility and response of great omentum. I. Fluoroscopic observations on omental activity of dogs. R. E. Rothenberg and P. Rosenblatt (*Arch. Surg., Chicago*, 1942, 44, 764—771).—By observing the movements of radiopaque clips fixed to the free border of the omentum it was found that the omentum has no intrinsic motile power. Respiration caused slight longitudinal movement, vomiting and defæcation none, and hyperperistalsis produced marked longitudinal and lateral movements. The omentum showed no response to the insertion of foreign bodies or virulent *B. coli* in the peritoneal cavity.
F. S.

Form of absorption of protein from alimentary tract and further fate of products of absorption. E. S. London and N. P. Kotschneva (*Arch. sci. biol. U.S.S.R.*, 1935, 37, 3—25).—In dogs no amino-acids are produced and protein substances absorbed in the stomach. In the duodenum protein digestion partly reaches the amino-acid stage, which increases in the small intestine, throughout the length of which higher polypeptides are found. The extent of digestion at any level varies with the kind of protein involved. Non-biuret peptides appear in the blood. Protein digestion products passing into the blood vary according to the composition of the chyme and to some extent retain their characteristic properties. The peptide coeff. [polypeptide-N × 100/(amino-N + polypeptide-N)] of the chyme of the small intestine differs little from that of portal blood. During absorption across the intestinal wall the amino-acids are partly taken up by the red blood cells. In passing through the liver blood-polypeptide concn. increases. Diketopiperazine injected intravenously is not split in passage through organs, only an increase in blood-polypeptide being observed. In endogenous nutrition of the body during starvation amino-acids and peptides are furnished to the blood by proteolysis mainly in the spleen and muscles.
Ch. Abs. (el)

Absorption of water from intestine and its distribution in the organism. N. N. Zaiko (*Arch. sci. biol. U.S.S.R.*, 1935, 39, 219—225).—Experiments with angiotomised dogs indicate that increase in water content of portal blood over arterial (average 0.3—0.4%) depends on the amount and method of administration.
Ch. Abs. (el)

(A) Two stages of bowel distension: study of bowel injury by distension and its effect on volume and concentration of blood. (B) Effect of asphyxia caused by bowel distension on concentration of blood. W. D. Gatch and J. S. Battersby (*Arch. Surg., Chicago*, 1942, 44, 108—118, 319—326).—In dogs prolonged distension of the stomach and the small bowel with a pressure of 22 mm. Hg, which is too low to cause local damage, resulted in death within 3 hr. Death is caused by anoxia due to interference with respiration. Hæmoconcn. may occur and death may then be delayed by the administration of plasma.
F. S.

Digestion of straw by ruminant. R. A. McAnally (*Biochem. J.*, 1942, **36**, 392—399).—Wastage of straw constituents during digestion by the sheep is not due to intrinsic non-digestibility, but to the association of constituents to give material which is not digested by the bacteria of the rumen. Pretreatment with alkali (soaking in aq. 1.5% NaOH or KOH for 24 hr.) increases digestibility of the pentosan-polyuronide and lignin fractions, but the faecal residue of a sheep fed on such pulp is still 30% digestible. Anaerobic fermentation with rumen cultures to obtain increased content of volatile acids may be useful in increasing the utilisation of straw.

P. G. M.

Microbial synthesis and autolysis in digestive tract of herbivora. F. Baker (*Nature*, 1942, **149**, 582—583).—Several agencies cooperate to a varying degree in different herbivora in the elimination of iodophile micro-organisms, ingestion and digestion of protozoa, action of digestive enzymes, and bacterial autolysis. The mode of elimination in ruminants is more complex than in non-ruminants. Most simply, elimination may be effected by bacterial autolysis alone.

E. R. S.

Experimental production of halitosis. B. B. Crohn and R. Drosd (*J. Amer. Med. Assoc.*, 1941, **117**, 2242—2245).—Experiments on the production of halitosis were performed on a patient who had a colostomy and an ileostomy and in whom a gastric tube was passed for feeding. Administration of raw garlic extracts through the stomach produced a garlic odour in the breath after 2—3 hr., i.e., after absorption from the small intestine; the odour persisted for more than 40 hr. and was present for 24 hr. after stomach, ileum, and colon were free of odour. Painting the patient's teeth with garlic extract produced halitosis lasting 1 hr. only. Thus the persistence of odours of volatile substances such as garlic, paraldehyde, and methyl salicylate occurs only after absorption and excretion via the lungs as confirmed by administration of the substance in capsules. The substances are apparently stored for some time in the liver after absorption as patients with biliary fistulae showed an odorous bile as long as there was an odour in the breath. It is suggested that halitosis is frequently due to pulmonary excretion of malodorous products of fat metabolism (when all local causes in the mouth have been excluded).

C. A. K.

XIV.—LIVER AND BILE.

Diagnostic value of Takata-Ara reaction. T. R. Waugh and R. D. McKenna (*Amer. J. med. Sci.*, 1942, **203**, 722—726).—From 300 tests the reaction is considered of considerable val. as a liver function test.

C. J. C. B.

Composition of liver. G. M. Bourke and J. D. Stewart (*Arch. Path.*, 1942, **33**, 603—606).—Different parts of the liver show at autopsy a fairly high uniformity of composition with respect to water content, fatty acids, and free and total cholesterol. The distribution of vitamin-A is more uneven.

C. J. C. B.

Fatty changes in liver from different causes. S. J. Thannhauser and H. Reinstein (*Arch. Path.*, 1942, **33**, 646—654).—It is possible by analytic partition of the lipins to differentiate between fatty infiltration and fatty degeneration. In the former, vals. for hepatic neutral fat were raised and although cholesterol and phospholipins were relatively low, their mutual proportions were maintained. In the latter, however, the increase of neutral fat is less marked, the chief change being an alteration of the proportion between the cholesterol and other lipins.

C. J. C. B.

Occurrence of strong reducing agents in Kupffer stellate cells of rat liver after adrenalectomy. G. Wolf-Herdegger (*Z. Vitaminforsch.*, 1942, **12**, 24—52).—In intact healthy rats these cells have little or no power to reduce AgNO₃ but they acquire this power strongly as a result of adrenalectomy. The effect of adrenalectomy is less pronounced in mature than in young rats but the difference disappears if the mature rats are castrated. Power to reduce AgNO₃ acquired as a result of adrenalectomy is not necessarily due to the presence of ascorbic acid. Results of chemical determinations of the vitamin-C contents of the liver, spleen, adrenals, kidneys, intestines, and brain of young and adult intact and adrenalectomised rats on various diets are recorded.

W. McC.

Clinico-pathologic correlation between hepatic damage and plasma-prothrombin concentration. N. J. Sweet, S. P. Lucia, and P. M. Aggeler (*Amer. J. med. Sci.*, 1942, **203**, 665—668).—In general, the prothrombin concn. in 42 patients was normal when there was little or no destruction of the parenchymal tissue of the liver at operation or autopsy and it was diminished when there was moderate or marked destruction of tissue.

C. J. C. B.

Estrogens and liver. R. S. Teague (*J. Amer. Med. Assoc.*, 1941, **117**, 1242—1243).—Diethylstilboestrol or oestradiol (0.01 mg. per kg. daily for 2—12 weeks) produced perinuclear vacuolation in the peripheral cells of the liver lobule in the rat. There were no signs of inflammation, necrosis, or cirrhosis. Attempts to demonstrate fatty degeneration were negative, but Best's carmine and Mayer's

hæmalum revealed numerous pink clumps of glycogen in the vacuolated areas.

C. A. K.

Intensive carbohydrate therapy in diabetic patients with liver disease. C. D. Strouse, E. E. Rosenbaum, R. C. Levy, and S. Soskin (*J. clin. Endocrinol.*, 1941, **1**, 831—835).—2 diabetic patients developed cholecystitis with liver damage and were treated by surgical removal of the gall bladder combined with a high carbohydrate intake. Carbohydrate tolerance was markedly improved. 6 diabetic patients with unexplained loss of carbohydrate tolerance but no overt signs of liver damage yielded laboratory evidence of liver dysfunction in 4 cases. On treatment with high-carbohydrate diet + insulin the carbohydrate tolerance was improved in all but 1 case.

P. C. W.

Excretion of radioactive calcium and strontium in bile. D. M. Greenberg and F. M. Troescher (*Proc. Soc. Exp. Biol. Med.*, 1942, **49**, 488—491).—In rats with biliary fistula which received intraperitoneal injections of radioactive Ca and Sr lactates, and bile solutions by stomach tube, about 5% of these metals was excreted in the bile in 3 days as against 20% in other excretions.

V. J. W.

XV.—KIDNEY AND URINE.

Correlation between secretory power of frog kidney and molecular configuration of organic compounds. R. Höber, P. M. B. Woolley, J. W. Green, and M. Zimmermann (*J. Cell. Comp. Physiol.*, 1942, **19**, 183—191).—Naphthalenemonosulphonates are concn. by frog kidney; disulphonates and aminobenzenesulphonates are not, but duplication of the benzene ring allows concn. Replacing the terminal SO₃Na by SO₃NH₂ diminishes or abolishes secretory transfer.

V. J. W.

Effect of food on glomerular filtration rate and renal blood flow in the seal, *Phoca vitulina*. E. P. Hiatt and R. B. Hiatt (*J. Cell. Comp. Physiol.*, 1942, **19**, 221—227).—Renal plasma flow and filtration rate increase after feeding, but the plasma filtered at the glomerulus (diodrast : creatinine clearance) remains const. The max. rate of tubular reabsorption of glucose does not decrease with filtration rate; the stimulus to increased renal blood flow is not available water, but food protein.

V. J. W.

Renal function in the seal during asphyxial ischaemia and pyrogenic hyperaemia. S. E. Bradley and R. J. Bing (*J. Cell. Comp. Physiol.*, 1942, **19**, 229—237).—During diving and apnoea, renal plasma flow and glomerular filtration decrease while diodrast : creatinine clearance remains const. Atropine abolishes diving bradycardia but not renal ischaemia. Injection of inulin causes a reduction, followed by an increase, in renal blood flow, with a reduced diodrast : creatinine clearance during the hyperaemic phase.

V. J. W.

Natural history of Bright's disease. A. Ellis (*Lancet*, 1942, **242**, 1—7, 34—36, 72—76).—A review.

C. A. K.

Osseous lesions due to chronic renal disease. S. Werner (*Arch. Kinderheilk.*, 1939, **118**, 145—161).—A girl, aged 2, with chronic pyuria and renal rickets showed postmortem chronic nephritis, diffuse hyperplasia of parathyroids, and von Recklinghausen's osteitis fibrosa.

H. L.

Metabolic studies of renal diabetes. R. Kortum (*Arch. Kinderheilk.*, 1939, **118**, 162—185).—A case is reported with data on various tolerance tests; the condition is attributed to a disturbance of autonomic centres.

H. L.

Prognosis of acute hæmorrhagic nephritis in childhood. G. E. Pittinos, J. D. Craig, and A. G. De Sanctis (*J. Amer. Med. Assoc.*, 1941, **117**, 1855—1858).—32 children who had acute hæmorrhagic nephritis were studied from 1 to 15 years after the attack and all were apparently normal except 1 with raised blood pressure.

C. A. K.

Anti-diuretic factor in normal pregnancy, and experimental production of apparently similar factor in non-pregnant animals. J. Q. Griffith, jun., R. A. Kimbrough, jun., H. O. Corbit, and E. Roberts (*Endocrinol.*, 1942, **30**, 542—550).—Rats received by mouth 5 c.c. of water per 100 g. and injections of human or rat serum. Such serum in pregnancy often contained an anti-diuretic substance, and in a certain strain of rats it was produced by injections of pituitary growth hormone (Squibb) or of pregnancy urine extract.

V. J. W.

Determination of indoxyl compounds in urine. A. P. Meiklejohn and F. P. Cohen (*J. Lab. clin. Med.*, 1942, **27**, 949—954).—A modification of Sharlit's method (A., 1933, 301) is described.

C. J. C. B.

Carbonate-apatite and hydroxy-apatite in urinary calculi. C. Frondel and E. L. Prien (*Science*, 1942, **95**, 431).—X-Ray diffraction and optical methods show that urinary calculi are composed largely of dahllite; small amounts of whewellite, wedellite, and struvite are found, and, rarely, hydroxy-apatite. The general formula is Ca₈(OH)₂(P,C)₆O₂₄(Ca,C)₄.

E. R. R.

Sulkowitch test for urinary calcium. G. C. Linder and J. M. Latsky (*Lancet*, 1942, 242, 105—106).—Nutritional studies in 114 children showed that the Barney and Sulkowitch test (*J. Urol.*, 1937, 37, 746) for approx. estimation of Ca excretion in urine by addition of buffered oxalate was not a reliable guide to the adequacy of Ca or P intake. C. A. K.

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

Physical therapy in internal medicine. G. M. Piersol (*J. Amer. Med. Assoc.*, 1941, 117, 1835—1839).—A review of the effects of massage, exercise, external heat, and hydrotherapy. C. A. K.

Amnioplastin for adherent digital flexor tendons. M. C. Pinkerton (*Lancet*, 1942, 242, 70—72).—4 satisfactory cases are reported. C. A. K.

Cervical exposure and abrasion in human teeth for different age classes. P. C. Kitchin (*Science*, 1941, 94, 65—66).—Abrasion was measured by the linear extent of the exposed dentine and the depth of the exposed part. The depth increased more rapidly with increasing age than the extent, and the occurrence of abrasion was closely correlated with the thoroughness of oral hygiene. E. R. S.

Phosphorescence of human teeth. J. de Ment (*Science*, 1941, 94, 90—91).—Green phosphorescence was excited in teeth of a living male by short- λ (ultra-violet) radiation, but not by longer, $\lambda\lambda$, e.g., 3600 Å. E. R. S.

Reduction of silver nitrate by testicle of young adrenalectomised rats. G. Wolf-Heidigger (*Z. Vitaminforsch.*, 1942, 12, 52—56).—The power of testicular tissue to reduce AgNO_3 is increased by adrenalectomy, so that, in rats of wt. approx. 50 g., almost all the interstitial cells acquire reducing power. In rats weighing approx. 70—90 g., the reducing power of the interstitial cells is equal to that in mature adult rats and the seminiferous tubules also acquire reducing power. W. McC.

Biology and cultivation of oysters in Australia. II. Calcium content of some East Australian waters. III. Biochemistry of the proximate constituents. G. Humphrey (*Counc. Sci. Ind. Res., Australia*, 1941, Pamphlet 111, 9—19, 21—40).—II. The Ca:Cl ratio of various E. Australian waters, and of Port Hacking water, at different depths and times is essentially const. The stunted growth of Port Hacking oysters is not due to this factor.

III. Oysters can be dried in a vac. at 90—100° without loss of glycogen or protein, and undergo no significant change in glycogen content when left out of water. Determinations of glycogen and meat wt. throughout the year show that glycogen does not determine fatness, but is a reserve food, being lowest at spawning. A method of sampling to obtain consistent results is proposed. A. Li.

Sterol fraction of Australian marine mollusca. P. Fantl (*Austral. J. Exp. Biol.*, 1942, 20, 55—58).—The mussel, *Mytilus planulatus*, contains varying amounts of cholesterol; compared with other food-stuffs, the bivalves are the richest source of provitamin-D. Mussels contain sterols having two double bonds, and two tetrabromoacetates, m.p. 170° and 176°, are described which are not identical with the corresponding derivatives of oystersterol and stigmaterol. The mol. wts. of these sterols are lower than that of stigmaterol. J. N. A.

Significance of anaerobic excretion of acid by *Cheironomus* larvæ. O. Harnisch (*Naturwiss.*, 1942, 30, 147—148).—Most or all of the acid produced anaerobically under water during 24 hr. by larvæ of *Cheironomus bathophilus* and *C. thummi* is excreted during the same period. Hence, the increased respiration, dependent on partial pressure of O_2 , which takes place during recovery after anaerobiosis is probably connected with the repair of damage incurred during anaerobiosis and not with regulation of the acid content of the organism. When anaerobiosis lasts for 48 hr. the acid content increases, especially in *C. thummi*, in which, during subsequent recovery, respiration is consequently disturbed. When the *C. thummi* larvæ are not under water during anaerobiosis, the changes produced occur more rapidly. W. McC.

Metric variations in populations of *Carcinus moenas*. G. Williams and A. E. Needham (*J. Marine Biol. Assoc.*, 1941, 25, 261—281).—Measurements of *C. moenas*, taken from 3 localities (no silt, moderate, much silt), show that the change in the ratio frontal width/carapace length as body size increases is due to differential growth and not to continuous removal through natural selection of those crabs with a wide frontal aperture. A successive diminution of the ratio in the 3 years of observation was found in the 3 Irish localities. The change in the ratio is not related to the accumulation of silt. The equation of simple allometry ($y = bx^a$) applies to the data. A. S.

Osmoregulation in some Palæmonid prawns. N. K. Panikkar (*J. Marine Biol. Assoc.*, 1941, 25, 317—359; cf. A., 1940, III, 226, 421, 852).—Blood of *Palæmonetes varians*, *Leander serratus*, and *L. squilla* shows osmotic pressures equiv. to 2.3, 2.8, and 2.6% NaCl, respectively, in an external medium of 3.5% NaCl. *P. varians* is isotonic in water of 2.0% NaCl and has a wide range of tolerance from fresh

water to conc. sea-water with 5.2% NaCl. *L. serratus* and *squilla* are less homoiosmotic than *P. varians* (homoiosmosis maintained up to 2.5% NaCl); the osmotic pressure steadily declines in lower dilutions of external medium. The gills are permeable to water and the body-wt. varies in accordance with the amount of water in the blood. Urine is nearly isotonic with blood, irrespective of the external salt concn. The osmotic pressures in dorsal and nephroperitoneal sac and in urinary bladder are identical. During moulting, the osmotic pressure of the blood slightly increases. Excretory cells in the gills may excrete salt. Ions can be actively absorbed when in hypotonic media and water can be transported against the osmotic gradient in hypertonic media. *L. serratus* and *squilla* are probably species which have taken secondarily to marine life. A. S.

Binomics and physiology of *Trebius caudatus* and *Lernaocera branchialis* (Copepoda). N. G. Sproston and P. H. T. Hartley (*J. Marine Biol. Assoc.*, 1941, 25, 393—417).—The rate of infection of *Raja* with *T. caudatus* is 20%, the larger fish being more infected than the smaller. The copepods collect near orifices on both surfaces of the fish where there is max. mucous secretion. There is an equal no. of male and female parasites. Gaseous exchange takes place through the gut wall; there is a peculiar two-way peristalsis. The anus of *Trebius* admits the external medium; *Lernaocera* has a closed anus and uses the host's blood for O_2 supply. There are wide variations in frequency and strength of intestinal peristaltic waves which are not synchronous in the 3 sections of the gut in *Trebius*. The max. no. of peristalses in *Trebius* was seen in the cephalothoracic section of the gut; the 3 sections of the gut work independently. There is practically no cephalothoracic gut in *Lernaocera* and abdominal peristalsis is not synchronous with that in the genital segment. The anterior centre has a depressant effect on the backward waves and is completely inhibited by subjecting the animal to low temp. There are 3 homologous autonomic centres in both species controlling stimulation and inhibition of peristalsis. *Lernaocera* feeds rarely and digestion is slow. Intake of blood from the host depends on the same mechanism which maintains osmotic equilibrium between the contents of the gut and the external medium. A. S.

Metabolic relations in termite-protzoa symbiosis: temperature effects. S. F. Cook and R. E. Smith (*J. Cell. Comp. Physiol.*, 1942, 19, 211—219).—The termite *Zootermopsis angusticollis* has a normal respiratory exchange, but gives off, besides CO_2 , small quantities of H_2 produced by an amoeba present in its gut. O_2 consumption increases with temp. up to 32°, but H_2 production has a max. at 16—24°, and is almost nil at 4°, when respiration and R.Q. indicate starvation of the termite by failure of the symbiotic amoeba. V. J. W.

XVII.—TUMOURS.

Factors influencing induction of pulmonary tumours in strain A mice by carcinogenic hydrocarbons. M. B. Shimkin and E. Lorenz (*J. Nat. Cancer Inst.*, 1942, 2, 499—510).—Suspensions of methylcholanthrene with particles 10—20 μ . are more effective than suspensions with particles 1—2 μ . when injected intravenously. The reaction depends on the amount of carcinogen deposited in the lungs. Tumours occur more readily in young than in old mice. The incidence is not influenced by the no. of injections but only by the total dose of carcinogen. It was not affected by simultaneous injection of trypan-blue. E. B.

Disappearance of intravenously injected methylcholanthrene in mice of different susceptibility to pulmonary tumours. E. Lorenz and M. B. Shimkin (*J. Nat. Cancer Inst.*, 1942, 2, 491—498).—Methylcholanthrene disappeared at the same rate from lungs and the whole body in both strain A (a susceptible strain) and strain C57 (a resistant strain) mice. E. B.

Metabolic products of 3:4-benzpyrene. I. Berenblum and R. Schoental (*Nature*, 1942, 149, 439—440).—The phenolic derivative of 3:4-benzpyrene ("BPX") and a red cryst. substance, similar to the 5:8-quinone, were isolated from faeces of rats which had received injections of benzpyrene intraperitoneally. E. R. S.

Penetration of ultra-violet radiation into skin as a factor in carcinogenesis. J. S. Kirby-Smith, H. F. Blum, and H. G. Grady (*J. Nat. Cancer Inst.*, 1942, 2, 403—412).—Mouse epidermis transmits some ultra-violet light with λ above 2400 Å. with an absorption band at 2700 Å. The absorption is much increased in skin which has been repeatedly irradiated. E. B.

Production of gastric lesions in rats by fasting, partial inanition, and deficiency of certain dietary constituents. H. P. Morris and S. W. Lippincott (*J. Nat. Cancer Inst.*, 1942, 2, 459—477).—Fasting or inanition tended to induce papillomata in the fore-stomachs of rats. Small amounts of any energy-producing food given frequently and particularly glucose and choline prevented gastric lesions. E. B.

Production of subcutaneous sarcoma by azo-dye and influence thereon of liver feeding. J. C. Turner and B. Mulliken (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 317—319).—Subcutaneous injections of

α -aminoazotoluene cause local development of sarcomata irrespective of liver feeding. V. J. W.

Procarcinogenic effect of biotin in butter-yellow tumour formation. V. du Vigneaud, J. M. Spangler, D. Burk, C. J. Kensler, K. Sugiura, and C. P. Rhoads (*Science*, 1942, 95, 174—176).—Rats fed on diets containing butter-yellow but protected by vitamin supplements from the carcinogenic action of butter-yellow developed no liver tumours. When biotin was added to the diets the incidence of liver tumours in the rats was 50%. E. R. S.

Induced biotin deficiency as possible explanation of observed spontaneous recessions in malignancy. W. L. Lawrence (*Science*, 1941, 94, 88—89).—Theoretical. E. R. S.

Transplantable malignant haemangioendothelioma of the liver in the mouse. J. E. Edwards, H. B. Andervont, and A. J. Dalton (*J. Nat. Cancer Inst.*, 1942, 2, 479—490).—The tumour occurred in a male C_3H mouse. Histologically it appeared benign but it could be transplanted and produced metastases. (6 figures.) E. B.

Character of changes occurring in course of transplantation of two strains of lung tumours in mice. C. Breedis, T. Robertson, R. S. Osenkop, and J. Furth (*Cancer Res.*, 1942, 2, 116—124).—Two transmissible tumours originating in adenoma of the lung of mice were investigated. One grew in the subcutaneous tissue, assumed a sarcoma-like appearance, and its growth rate became greatly enhanced. The second at first could only be transmitted intravenously. It retained its adenoma-like character in successive passages. F. L. W.

Methods for the separation of epidermis from dermis and some physical and chemical properties of isolated epidermis. J. P. Baumberger, V. Szentzeff, and E. U. Cowdry (*J. Nat. Cancer Inst.*, 1942, 2, 413—423).—Human epidermis was separated by treatment with alkaline solutions. Isotonic aq. NH_3 for 35 min. was most effective. Basal cells remained attached to the dermis. The epidermis of a rat and a papilloma of a mouse were removed by the same technique. Epidermis could also be removed by heating skin to 49–50°. Hyperplastic mouse skin epidermis and human breast epidermis removed by these methods had about the same respiration, which was less than that of mechanically removed tissue. E. B.

Extraction and ultracentrifugation of mammary tumour inciter of mice. W. R. Bryan, H. Kahler, M. B. Shimkin, and H. B. Andervont (*J. Nat. Cancer Inst.*, 1942, 2, 451—455).—Extracts of mammary tumours made with 5 vols. of 0.9% NaCl were fed to mice and induced tumours. The greater part of the "mammary tumour inciter" was centrifuged out of C_3H mouse milk with 60,000 g for 1 hr. The incidence of tumours in mice (measured in probits) treated with the "inciter" varies with the log of the dose given. E. B.

Factor in domestic rabbit papilloma tissue hydrolysing the papilloma virus protein. F. Bernheim, M. L. C. Bernheim, A. R. Taylor, D. Beard, D. G. Sharp, and J. W. Beard (*Science*, 1942, 95, 230—231).—Incubation of domestic rabbit papilloma tissue with virus protein gave an increase of amino-N over papilloma tissue alone. Virus protein is hydrolysed by papilloma tissue (other proteins are not) from domestic rabbits but not by cottontail rabbit papilloma tissue. E. R. S.

Ending partnership of neoplastic virus and carcinoma cells. J. G. Kidd (*J. Exp. Med.*, 1942, 75, 7—20).—A transplanted rabbit cancer (V.2 carcinoma), derived from a virus-induced papilloma, carries modified papilloma virus. A tumour grows as well in animals hyper-immunised against papilloma as in normals. Serologically it is associated with, and proportional to, the tumour cells. Extraneous "passenger" viruses are eliminated if their associated tumour is transplanted to an immunised host. A. C. F.

Experiments on cancerisation of cells *in vitro* by means of Rous sarcoma agent. L. Halberstaedter, L. Doljanski, and E. Tenenbaum (*Brit. J. Exp. Path.*, 1941, 22, 179—187).—Cultures of Rous sarcoma were irradiated with 6 mg. of Ra for 60 hr. and then transferred to cultures of chick heart. The radiation and subsequent incubation killed all sarcoma cells but the agent survived in the cultures of heart tissue. The chick heart cultures acquired the character of sarcoma cultures and after cultivation for some weeks produced sarcomas when inoculated into fowls. (6 figures.) E. B.

Age susceptibility of ducks to virus of the Rous sarcoma and variation of virus in duck. E. Duran-Reynals (*Science*, 1941, 93, 501—502).—Newborn Pekin ducks were infected by intravenous injection of 4 ml. of filtered or 2 ml. of unfiltered tumour extract (1:20). The infection results in either a haemorrhagic disease, fatal (1:20). The infection results in either a haemorrhagic disease, fatal within a few weeks, or development of sarcomata several weeks or months after infection when the bird is full grown. These tumours are transmissible to ducks by grafts or filtrates. Intravenous infection with the passage virus results in widespread tumours, mostly in the skin and digestive tract, but also in the skull, ribs, and muscles. Tumours in the duck are typical and can be distinguished from the original chicken tumour, but are not transmissible to chickens, though transmissible (after 6 passages) to 1—3-day-old

chicks. In these, death occurred in 20—40 days with multiple sarcomata in flat and long bones, skeletal muscles, and occasionally in the viscera. E. R. S.

Distribution of acid and alkaline phosphatase in tumours, normal tissues, and the tissues of tumour-bearing rats and mice. J. P. Greenstein (*J. Nat. Cancer Inst.*, 1942, 2, 511—524).—The hydrolysis of Na phenyl phosphate by various tissues at pH 4.6 and pH 9.5 was measured. Acid phosphatase is more active in liver, spleen, muscle, skin, gastric mucosa, and many transplantable mouse tumours. Alkaline phosphatase is the more active in intestinal mucosa, kidney, Jensen rat sarcoma, and blood serum. Tissues of tumour-bearing animals had the same activity as corresponding tissues from normal animals. E. B.

Titration of liver-catalase activity of normal and of tumour-bearing rats and mice. J. P. Greenstein (*J. Nat. Cancer Inst.*, 1942, 2, 525—530).—Liver-catalase was determined by volumetric analysis of unchanged H_2O_2 . The liver-catalase of tumour-bearing animals was less than that of normals. E. B.

Technique for mitosis in tumours. P. C. Koller (*Nature*, 1942, 149, 193).—For determination of proportion of dividing to resting cells in normal and malignant tissues of human origin La Cour's acetic lacmoid (resorcin-blue) treatment (Darlington and LaCour, "The Handling of Chromosomes," 1942) is rapid and satisfactory (6 photographs from tumour of the cervix.) E. R. S.

Effect of certain sulphur-containing compounds on the initiation of mitosis in *Amaba proteus*. H. W. Chalkley (*J. Nat. Cancer Inst.*, 1942, 2, 425—447).—The addition of cystine (0.0001M) or reduced glutathione to cultures increases the rate of fission. Cysteine produces a reduction followed by increase in the fission rate. Methionine and cysteic acid are inactive. $\beta\beta$ -Dithiodipropionic acid and cystinyldiglycine inhibited division while diglycylcysteine increased it. E. B.

Diminished *d*-amino-acid oxidase activity in liver of tumour-bearing rats. U. Westphal (*Naturwiss.*, 1942, 30, 120—121).—The O_2 uptake in the oxidation of *d*-phenylalanine by liver extract is 2—3 times as great when the liver of healthy rats is used as when that of rats bearing Walker tumours is employed. When *l*-phenylalanine is used, the O_2 uptakes are small, little or no difference between the oxidising actions of the livers of the healthy and diseased rats being observed. W. McC.

Glycogen in Walker tumour 256. H. A. Ball, H. F. Schott, and L. T. Samuels (*Cancer Res.*, 1942, 2, 146—149).—The glycogen content of Walker tumour 256 is inversely related to size and rate of growth. The increased concn. in tumours of hypophysectomised rats is due to slower growth. Necrotic areas of tumour contain the same amount as proliferating areas. F. L. W.

Prevention of tumour-growth (carcinoma 2163) by intravenous injection of yeast and vitamins. R. Lewisohn, C. Leuchtenberger, R. Leuchtenberger, D. Laszlo, and K. Bloch (*Science*, 1941, 94, 70—71).—Yeast extract alone reduced by 20%, yeast + pantothenic acid by 47%, yeast + riboflavin by 62%, the no. of takes of a mammary carcinoma in mice which was transplantable in 95—100% of the mice. Riboflavin, thiamin, and pantothenic acid have little or no effect. E. R. S.

Organotropy of quinine derivatives for various tissues of rat with Fujinawa's sarcoma. N. Sofue (*Japan. J. Med. Sci.*, 1941, IV, 14, 19—29).—Organotropic tendencies of 27 quinine derivatives are examined for liver, spleen, kidney, heart, lung, muscle, brain, and sarcoma. The order of the organotropic tendency is tabulated. Inhibitory power of the drug against the growth-rate of sarcoma depends more on its organotropic tendency than its toxicity. H. H. K.

Systemic histoplasmosis diagnosed before death and produced experimentally in guinea-pigs. J. D. Reid, J. H. Scherer, P. A. Herbut, and H. Irving (*J. Lab. Clin. Med.*, 1942, 27, 419—434).—A case of systemic histoplasmosis is reported in which diagnosis was made before death by means of smear and culture of the organism from the blood. (14 photomicrographs.) C. J. C. B.

Spontaneous solitary and multiple mast cell tumours (mastocytoma) in dogs. F. Bloom (*Arch. Path.*, 1942, 33, 661—676).—These tumours are of unknown cause and may be solitary and benign or multiple and apparently malignant. The histological structure consists of atypical tissue mast cells, which are of histogenous origin and arise from pre-existing tissue mast cells by mitosis and amitosis. In addition to numerous metachromatic basophilic granules, the cytoplasm of the neoplastic mast cells contains rod-shaped crystalloids, spherical basophilic bodies of solid or granular structure, and spherical acidophilic bodies. The intracytoplasmic structure occurred in numerous cells of the multiple tumours and in occasional cells of the solitary tumours. (14 photomicrographs.) C. J. C. B.

Reaction of bone to metastasis from carcinoma of breast and prostate. W. S. Sharpe and J. R. McDonald (*Arch. Path.*, 1942, 33, 312—325).—In 97.3% of the 415 cases in which the primary

carcinoma was in the breast there was evidence of osteoclasts in the bony metastasis while in 97% of 106 cases in which the primary carcinoma was in the prostate there was osteoplasia in the bony metastasis. It was, however, always possible to demonstrate both processes in the same lesion. In the osseous metastatic growths from carcinoma of the prostate, large amounts of fibrous tissue were observed undergoing a transformation into osteoid tissue. Fibrous tissue was seen in smaller quantities in the osseous lesions which resulted from carcinoma of the breast. (6 photomicrographs.)

C. J. C. B.
Pathology of cerebral glioma. H. J. Scherer (*J. Neurol. Psychiat.* London, 1940, 3, 147—177).—A crit. review. H. L.

Hæmangioma of vertebra associated with compression of cord: response to radiation therapy. L. Ferber and I. Lampe (*Arch. Neurol. Psychiat.*, 1942, 47, 19—29). W. M. H.

XVIII.—NUTRITION AND VITAMINS.

War time nutrition and its lessons for the future.—See B., 1942, III, 168.

Minimum [human] protein [requirement]. I. Abelin and E. Rhyh (*Z. Vitaminforsch.*, 1942, 12, 56—80).—Rhyh has maintained himself for over 7 years on a varied and appetising but meatless diet (potatoes, other vegetables, fruit, peanut oil, a little butter and milk, and occasionally a little cheese) yielding daily approx. 30 g. of protein and approx. 1500 calories. Physical health and fitness were maintained throughout and there were no detrimental psychological effects. Determinations of basal metabolic rate and analyses of blood and urine indicated that metabolism remained normal. Body-wt. remained almost unchanged. W. McC.

Nutritional value of cooked diets of Calcutta students and seasonal variations. S. Banerjee (*Ann. Biochem. Exp. Med.*, 1941, 1, 1—9).—Cooked diets of 13 student hostels in Calcutta were analysed for protein, ether extract, Ca, total P, phytin-P, total and ionisable Fe, and Cu in summer, monsoon, and winter. The April and December diets were partly deficient and the monsoon diet more so. Actual analysis of the cooked diet gives more accurate data than a survey of the raw food as purchased. P. C. W.

Intravenous nourishment with protein, carbohydrate, and fat in man. D. E. Clark and A. Brunshwig (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 329—332).—A patient was maintained for 17 days, with a positive N balance and no loss of wt., by intravenous injection of hydrolysed casein, glucose, and olive oil emulsion. V. J. W.

Calsoy (soya bean substitute for milk). B. F. Feingold (*J. Pediat.*, 1942, 20, 484—485).—A recipe for its use for allergic children is given. C. J. C. B.

Cereal cellulose, roughage material suitable for experimental animal diets. E. R. Harding (*Science*, 1942, 95, 234).—The material is obtained from rice hulls and contains no water-sol. material or vitamins. E. R. S.

Successful rearing of second generation of mice on artificial diet. L. K. Rogers, L. W. McElroy, and G. R. Cowgill (*Science*, 1942, 95, 203—204). E. R. S.

Effect of low-cystine diet on the growth of various strains of mice. F. R. White and J. White (*J. Nat. Cancer Inst.*, 1942, 2, 449—450).—Mice grew slowly on the diet. E. B.

Dental fluorosis and caries in London children. M. M. Murray and D. C. Wilson (*Lancet*, 1942, 242, 98—99).—28% of 589 evacuated London children aged 10—15 years showed some degree of dental fluorosis which was negatively associated with caries (3 sources of London water contained 0.1, 0.15, and 0.32 p.p.m. F. respectively). The general nutrition was good and none showed abnormal thyroid enlargement. C. A. K.

Oral manifestations of vitamin deficiencies. L. A. Rosenblum and N. Jolliffe (*J. Amer. Med. Assoc.*, 1941, 117, 2245—2248).—A review with case report. C. A. K.

Absorption of minimal doses of β -carotene by vitamin-A-deficient rats. G. B. Ramasarma and D. N. Hakim (*Nature*, 1942, 149, 611).—Analysis of faeces of rats fed on a carotenoid-free diet gave an apparent excretion of carotene of 0.2—0.4 μ g. per rat per day. This was due to a non-carotene pigment, which was separated by chromatographic analysis. 12—14% of β -carotene fed to rats was recovered from the faeces, after removing the interfering substances. The incomplete absorption of carotene partly explains the discrepancies in the recorded potencies of vitamin-A as compared with β -carotene. E. R. S.

Assays of provitamin-A carotenoids. G. Mackinney, S. Aronoff, and B. T. Bornstein (*Ind. Eng. Chem. [Anal.]*, 1942, 14, 391—395).—The determination of β -carotene in fruits and vegetables is discussed. Each material requires different treatment in extraction and removal of interfering pigments, and suitable adsorbents and solvents are discussed. Separation is made on a small Tswett column that absorbs no β -carotene or cryptoxanthin, but most other

pigments. The findings are expressed in terms of bioassay and nutrition. J. D. R.

Human excretion of carotenoids and vitamin-A. G. Wald, W. R. Carroll, and D. Sciarra (*Science*, 1941, 94, 95—96).—Unlike carotene or xanthophyll, vitamin-A is not excreted until the intake reaches a threshold val. well above ordinary dietary levels, and above this the fraction excreted rises with intake. 1 mol. of carotene is converted *in vivo* in man into 2 mols. of -A. E. R. S.

Adequacy of biomicroscopy as method of detecting mild cases of vitamin-A deficiency. E. C. Callison (*Science*, 1942, 95, 250—251).—A criticism. E. R. S.

Ultra-violet absorption of vitamin-A in various solvents. F. P. Zscheile and R. L. Henry (*Ind. Eng. Chem. [Anal.]*, 1942, 14, 422—425).—Data are given for the absorption between 2200 and 3800 Å. of solutions of vitamin-A in ether, methyl, ethyl, and isopropyl alcohol, isooctane, cyclohexane, and hexane and of -A palmitate in ethyl alcohol, isooctane, and hexane. For most of these solvents there is a definite peak of $E_{1\text{cm}}^{1\%}$ val. at about 3150 Å. J. D. R.

Nutritional deficiency as factor in abnormal behaviour of experimental animals. C. G. King, H. W. Karn, and R. A. Patton (*Science*, 1941, 94, 186).—Vitamin-B complex deficiencies and inanition both induce sensitivity of albino rats to epileptoid seizures as a result of auditory stimulation. E. R. S.

Normal requirement for thiamin; factors influencing its utilisation and excretion. K. O. Elsom, J. G. Reinhold, J. T. L. Nicholson, and C. Chornock (*Amer. J. med. Sci.*, 1942, 203, 569—577).—6 subjects, without previous evidence of deficiency, subsisted on a const. daily diet containing thiamin in amounts just sufficient to meet the theoretical requirement (Cowgill formula). 3 other subjects received the same diet in amounts which supplied half the theoretical requirement. 3 of the 6 subjects, the smaller members, developed typical signs of deficiency. The min. intake of thiamin was 651 μ g. per day, the thiamin/cal. ratio 0.35. The amount of thiamin in the urine varied from day to day, the abs. variation being proportional to the intake. The output of thiamin in the urine was lowered in 1 case in the presence of infection and returned to normal when the infection subsided. The development of clinical deficiency did not alter urinary output of thiamin. C. J. C. B.

Vitamin-A in fish. Vitamin-A and -D in whale livers. Vitamin-A and -D potencies of oil from body, liver, and intestines of pilchard, herring, salmon, and tullibee.—See B., 1942, III, 186.

[Intravenous] vitamin-B₁ in heart disease. O. J. Morehead, (*Northw. Med.*, 1942, 41, 65—66).—Report of 2 cases resembling acute rheumatic fever in a 30-year-old adult and a 7-year-old child. E. M. J.

Blood-lactate-pyruvate relationship and its use in experimental aneurin deficiency in pigeons. E. Stotz and O. A. Bessey (*J. Biol. Chem.*, 1942, 143, 625—631).—Although considerable variations in blood-pyruvic and -lactic acid occur in various physical conditions of men, rats, and pigeons, a strict relationship between the two is maintained. A marked decrease in pyruvate breakdown is observed early in aneurin deficiency in pigeons and will distinguish between relatively small degrees of chronic deficiency. H. G. R.

Pyruvic acid test for vitamin-B₁ deficiency in children. H. E. C. Wilson (*Lancet*, 1942, 242, 199).—The blood-pyruvic acid level was normal in children studied in hospital after operations and in medical diseases, e.g., upper respiratory infections, gastroenteritis, and marasmus. The range was 0.53—1.98 mg.-%. The lowest vals. occurred during ether anaesthesia. C. A. K.

Polyneuritic convulsions produced by injection of lactic or pyruvic acid. I. I. Nitzescu and C. Angelescu (*Z. Vitaminforsch.*, 1942, 12, 82—85).—Convulsions similar to those resulting from avitaminosis-B₁ are produced in pigeons by injection into the base of the brain of 0.1—0.2 c.c. of 0.2% aq. lactic or pyruvic acid. If not more than 0.15 c.c. is injected the effect is counteracted by intravenous administration of 2000—5000 i.u. of aneurin. W. McC.

Urinary excretion of thiamin in children. R. A. Benson, L. B. Slobody, C. M. Witzberger, and L. Lewis (*J. Pediat.*, 1942, 20, 454—465).—Healthy children had an average intake of 990 μ g. of thiamin and excreted 27% in the urine. Children on an adequate diet (45 μ g. of thiamin per 100 calories) who excrete less than 20% of the thiamin intake require supplements to secure tissue saturation. Children convalescing from acute illnesses and some children with chronic illnesses who excrete less than 20% of the thiamin intake in the urine also require thiamin supplements. C. J. C. B.

Urinary vitamin-B₁ content in postdiphtheric paresis. H. Reinhard and K. Schwertzer (*Arch. Kinderheilk.*, 1939, 118, 192—195).—Vals. were lower during the active parietic stage than during convalescence but the latter was not hastened by administration of aneurin. H. L.

Determination of aneurin. E. R. Kirch and O. Bergeim (*J. Biol. Chem.*, 1942, 143, 575—588).—Aneurin is treated with β -carbethoxy-

benzenediazonium trichloroacetate and shaken after 2 min. with isoamyl alcohol. The colour, stable for 1 month, is determined colorimetrically in the amyl alcohol. The thiazole component gives a similar but less intense colour. Vitamin-A in fish oils interferes and is removed by pre-extraction with isoamyl alcohol. Ascorbic acid prevents colour formation and is destroyed by pre-oxidation. Numerous other substances do not interfere. Details are given for determination in urine. Co-carboxylase does not give the colour and may be separately determined after prior hydrolysis by phosphatase. R. S. C.

Possible ariboflavinosis in premature infant. S. S. Stevenson (*Yale J. Biol. Med.*, 1942, 14, 403—405).—A case in a 1990-g. premature baby on the 13th day of life is reported. F. S.

Microbiological assay of riboflavin in cereals. E. Barton-Wright (*Nature*, 1942, 149, 696—697).—Snell and Strong's method (A., 1939, III, 766) has been modified, principally by addition of xylose, asparagine, and nicotinic and pantothenic acids to the medium. For hydrolysis of the starch, acid or ptyalin is preferred to taka-diastase. Results for cereals are tabulated. A. A. E.

Riboflavin analysis of cereals. Application of the microbiological method.—See B., 1942, III, 169.

Nicotinic acid content of fish. K. C. Saha (*Ann. Biochem. Exp. Med.*, 1941, 1, 75—78).—The muscle tissues of 20 varieties of Bengal fish were analysed for nicotinic acid content. The highest content was in the Magur (*Clavrus batrachus*) (1.02 mg.-%) and the least in the Bele (*Glassgobius giuris*) (0.32 mg.-%). P. C. W.

Occurrence of fits in pyridoxine-deficient rats. S. Lepkovsky, M. E. Krause, and M. K. Dimick (*Science*, 1942, 95, 331—332).—The findings of Chick *et al.* (A., 1940, III, 514) were confirmed. The fits are described, and may involve a disturbance of water metabolism. E. R. S.

Biological synthesis of pantothenic acid. II. Ammonium ion as activator. T. Wieland and E. F. Möller (*Z. physiol. Chem.*, 1942, 272, 232—238).—When the yeast, after freezing in liquid N₂ or air, is subjected to prolonged dialysis and simultaneous aeration, great loss of low-mol. substances occurs and power to synthesise (+)-pantothenic acid from β-alanine and (−)-α-hydroxy-ββ-dimethyl-γ-butyrolactone is greatly diminished. The synthesis is activated by NH₄⁺ (optimum concn. approx. 0.1 N.), the yield of pantothenic acid being increased to 1—2% of the calc. val. The synthesis is inhibited by higher concns. of NH₄⁺ and probably also by CO₃²⁻ and acetate ions. NH₄⁺ also activates the synthesis when αγ-dihydroxy-ββ-dimethylbutyramide replaces the lactone, although the amide is probably not an intermediate when the lactone is used. W. McC.

"Egg white injury" in man and its cure with biotin concentrate. V. P. Sydenstricker, S. A. Singal, A. P. Briggs, N. M. De Vaughn, and H. Isbell (*Science*, 1942, 95, 176—177).—4 human volunteers were maintained on a diet poor in vitamins and supplemented with adequate vitamins, Fe and Ca, and desiccated egg white to the extent of 30% of the total calories. After 5 weeks symptoms similar to those of experimental thiamin deficiency developed, there was a decrease in erythrocyte count and a rise in serum-cholesterol, and the biotin excretion was 3.5—7.3 μg. in 24-hr. urine samples (normal 29—52 μg.). All symptoms rapidly disappeared after parenteral administration of 150—300 μg. of biotin per day. E. R. S.

Extraction of biotin from tissues. R. C. Thompson, R. E. Eakin, and R. J. Williams (*Science*, 1941, 94, 589—590).—Autoclaving for at least 1 hr. at 120° with 6N-H₂SO₄ was the most effective procedure for several kinds of tissue. 3.5 μg. per g. of dried rat or ox liver were obtained. E. R. S.

Rôle of p-aminobenzoic acid and inositol in lactation. B. Sure (*Science*, 1941, 94, 167).—p-Aminobenzoic acid is an essential dietary factor for the rat for reproduction and lactation. E. R. S.

Synthesis of vitamin-C in the infant. P. Rohmer and N. Bezsonoff (*Z. Vitaminforsch.*, 1942, 12, 104—134).—A review is given of the evidence supporting the view that the healthy infant, up to the age of approx. 1 year, synthesises vitamin-C. Deprivation of -C does not cause decrease in the -C content of the c.s.f. except in disease or at ages above 1 year. W. McC.

Effect of toxic substances on ascorbic acid metabolism. B. Ghosh (*Ann. Biochem. Exp. Med.*, 1941, 1, 64—74).—Urinary excretion of combined ascorbic acid in guinea-pigs was increased by histamine injection, or phenol or camphor ingestion; the excretion of free ascorbic acid was reduced. Oral administration of chloral hydrate, CuCl₂, red P, NaF, or injection of KCN caused decreased excretion of combined ascorbic acid. P. C. W.

Vitamin-C and hypovitaminosis. R. J. Kassan and J. H. Roe (*Med. Ann. Columbia*, 1940, 9, 426—433).—53 healthy medical students showed plasma-vitamin-C vals. of 0.13—1.68 mg.-% (average 0.76). 50 prison inmates had a range of 0.02—0.44 (average 0.16) and one val. of 1.13 mg.-% (he ate 12 oranges weekly) but none showed any clinical evidence of a- or hypo-vitaminosis. The present status of the subject is reviewed. E. M. J.

Urinary excretion of combined ascorbic acid in pulmonary tuberculosis. S. Banerjee, P. B. Sen, and B. C. Guha (*Ann. Biochem. Exp. Med.*, 1941, 1, 27—30; cf. A., 1940, III, 674). P. C. W.

Seasonal variations in vitamin-C content of cerebrospinal fluid in infants. M. Kasahara and I. Gammo (*Z. ges. Neurol. Psychiat.*, 1939, 164, 492—493).—Average vals. in Japanese breast-fed infants were lowest in March, August, and September and highest in May, December, February, November, and July. H. L.

Antiscorbutic value of guavas. L. Goldberg and L. F. Levy (*J. S. African Chem. Inst.*, 1942, 25, 3—17).—A detailed account of work already noted (A., 1941, III, 1037). The effect of canning on the vitamin-C content of the fruit and studies on the urinary excretion of -C after ingestion of the fruit syrup are described. F. O. H.

Parsley as a rich source of vitamin-C. E. J. Morgan (*Nature*, 1942, 150, 92—93).—English parsley contains (titration) 279.5 mg. (average of 9 samples) of ascorbic acid per 100 g.; loss on chopping dry is about 20%. Protection against scurvy is afforded by ½ oz. daily. Parsley kept with stems in water suffers no loss of vitamin in 2 days. A. A. E.

Disappearance of the ascorbic acid in raw cabbage after mincing or chopping. L. H. Lampitt, L. C. Baker, and T. L. Parkinson (*Nature*, 1942, 149, 697—698).—Pyke's results (B., 1942, III, 186) are confirmed. Ascorbic acid concn. falls rapidly during the first 10—15 min. after mincing and, at 15°, thereafter remains const. A. A. E.

Specificity of histochemical detection of vitamin-C with silver nitrate. G. Wolf-Heidigger and H. Waldmann (*Z. Vitaminforsch.*, 1942, 12, 1—24).—Dihydro-derivatives of lactoflavin, cozymase, and nicotinmethylamide reduce Giroud and Leblond's AgNO₃ reagent (cf. A., 1936, 1430) but occur in healthy mammalian tissue in concns. too low to interfere with the test for ascorbic acid. Possibly the test is not sp., however, when the oxidation-reduction mechanism of the tissues is disturbed or in tissues where the content of dihydro-compounds of biologically active substances becomes abnormally high. If the reagent is injected into the tissue to be tested a trustworthy picture of the distribution of ascorbic acid present is obtained. W. McC.

Determination of vitamin-C in blood. J. J. Schenk (*Z. Vitaminforsch.*, 1942, 12, 80—82).—Simplicity and speed are achieved in a modification of the method of van Eekelen *et al.* (A., 1937, III, 231) in which neutralisation with CaCO₃ is carried out after instead of before centrifuging. Re-oxidation of vitamin-C by traces of O₂ present in N₂ used to expel H₂S is avoided by passing N₂ for not longer than 40—50 min. W. McC.

Presence and amount of tocopherol in castor oil. J. Langlois (*Compt. rend.*, 1941, 213, 845—846).—The non-sterol fraction of the unsaponifiable matter of castor oil contains 21.6%, the original oil 1%, of tocopherol. Castor germ oil contains 0.9%. A. Li.

Elimination of vitamin-A and carotenoid error in tocopherol determination. K. T. Kjølhede (*Z. Vitaminforsch.*, 1942, 12, 138—145).—Emmerie and Engel's method (A., 1939, III, 923) is improved, vitamin-A and carotenoid being removed by filtering the benzene solution of the material containing tocopherol through adsorbent earth (floridin) which has been activated by boiling with conc. HCl. Oxidation of tocopherol is prevented by treating the earth with SnCl₂ in conc. HCl. A method of measuring the activity of the earth is described. W. McC.

Counteracting prothrombin deficiency of blood in dog with bile fistula by oral administration of vitamin-K. S. Thaddea and G. Frost (*Z. Vitaminforsch.*, 1942, 12, 134—138).—The deficiency was counteracted in a dog having a bile fistula by oral administration of tablets of the vitamin-K prep. "karan." W. McC.

Pipitzaic acid [perezone] and its vitamin-K activity. F. Giral (*Ciencia*, 1941, 2, 350—351; cf. A., 1935, 1501).—The antihæmorrhagic activity of perezone is comparable with that of 2:5-dimethyl-1:4-benzoquinone. F. R. G.

Colorimetric determination of K vitamins. J. V. Scudi and R. P. Buhs (*J. Biol. Chem.*, 1942, 143, 665—669).—The influence of extraneous, slowly reducing substances (apparently tocopherylquinones) on Scudi's colorimetric method (A., 1941, III, 685) is eliminated by extrapolation to zero time. Determinations before and after removal of the K vitamins by various treatments is ineffective, since interfering substances are simultaneously removed. H. G. R.

Antihæmorrhagic activity of sulphonated derivatives of 2-methylnaphthalene.—See A., 1942, II, 285.

Experimental vitamin-P deficiency. S. Ruzsnyák and A. Benkó (*Science*, 1941, 94, 25).—Scorbutogenic diets did not produce scurvy in rats, but their capillary resistance was reduced in 5—6 weeks; this returned to normal in 10—14 days when 3—4 mg. of citrin per day was included in the diet. This is due to a deficiency of flavones in the scorbutogenic diet. E. R. S.

New dietary essentials for guinea-pigs. D. W. Woolley (*J. Biol. Chem.*, 1942, 143, 679—684).—Guinea-pigs require at least 3 factors other than the known vitamins. One (GPF 1) is sol. and a second (GPF 2) insol. in 50% alcohol; these are necessary for growth and survival, whilst a third factor (GPF 3) is necessary for survival for more than a few weeks. GPF 1 is not extracted from linseed oil meal by acetone or 95% ethyl alcohol; it is not readily destroyed by alkali [0.1N-Ba(OH)₂], and it is adsorbed on fuller's earth from which it is eluted by Ba(OH)₂ or dil. alcoholic pyridine. GPF 1 has been conc. so that 5 mg. of a prep. per day gives good growth.

P. G. M.

XIX.—METABOLISM, GENERAL AND SPECIAL.

Relation between body size and metabolism. F. W. Weymouth, J. Field, and M. Kleiber (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 367—370).—Heat production is a function of body wt. and not of surface area, and is given by $H = 6.87 \times \text{wt.}^{0.723}$ (wt. in kg.) for the rat, rabbit, and sheep, as well as for slices of their tissues. V. J. W.

Role of aerobic phosphorylation in Pasteur effect. M. J. Johnson (*Science*, 1941, 94, 200—202).—Theoretical. E. R. S.

Pasteur effect in bone marrow. C. O. Warren (*J. Cell. Comp. Physiol.*, 1942, 19, 193—209).—In rabbit bone marrow *in vivo* under reduced O₂ tension, there is a reciprocal relation between glycolysis and respiration. The crit. val. of O₂ tension below which respiration is decreased is 6 mm. Hg by dropping Hg electrode. Since increased glycolysis does not precede decreased respiration in this tissue, it is unlikely that such increase is the basis for red cell increase. V. J. W.

Measurement of respiration and glycolysis of single sample of tissue in serum. C. O. Warren (*Science*, 1941, 94, 97—98).

E. R. S.

Effect of propazone on respiration of rat tissue *in vitro*. F. A. Fuhrman and J. Field, 2nd (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 374—376).—This substance (Stoughton and Baxter, A., 1942, III, 51) causes reversible depression of O₂ uptake in slices of rat's kidney, liver, and brain. Depression is more marked in media containing glucose than in succinate or *p*-phenylenediamine. V. J. W.

Effects of some respiratory inhibitors on respiration and reconstitution in *Tubularia*. F. Moog and S. Spiegelman (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 392—395).—In concns. which depress reconstitution KCN markedly depresses O₂ consumption, and its effect is not modified by methylene-blue. NaN₃ and urethane which also depress reconstitution have much less effect on O₂ consumption. V. J. W.

Biological formation of urea. F. Leuthardt and B. Glasson (*Helv. Chim. Acta*, 1942, 25, 630—635).—Little urea is formed when slices of guinea-pig liver are shaken with NH₄ salts without addition of HCO₃⁻ or a respiration substitute other than glucose. Pyruvic and oxalacetic acid are more efficient than HCO₃⁻ in solutions containing PO₄^{'''} and their action does not depend solely on increase of respiratory CO₂. Lactic, α -ketoglutaric, fumaric, malic, and citric acid are less efficient and probably act through intermediate production of pyruvic or oxalacetic acid. Succinamic acid is as efficient as glutamine in the formation of urea whereas acetamide and lactamide appear inactive. The NH₄ salts of the corresponding dicarboxylic acids give more urea than the normal NH₄ salts without addition of acid but less than the semiamides, which therefore have a sp. action. It is improbable, however, that they are immediate precursors of citrulline but they may pass into a common intermediate. H. W.

Significance of S/N ratio and distribution of sulphur in urine on non-protein diets and diets with varying protein content. K. P. Basu, M. N. Basak, and M. K. Haldar (*Ann. Biochem. Exp. Med.*, 1941, 1, 43—58).—The S/N ratio on a non-protein diet was 1/8.5, showing that there is metabolism of nitrogenous non-protein tissue constituents in contrast with the endogenous protein metabolism in fasting (S/N ratio = 1/14). Total and creatinine-N, and total, inorg., and etheral S were determined in the urine of a subject living on diets containing variable amounts of rice and wheat. Etheral S was the same on rice and wheat diets but was absent on a non-protein diet, showing the equal bacterial putrefaction on rice and wheat diets and its absence on a non-protein diet. P. C. W.

Biological synthesis of acetylcholine. H. C. Chang, L. Y. Lee, C. W. Meng, and Y. K. Wang (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 380—381).—Washed placenta contains an intracellular enzyme which synthesises acetylcholine. Expressed placental fluid contains choline-esterase. If such washed placenta and fluid and eserine are incubated together, much more acetylcholine is produced than when any 2 of the 3 are so incubated, synthesis being apparently aided by choline-esterase. V. J. W.

Effect of administration of lipocae and cholesterol in rabbits. C. Vermeulen, L. R. Dragstedt, D. E. Clark, O. C. Julian, and J. G. Allen (*Arch. Surg. Chicago*, 1942, 44, 260—267).—Cholesterol in oral doses of 0.5—1.0 g. daily produced hyperlipaemia, hyper-

cholesterolaemia, arteriosclerosis of the aorta, and accumulation of cholesterol and fat in the liver and adrenal glands. The simultaneous oral administration of lipocae, in amounts up to half that required by the depancreatised dog (Dragstedt *et al.*, A., 1940, III, 239, 310), prevented a rise in the non-cholesterol fractions of the blood-lipins and also the deposition of fat and cholesterol in the liver but had no effect on the hypercholesterolaemia and arteriosclerosis. (2 photomicrographs.) F. S.

Lipotropic substances. E. G. Frame (*Yale J. Biol. Med.*, 1942, 14, 229—255).—A review of the literature on substances that decrease the rate of deposition and accelerate the rate of removal of liver fat. Among the subjects discussed are the lipotropic action of choline, choline and "cholesterol fatty liver," experimental basal diets, the lipotropic effect of proteins and amino-acids, lipocae, the mechanism of the action of choline, and vitamin-B complex. F. S.

Diabetic acidosis. J. T. Beardwood and G. P. Rouse (*J. Amer. Med. Assoc.*, 1941, 117, 1701—1704).—The mortality rate of 220 cases of diabetic acidosis was 24%, and 5% when cases with complications were excluded. M./6-Na lactate was effective in relieving acidosis, and subsequent alkalosis was infrequent. C. A. K.

Case of von Gierke's disease. R. E. Nutting (*Minnesota Med.*, 1942, 25, 209).—A male child had been observed from the age of 5 months—8 years when, except for an enlarged liver and small stature, he had developed into a normal boy of that age. At 5 months a glucose-tolerance test showed a high and prolonged blood-glucose curve, blood-cholesterol 236 mg.-%, and -Cl 503 mg.-%. He then had frequent attacks of abdominal cramps which have declined to 3—4 mild episodes each year. E. M. J.

Cerebroside sugar of spleen in Gaucher's disease. E. Klenk and F. Rennkamp (*Z. physiol. Chem.*, 1942, 272, 280—282).—In a further case of the disease, the sugar was glucose. Possibly there are two kinds of Gaucher's disease, which are characterised by the occurrence of a cerebro-galactoside and a cerebro-glucoside, respectively, the latter being by far the more common. W. McC.

Identity of iodine-storing tissue in ascidian. A. Gorbman (*Science*, 1941, 94, 192).—*Perophora annecteus* was exposed to radio-I for 2 days, then fixed in formalin, and sectioned serially. The radio-autographs and stained sections showed that no tissues within the body proper stored I, but that the stolonial septum stores I to an extent comparable with the vertebrate thyroid. E. R. S.

XX.—PHARMACOLOGY AND TOXICOLOGY.

Mode of action of sulphonamides *in vitro*. S. D. Rubbo and J. M. Gillespie (*Lancet*, 1942, 242, 36—38).—Unlike other bacteria, *Clostridium acetobutylicum* requires *p*-aminobenzoic acid as a growth factor. Its growth is inhibited by sulphanilamide, sulphapyridine, soluseptasine, and proseptasine, and addition of larger amounts of *p*-aminobenzoic acid reverses this inhibition, 1 part by wt. of the latter antagonising 26,000 parts by wt. of sulphanilamide. This supports the work of Fildes (*Lancet*, 1940, i, 955). C. A. K.

Diffusion of sulphathiazole into and from peritoneum. L. B. Slobody, G. Rook, and D. Dragutsky (*J. Pediatr.*, 1942, 20, 182—184).—Sulphathiazole diffuses readily into and from the peritoneum. A patient with pneumococcal peritonitis responded well clinically to oral sulphathiazole, but the peritoneal fluid became sterile only after intraperitoneal instillation. C. J. C. B.

Simple clinical method for determining sulphonamides in blood. A. Goth (*J. Lab. Clin. Med.*, 1942, 27, 827—829).—The reagents are those of the Bratton-Marshall method (A., 1939, III, 773) except that acetone is used for the pptn. of the blood-proteins and the trichloroacetic acid is replaced by oxalic acid. C. J. C. B.

Determination of sulphanilamide and its derivatives in blood. J. Churg and D. Lehr (*Amer. J. Clin. Path., Tech. Suppl.*, 1942, 6, 22—31).—The method is based on the colour reaction between *p*-dimethylaminobenzaldehyde and sulphanilamide, which has been intensified and stabilised by the use of alcohol. C. J. C. B.

Determination and distribution of sulphathiazole in blood. F. B. Cooper, P. Gross, and M. L. Hagan (*Amer. J. Clin. Path.*, 1942, 12, 149—159).—The recovery of sulphathiazole from oxalated blood containing 5 mg.-% was 89% in 1:20 dilutions and 95% in 1:50 dilutions at 25°, when the blood was haemolysed by Bratton and Marshall's method (A., 1939, III, 773). Prevention of haemolysis by dilution with normal saline increased the recovery to 94 and 99.5% respectively. Recovery in the 1:20 but not 1:50 dilution was higher at 0° than at 25°. The plasma of patients under treatment contains more sulphathiazole or sulphapyridine, and less sulphanilamide, than whole blood. C. J. C. B.

Comparative blood concentrations of sulphanilamide and sulphapyridine. S. Chaudhuri (*Ann. Biochem. Exp. Med.*, 1941, 1, 91—98).—Orally administered to monkeys in aq. solution sulphapyridine was more slowly absorbed than sulphanilamide and gave rise to lower blood concns. When the sulphapyridine was dissolved in

HCl the rates of absorption and blood concns. were the same. Sulphanilamide when injected intramuscularly was more quickly absorbed and gave a higher blood concn. than did sulphapyridine.

P. C. W.

Biochemical specificity of sulphanilamide and other anti-bacterial agents. H. McIlwain (*Science*, 1942, 95, 509—511).—Differences in the antagonism of the anti-bacterial effect of sulphanilamide exhibited by *p*-aminobenzoic acid and by urethane show that the former results from competitive enzyme inhibition.

E. R. R.

Growth stimulation by sulphanilamide in low concentration. C. Lamanna (*Science*, 1942, 95, 304—305).—Growth stimulation by sulphanilamide was not observed with species of *Lactobacillus*, *Streptococcus*, *Escherichia*, *Aerobacter*, *Salmonella*, *Shigella*, *Klebsiella*, *Staphylococcus*, *Sarcina*, and *Micrococcus*; it was observed with *Pseudomonas* and *Alkaligenes* species, and irregular results were obtained with *Aerobacter* and *Eberthella* species. Some strains of *Bacillus* species showed stimulation, others did not. A *Torulaspora* strain showed slight stimulation, *Torula*, *Saccharomyces*, *Willia*, *Zygosaccharomyces*, *Oidium*, and *Monilia* did not. *B. coli*, *B. subtilis*, *Willia anomala*, and others showed stimulation by HgCl₂, but not by sulphanilamide.

E. R. S.

Quantitative analysis of sulphonamide bacteriostasis. H. M. Rose and C. L. Fox, jun. (*Science*, 1942, 95, 412—413).—Using *E. coli* 5 × 10⁻⁷ *m*-*p*-aminobenzoic acid was the min. concn. preventing bacteriostasis by each of 5 sulphonamides in min. effective concn. (4—2500 × 10⁻⁷ *m*). There was a 24 hr. delay of inhibition by min. effective concns. when there were more than 25,000 cells per ml.; this delay was not reduced by additions of drug. Sulphonamides prevent synthesis by cells of a substance essential for growth; *p*-aminobenzoic acid antagonises this action, but the antagonism is independent of no. of cells and related to concns. of the drugs.

E. R. S.

Binding of sulphonamides by plasma-proteins. B. D. Davies (*Science*, 1942, 95, 78).—Sulphonamide drugs behaved in dialysis experiments as though bound partially to plasma-albumin, and the bound drugs were not bacteriostatically effective. The effective level of sulphonamides in c.s.f. may be as great as in blood, and the apparent level compared with the blood should not be used as a guide to choice of drug. Strong tendency to binding corresponds with high bacteriostatic effectiveness.

E. R. S.

Influence of fasting on retention and conjugation of sulphanilamide in rabbits. E. F. Stohman and M. I. Smith (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 432—435).—Fasting, or a diet causing acidosis, favours absorption and retention of sulphanilamide and decreases acetylation.

V. J. W.

In-vitro susceptibility of pneumococci to sulphonamide. Relation between size of inoculum and bacteriostasis. R. M. Pike and E. V. Acton (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 445—449).—There is a straight line relation between concn. of drug required to inhibit growth and size of inoculum up to 100,000 organisms, above which no. concn. is effective. Susceptibility of any strain can be expressed as concn. necessary to inhibit growth of an inoculum of known size.

V. J. W.

Effect of urea in sulphonamide base on healing of clean skin wounds in rabbits. M. Olson, E. Slider, W. G. Clark, and R. MacDonald (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 396—399).—Urea retards epithelialisation but accelerates granulation.

V. J. W.

Response of sulphonamide-fast pneumococci to penicillin. H. M. Powell and W. A. Jamieson (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 387—389).—Dried penicillin, given orally to mice, was effective against both parent and sulphonamide-fast strains.

V. J. W.

[Treatment of] influenzal meningitis [with sulphadiazine]. E. P. Scott and J. W. Bruce (*J. Pediat.*, 1942, 20, 499—501).—A case of recovery from influenzal meningitis, in which anti-influenzal serum and sulphadiazine (135 g.) were used, is reported. Sulphanilamide and sulphapyridine had been previously used without improvement.

C. J. C. B.

Meningococcus and pneumococcus meningitis [treatment with sulphonamide]. J. Rosenblum and S. Pearlman (*Arch. Pediat.*, 1942, 59, 43—49).—A case is reported of mixed meningococcus and pneumococcus meningitis with recovery following treatment with antimeningococcus serum intravenously and sulphanilamide and antimeningococcus serum intravenously and sulphanilamide and sulphapyridine by mouth, by rectum, and intravenously (in usual dosage).

C. J. C. B.

Meningitis due to *E. coli* [treatment with sulphonamides]. G. S. Barrett, C. H. Rammelkamp, and J. Worcester (*Amer. J. Dis. Child.*, 1942, 63, 41—59).—2 cases of meningitis due to *E. coli* are described in which recovery followed therapy with sulphanilamide and derivatives. Sulphathiazole in concns. of 4 mg.-% or higher was most effective.

C. J. C. B.

Recovery from *B. coli* meningitis in newborn after sulphapyridine therapy. C. O. Kohlbry (*Minnesota Med.*, 1942, 25, 200—201).—12 grains of sulphapyridine in divided doses were given by mouth for the first 5 days, 6 grains for the next 9, and 4 grains for the

last 2 days of the illness. In addition the child was given 25 c.c. of a 0.3% solution of Na sulphapyridine subcutaneously on 2 consecutive days and 50 c.c. of 0.5% solution 8-hourly for 6 doses on the next 2 days of the first week.

E. M. J.

Sulphanilylguanidine in control of *Salmonella* infection and carrier state in mice. P. R. Beamer (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 418—421).—Good results were obtained.

V. J. W.

Sulphaguanidine in bacillary dysentery. N. H. Fairley and J. S. K. Boyd (*Lancet*, 1942, 242, 20—21).—Sulphaguanidine was successfully used in the treatment of 96 cases of acute Shiga dysentery. Toxic effects were mild.

C. A. K.

Sulphanilylguanidine in treatment of enteric infections [in children]. J. G. Eblen (*Sth. Med. J.*, 1942, 35, 302—304).—Sulphaguanidine was slightly superior to sulphathiazole in the treatment of acute bacillary dysentery, but ineffective in parenteral diarrhoea where sulphathiazole is effective. The course of typhoid fever was not affected.

E. M. J.

Sulphathiazole for acute diarrhoeas in children. M. L. Cooper, R. L. Zucker, and S. Wagoner (*J. Amer. Med. Assoc.*, 1941, 117, 1520—1523).—59 of 123 children with acute diarrhoea had *S. paratyphenteriae*, Flexner and Sonne, in the stools. Sulphathiazole was therapeutically effective only in those with positive stools, and produced negative cultures in 16 of 17 patients, as compared with 17 of 34 negative cultures in patients not given the drug. 5 of the 6 cases that died had negative cultures throughout.

C. A. K.

Paratyphoid carriers: infectivity of faeces and failure of chemotherapy with sulphapyridine and iodophthalein. H. D. Holt and H. D. Wright (*J. Path. Bact.*, 1942, 54, 247—251).—Attempts to treat carriers of *B. paratyphosum B* with sol. iodophthalein and with sulphapyridine were unsuccessful.

C. J. C. B.

Sulphapyridine in paratyphoid B fever. F. Muller (*Lancet*, 1942, 242, 104—105).—Successful case report.

C. A. K.

Sulphacetimide in bacillary infections of urinary tract. F. Welebir and R. W. Barnes (*J. Amer. Med. Assoc.*, 1941, 117, 2131—2135).—Sulphacetimide ("alucid") was used in the treatment of 200 cases of bacillary infection of the urinary tract, with 85% of recoveries and 2% of failures. It was more effective than mandelate, sulphanilamide, or sulphathiazole and was often successful in cases in which these drugs had failed. Toxic reactions occurred in 4% of cases but were not serious.

C. A. K.

Recovery from staphylococcal septicaemia after treatment with sulphamethylthiazole. T. F. Keliher and S. A. Carlen (*Med. Ann. Columbia*, 1940, 9, 78—80).—Case report.

E. M. J.

Staphylococcal septicaemia and sulphathiazole. W. A. Jackman and N. H. Martin (*Lancet*, 1942, 242, 135—137).—Successful case report.

C. A. K.

Chemotherapy in infections of bones and soft tissues. R. L. Dively and P. R. Harrington (*J. Amer. Med. Assoc.*, 1941, 117, 1868—1870).—In 56 cases of infected bone and soft tissue the administration of sulphathiazole by mouth, Na sulphathiazole intravenously, and local application of sulphathiazole powder produced healing by primary intention in 53.

C. A. K.

Sulphathiazole in acute haematogenous staphylococcal osteomyelitis. W. A. Hoyt, A. E. Davis, and G. Van Buren (*J. Amer. Med. Assoc.*, 1941, 117, 2043—2050).—Sulphathiazole was successfully used in 8 cases without operation.

C. A. K.

Sulphanilamide, serum, and antitoxin in scarlet fever. F. H. Top and D. C. Young (*J. Amer. Med. Assoc.*, 1941, 117, 2056—2060).—Sulphanilamide was slightly inferior to scarlet fever convalescent serum and scarlet fever antitoxin in 390 patients with scarlet fever, with regard to duration of fever, complications, and duration of stay in hospital.

C. A. K.

External use of sulphonamides in dermatology. F. Kalz and M. V. H. Prinz (*Canad. Med. Assoc. J.*, 1942, 46, 457—462).—Of 107 patients with dermatitis treated with a 30% sulphathiazole glycerin paste 99 were cured within 2 weeks.

C. J. C. B.

Use of sulphonamides in treatment of syphilitic keratitis. J. M. Arena (*J. Pediat.*, 1942, 20, 421—423).—7 cases were rapidly cleared up on 0.3 g. of the drug 3 times a day.

C. J. C. B.

Treatment of gonococcal vaginitis. J. L. Rice, A. Cohn, A. Steer, and E. L. Adler (*J. Amer. Med. Assoc.*, 1941, 117, 1766—1769).—381 children with gonococcal vaginitis were studied. Of 41 untreated cases 87% recovered after 28 weeks; of 33 cases treated with oestrogens 36% were cured in 8 weeks, clinical improvement was rapid, but bacteriological cure was no more frequent than in untreated cases; 43% of 53 children treated with sulphanilamide were cured in 10 days (negative culture) and 87% of 77 children given sulphapyridine or sulphathiazole were cured in 7 days, the latter being the drug of choice.

C. A. K.

Sulphathiazole in gonorrhoea in women. P. F. Fletcher, O. J. Gibson, and S. E. Sulkin (*J. Amer. Med. Assoc.*, 1941, 117, 1769—1773).—The effect of sulphathiazole was studied in 194 prostitutes

with chronic gonorrhœa of cervix and urethra, 100 of them also being given vaginal suppositories containing β -lactose and boric acid. Sulphathiazole was given in doses of 4 g. daily for 5 days, and similar dosage again at the next menstrual period. 91% of cases were clinically cured (no symptoms and negative smear and culture) and the local treatment was shown to have no influence. Toxic reactions, mostly mild, occurred in 13 cases. C. A. K.

Sulphonamides for chancroid. B. A. Kornblith, A. Jacoby, and L. Chargin (*J. Amer. Med. Assoc.*, 1941, 117, 2150—2153; cf. A., 1942, III, 47).—175 consecutive cases of chancroid infection (Ducrey bacillus) were successfully treated with sulphanilamide or sulphathiazole. Surgical measures, beyond aspiration of large inguinal abscesses, were unnecessary and in fact contraindicated. The intradermal Ducrey vaccine response remained positive after the lesions had healed. C. A. K.

Sulphonamides in erysipelas. R. E. Shank, R. W. Maxwell, and G. S. Bozalis (*J. Amer. Med. Assoc.*, 1941, 117, 2238—2239).—165 cases of erysipelas were treated with sulphonamides. 5 died, of whom 4 were over 60. C. A. K.

"Promin" in experimental tuberculosis. M. M. Steinbach and C. J. Duca (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 460—464).—Promin is bacteriostatic to tubercle bacilli *in vitro*, and retards but does not cure experimental tuberculosis in guinea-pigs when given by injection. V. J. W.

Sulphonamide therapy of mouse pneumonitis, meningo-pneumonitis, and lymphogranuloma venereum. G. Rake, H. Jones, and C. Nigg (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 449—452).—Sulphathiazole and sulphadiazine are highly effective against mouse pneumonitis, as against lymphogranuloma, but are useless against meningo-pneumonitis. V. J. W.

Use of sulphathiazole in infectious mononucleosis. H. T. Hoffman, H. D. Lees, and B. L. Comroe (*Amer. J. med. Sci.*, 1942, 203, 731—736).—Sulphathiazole produced prompt clinical improvement without marked change in the white or differential blood count in all of 7 cases. The heterophil-antibody test was occasionally negative in the first week of the disease and became positive during the second week. In almost half of the patients the initial white count was 8000 or less per cu. mm. C. J. C. B.

Intraperitoneal sulphapyridine. R. H. Gardiner (*Lancet*, 1942, 242, 195—196).—Intraperitoneal application of sulphapyridine was clinically successful in 15 cases of perforated appendix, in 2 cases of perforation of the sigmoid colon, and in 2 cases of resection of gangrenous small gut. C. A. K.

Sulphonamide compounds and acute rheumatism. A. J. Glazebrook and S. Thomson (*J. Hygiene*, 1942, 42, 20—22).—Prontosil and sulphapyridine did not prevent acute rheumatism. J. H. B.

Prophylactic sulphanilamide in rheumatic patients. D. D. Stowell and W. H. Button (*J. Amer. Med. Assoc.*, 1941, 117, 2164—2166).—Sulphanilamide (1.5—2.0 g. daily) was given prophylactically to 46 rheumatic children aged 11 years (average) for about 1 year. Owing to the occurrence of many minor toxic reactions, e.g., skin rashes and leucopenia, and 1 fatal case of agranulocytosis it is suggested that the drug is too dangerous for use in ambulatory rheumatic children and adolescents. C. A. K.

Agranulocytosis from sulphathiazole. A. L. Hoyne and G. W. Larimore (*J. Amer. Med. Assoc.*, 1941, 117, 1353—1354).—A man aged 34 developed fatal agranulocytosis after receiving 100 g. of sulphathiazole during 2 months. C. A. K.

Fœtal injury from chemotherapy during pregnancy. G. P. Heckel (*J. Amer. Med. Assoc.*, 1941, 117, 1314—1316).—13 mothers were given sulphanilamide during pregnancy and 1 infant showed at birth a severe anaemia which was attributed to the drug. C. A. K.

Acute hæmolytic anaemia after sulphathiazole. E. D. Quick and F. D. Lord (*J. Amer. Med. Assoc.*, 1941, 117, 1704—1706).—Acute hæmolytic anaemia with jaundice developed after ingestion of 4.55 g. of sulphathiazole in a patient with low-grade osteomyelitis following dental extraction. N retention and hypertension occurred but there was no anuria or signs of renal tubular obstruction. Recovery followed blood transfusions. C. A. K.

Recovery from sulphapyridine agranulocytosis after rigor during blood transfusion. R. M. Cross (*Lancet*, 1942, 242, 9).—Case report. C. A. K.

Fuadin (sodium antimonyl bispyrocatecholdisulphonate) in treatment of Vincent's infection. D. C. Smith (*Stk. Med. J.*, 1942, 35, 299—301).—A review. E. M. J.

Apparent effect of tyrothricin on *Strep. hæmolyticus* in rhinopharynx of carriers. E. B. Schoenbach, J. F. Enders, and J. H. Mueller (*Science*, 1941, 94, 217—218).—Tyrothricin preps. were lethal at 1:10⁶ to *S. hæmolyticus* and *aureus*, and diphtheria bacillus *in vitro*. Spraying the nasopharynx of men and macaque monkeys with a 1% suspension in saline containing 2.5% of glycerin resulted

in disappearance of *S. hæmolyticus* from nose and throat cultures. The subjects had been proved to be carriers of the organism.

Resistance of *Staph. aureus* to tyrothricin. C. H. Rammelkamp (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 346—350).—Different strains differ in resistance, and it can be increased by growing the organisms in increasing concns. V. J. W.

Protection of mice against infection with air-borne influenza virus by means of propylene glycol vapour. O. H. Robertson, C. G. Loosli, T. T. Puck, E. Bigg, and B. F. Miller (*Science*, 1941, 94, 612—613).—Mice exposed to 0.5 p.p.m. of the glycol vapour in air, and then to influenza virus as a fine mist sprayed into the same chamber, did not develop influenza, but if exposed to the virus alone they all died. The glycol vapour reacts with virus as rapidly as it kills bacteria. E. R. S.

Silver picrate in treatment of vaginitis. J. D. Corbit, R. McElroy, and J. H. Clark (*J. Amer. Med. Assoc.*, 1941, 117, 1764—1766).—Local application of Ag picrate, in powder form and by suppositories, cured 94% of 1646 cases of trichomoniasis and 97% of 151 cases of moniliasis of the vagina. C. A. K.

Pharmacological and toxicological studies on cetylpyridinium chloride, a new germicide. M. R. Warren, T. J. Becker, D. G. Marsh, and R. S. Shelton (*J. Pharm. Exp. Ther.*, 1942, 74, 401—408).—M.I.d. in rabbits intravenously was 20 mg. per kg. and the LD₅₀ 35 mg. per kg. Orally, 400 mg. per kg. killed 1 out of 6 rabbits. It was most toxic intraperitoneally. In many cases death was delayed for 3—6 days. Administration of 10—100 mg. per kg. orally per day for 4 weeks produced no harmful effects. The drug had a "curare-like" action. It produced a central stimulation and a peripheral paralysis. H. H. K.

Cod-liver oil in experimental wounds. L. Dann, A. Glücksmann, and K. Tansley (*Lancet*, 1942, 242, 95—98).—Standard experimental wounds were made in rats and the rate of healing was studied after local application of cod-liver oil, its 2 fractions separated by distillation, vitamin-A (as naphthoate and in coconut oil), arachis oil, peroxidised arachis oil, linoleic acid, methyl linoleate, coconut oil, and liquid paraffin. Collagen regeneration occurred with all substances especially with arachis oil where it was so excessive as to interfere with epithelial regeneration. Epithelial regeneration was promoted by linoleic acid alone; other substances delayed it, except liquid paraffin and one sample of cod-liver oil. C. A. K.

Effect of Roentgen rays on action of tyramine on blood-sugar of rabbits. E. Sai (*Japan. J. Med. Sci.*, 1941, IV, 14, 31—42).—Small doses of Roentgen irradiation increase the hyperglycæmic action of tyramine in rabbits. The contrary occurs if doses exceeding 300 r. are used. H. H. K.

Effect of Roentgen rays on action of phenylethanolamine on blood-sugar. E. Sai (*Japan. J. Med. Sci.*, 1941, IV, 14, 91—98).—Roentgen irradiation (50—1200 r.) did not increase the hyperglycæmic action of the drug. The hyperglycæmic action is diminished after irradiation exceeding 1200 r. H. H. K.

Effect of Roentgen rays on action of sympathol on blood-sugar. E. Sai (*Japan. J. Med. Sci.*, 1941, IV, 14, 125—129).—Roentgen irradiation (under 600 r.) of sympathol increases the glycæmic action. H. H. K.

Esmodil hyperglycæmia. N. Izaki (*Japan. J. Med. Sci.*, 1941, IV, 14, 77—90). H. H. K.

Action of tyramine on movements of rabbit's stomach *in situ*. E. Yama (*Japan. J. Med. Sci.*, 1941, IV, 14, 43—58).—Tyramine relaxes the isolated stomach. 2—15 mg. per kg. produces contraction followed by a period of relaxation, and then renewed contraction. The contraction is abolished by atropine. The relaxation is not influenced by preadministration of atropine, nicotine, luminal, or ergotamine. H. H. K.

Action of bulbocapnine, harmine, and harmaline on movement of rabbit's stomach *in situ*. E. Yamao and Y. Okushima (*Japan. J. Med. Sci.*, 1941, IV, 14, 59—75).—Intravenous injection of the drugs in any dosage inhibits movement of the stomach. H. H. K.

Influence of sodium ethylisoamylbarbiturate on liberation of acetylcholine from the bowel following nerve stimulation. E. R. Tretzewie (*Austral. J. Exp. Biol.*, 1942, 20, 9—14).—When the stomach and small bowel of guinea-pigs are perfused with eserinated Locke solution, acetylcholine is present in the effluent from the portal vein, and its amount is increased after vagal stimulation. Presence of Na ethylisoamylbarbiturate (0.06 mg. per c.c.) inhibits this output following nerve stimulation. J. N. A.

Pharmacology of yohimbine. M. Hutchinson, F. H. Shaw, and W. B. Wragge (*Austral. J. Exp. Biol.*, 1942, 20, 69—71).—1 mg. of yohimbine per kg. produces reversal of the adrenaline rise in anaesthetised, decerebrate, or decapitated cats provided that the blood pressure is greater than 55 mm. of Hg, otherwise there is either a small rise in pressure or abolition of any rise. Yohimbine has a similar effect on the action of ephedrine. On the isolated

frog heart yohimbine (1:10⁶—1:10⁷) has no effect on the response to adrenaline, whilst at 1:10⁵ the heart beat is stopped. The vasoconstrictor action of adrenaline on perfused frog blood vessels is abolished by yohimbine if it is administered within 2—3 min. after adrenaline. 1:10⁶—1:10⁴ yohimbine decreases the contraction caused in the isolated rabbit uterus by adrenaline, whilst it has no effect on isolated rat uterus. With the isolated cat intestine yohimbine (1:10³) depresses the response to adrenaline, and abolishes it in the case of rabbit intestine, whilst with rat intestine yohimbine itself produces a prolonged relaxation. J. N. A.

Relative susceptibility of warm-blooded animals to ouabain, cymarin, and coumagine. K. K. Chen and C. L. Rose (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 351—354).—Mice and rats are much more tolerant of these substances than cats, guinea-pigs, and rabbits. The difference is least marked for coumagine. V. J. W.

Clinical value of digitalis in hypertensive heart failure. M. Flaxman (*Amer. J. med. Sci.*, 1942, 203, 741—751).—Digitalis administered to 160 hypertensive patients with rapid regular cardiac rhythm relieved the symptoms and signs of heart failure in 70%. C. J. C. B.

Potency of U.S.P. XI digitalis. E. F. Bland and P. D. White (*J. Amer. Med. Assoc.*, 1941, 117, 1243—1245).—Biological assay has shown that powdered digitalis U.S.P. XI is 25—30% stronger, and clinical studies suggest it is 33—50% stronger, than digitalis U.S.P. X. C. A. K.

Action of papaverine on heart of dog. S. R. Elek and L. N. Katz (*J. Pharm. Exp. Ther.*, 1942, 74, 335—349).—Papaverine depresses auriculo-ventricular conductivity and intraventricular conductivity, which result in auriculo-ventricular and intraventricular block with larger doses. It diminishes ectopic beats at all parts of the cardiac cycle. It makes it more difficult to produce or maintain auricular fibrillation by means of a faradic current. It restores regular beating of the ventricles after long-standing faradically produced ventricular fibrillation, and raises the threshold for inducing it. In its presence vigorous manual massage of the fibrillating ventricles will restore orderly synergic beating. Toxic or subtoxic doses may lead to active ectopic ventricular rhythms and cardiac standstill or complete auriculo-ventricular block. Its toxic action occurs more readily in ischaemic hearts. H. H. K.

Action of veratrine on isolated mammalian heart. O. Krayer and R. Mendez (*J. Pharm. Exp. Ther.*, 1942, 74, 350—364).—In the heart-lung prep. veratrine increased the total output and improved the work of the heart. Diastolic ventricular vol. and auricular pressure decreased. Coronary flow in the normal heart remained unchanged, while in the failing heart veratrine caused a transient increase. In the normal heart-lung prep. the pulmonary arterial resistance was unchanged by the drug or was slightly reduced. Veratrine produced a marked reduction in the resistance of the pulmonary arteries, if a marked increase of pulmonary pressure accompanied the development of heart failure. Veratrine reached its full effect on the muscular activity of the heart after a period of several min. An initial dose of 0.2—0.3 mg. of veratrine hydrochloride approx. corresponds in therapeutic effect with 0.05 mg. of ouabain. H. H. K.

Effect of unsaturated lactones on isolated frog heart. O. Krayer, R. Mendez, E. Moisset de Espanés, and R. P. Linstead (*J. Pharm. Exp. Ther.*, 1942, 74, 372—380).— β - and α -Angelicalactones, crotonolactone- γ -acetic acid and its methyl ester cause an increase in the amplitude of contraction followed by a period of diminished relaxation of the ventricle which terminates in systolic standstill. Angelicalactones improve the activity of the hypodynamic heart. β -Angelicalactone is more potent than the 3 α -unsaturated lactones. H. H. K.

Action of simple lactones related to cardiac aglycones. K. K. Chen, F. A. Steldt, J. Fried, and R. C. Elderfield (*J. Pharm. Exp. Ther.*, 1942, 74, 381—391).—27 unsaturated lactones related to cardiac aglycones were studied pharmacologically. β -Angelicalactone, the lactone of 21-hydroxy- $\Delta^{20:22}$ -norcholenic acid, methyl and ethyl coumalate caused systolic standstill of frogs' ventricles when adequate doses were injected into the ventral lymph sac. No digitalis-like action was observed in cats. β -Angelicalactone and methyl and ethyl coumalates produced a fall of blood pressure and failed to induce emesis. 100 mg. per kg. of β -angelicalactone caused convulsions. H. H. K.

Quinidine in auricular fibrillation. R. Bertram and J. S. Blumenthal (*Minnesota Med.*, 1942, 25, 198—200).—15 of 48 cases of auricular fibrillation treated with quinidine in divided daily doses up to an occasional max. of 48 grains per day became regular for 1—24 months; 7 of these relapsed into fibrillation or other arrhythmia after 6 months. 6 deaths occurred in this group and 2 deaths in a control group of 48 cases, taken alternately. Toxic symptoms of nausea, vomiting, diarrhoea, collapse, and death were seen following doses as low as 3 grains. E. M. J.

Pharmacologically active substances in serum. G. Reid and M. Bick (*Austral. J. Exp. Biol.*, 1942, 20, 33—46).—During blood

clotting a vasoconstrictor and smooth muscle-stimulating substance (or substances) is liberated into the serum. This exists already preformed in the platelets, and its liberation is incidental to clotting. Serum retains its vasoconstrictor activity for at least 3 months, whilst ultrafiltrates and platelet extracts lose their activity much more rapidly. The vasoconstrictor substance cannot be extracted with methyl or ethyl alcohol, or ether. It is thermostable and will dialyse through Cellophane. Serum prepared from centrifuged plasma has little or no vasoconstrictor or muscle-stimulating activity, that prepared from "cream-separated" plasma has some activity, whilst Hardyised serum is inactive. Active adenylyl compounds are not present in human serum more than 12 hr. old. Intravenous injection of homologous or heterologous serum made from whole blood produces in the cat, but not in the dog or rabbit, a fall in systemic blood pressure, which is still obtained after division of the vagi, atropinisation, decapitation, or pithing, and is due mainly to pulmonary vasoconstriction. The vasoconstrictor substance described above is not responsible for this effect, but it can be caused by various protein substances as well as by a thermolabile, non-dialysable substance which is liberated into serum during clotting and is derived from the platelets. The bearing of these results on human transfusions is discussed. J. N. A.

Insulin inactivation by thiol compounds. A. B. Corkill, A. H. Ennor, and J. F. Nelson (*Austral. J. Exp. Biol.*, 1942, 20, 15—16; cf. A., 1941, III, 438).—Subcutaneous injection of cysteine into rabbits causes hyperglycaemia, but fails to do so in rabbits injected with ergotoxine. Cysteine does not diminish the hypoglycaemic action of insulin in adrenalectomised rabbits. It is suggested that the apparent inactivation of insulin by cysteine in the intact animal is because cysteine hyperglycaemia masks the hypoglycaemic action of insulin and that cysteine hyperglycaemia is due to a reactionary output of adrenaline from the adrenals. J. N. A.

Action of laxatives on intestinal motility [in barium-meal]. S. Bruck and J. M. Fruchter (*Radiology*, 1942, 38, 145—153).—Fluid extract of cascara and compound liquorice powder produced no alteration in gastric emptying time; Mg citrate and sulphate and castor oil delayed gastric motility. All these laxatives produced an initial irritability of the proximal jejunum, lasting 1 to 3 hr. MgSO₄ delayed the passage of the meal through the small intestines. The liquorice powder and castor oil showed the most satisfactory and complete emptying of the colon; the Mg salts produced numerous bowel movements but showed more colonic retention at 48 hr. than the controls. E. M. J.

Nerve-modulus for anaesthetics. A. R. McIntyre, A. L. Bennett, and J. C. Wagner (*Science*, 1942, 95, 24).—Direct comparison of the effects of local anaesthetics may be made by measuring times (*t*) required to produce a decrease in action potential of 80% in an isolated nerve of *Rana pipiens*. The nerve-modulus (*Z*) = *t* log *R*, where *R* is the ratio (molarity — min. effective molarity); min. effective molarity, and *Z* = approx. 5.50. Limitations of the method are discussed. P. C. W.

Paraldehyde poisoning. M. Shoor (*J. Amer. Med. Assoc.*, 1941, 117, 1534—1535).—12 c.c. of paraldehyde produced fatal poisoning when given to a woman aged 21 during labour. Autopsy showed acute pulmonary congestion, subpleural and subpericardial haemorrhages, pericarditis, and adrenal haemorrhages. There were only traces of paraldehyde in blood, urine, and gastric contents and death was attributed to idiosyncrasy. C. A. K.

Narcotic potency of biurets containing piperidine. H. H. Anderson, C. H. Ch'eng, S. P'an, P. P. T. Sah, and C. Lu (*Science*, 1942, 95, 255—256).—1:1.5:5-Bis-pentamethylenebiuret and 5:5-pentamethylenebiuret protect mice against lethal doses of picrotoxin, and the latter protects against strychnine. Uterine activity and O₂ consumption of rat liver are depressed more by the former. Both are less toxic than common hypnotics (Na pentobarbital), except paraldehyde. (See also A., 1942, II, October.) E. R. S.

Action of phenylcinchoninic acid in preventing experimentally produced convulsions in rabbits. L. J. Pollock, I. Finkelman, and E. L. Tigay (*J. Pharm. Exp. Ther.*, 1942, 74, 365—368).—Intravenous or oral administration of phenylcinchoninic acid reduced convulsions after intravenous injection of convulsant doses of metrazol. It did not prevent convulsions produced by picrotoxin or thujone or by the passage of a.c. through the head. H. H. K.

Effect of wide variations in potassium and sodium intake in asthmatic children. G. F. Harsh and P. B. Donovan (*J. Allergy*, 1942, 13, 105—113).—A high Na intake increased the amount of asthma of 12 children, but a high K intake had little or no effect. C. J. C. B.

Potassium chloride therapy and serum-potassium in infantile eczema. A. V. Stoesser (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 332—335).—Serum-K is raised during the acute stage to 24—26 mg.-%, but oral administration of KCl does not affect it in either patients or controls, and has no influence on the disease. V. J. W.

Salicylates in acute rheumatic pericarditis with effusion. H. T. Gross (*J. Kansas Med. Soc.*, 1942, 43, 98—102).—11 g. of Na

salicylate were given daily per rectum and 1 g. intravenously in a case of pericardial effusion, and caused prompt reduction of temp. and pulse rate, a marked decrease in the cardiac shadow within 20 days, and complete return to normal 2 months later. E. M. J.

Blood level of magnesium ion in relation to lethal anaesthesia, analgesic and anti-tetanic effects. R. M. Moore and W. J. Wings (*Amer. J. Physiol.*, 1942, **135**, 492—495).—Continuous intravenous injections of 2-16% $MgCl_2 \cdot 6H_2O$ (isotonic with blood) were made in cats and dogs. With preliminary ether anaesthesia lethal serum-Mg concn. was 33.0 mg.-%, with light Na amylal or nembutal 24.7 mg.-%. If respiration is artificially maintained, or Ca salts are given, higher concns. are tolerated. If the Mg administration is terminated before death the animal survives uninjured. 23 mg.-% provides surgical anaesthesia. Dangerously high serum concns. of Mg are not required for effective treatment of tetanus (one case).

M. W. G.

Intravenous magnesium sulphate in treatment of nephritic convulsions in adults. A. W. Winkler, P. K. Smith, and H. E. Hoff (*J. clin. Invest.*, 1942, **21**, 207—216).—The slow intravenous injection of 2% $MgSO_4$ is of val. in preventing and controlling convulsions in adult chronic nephritis. More than 1 l. of 2% $MgSO_4$ should not be given in 48 hr. in the presence of severe renal damage lest respiratory paralysis be caused by the high serum-Mg concn. Mg in these amounts causes cutaneous vasodilatation in all subjects. Blood pressure regularly falls in subjects with acute nephritis or eclampsia but is frequently unaffected in those with chronic cardiovascular disease.

C. J. C. B.

Solution of aluminium citrate as substitute for solution of aluminium acetate N.F. T. Butterworth and L. W. Wolfe (*Arch. Dermat. Syphilol.*, 1942, **45**, 514—518).—A 36% solution is used in wet compresses, and a 6% solution as a substitute for the official solution of Al acetate for all other purposes.

C. J. C. B.

New bismuth compound identical in chemical origin with sobisminol mass. M. van Winkle, jun., and P. J. Hanzlik (*Arch. Dermat. Syphilol.*, 1942, **45**, 478—481).—The new compound of Bi (unlike sobisminol mass) was not absorbed from the intestine.

C. J. C. B.

Intraspinal therapy of neurosyphilis. R. R. Kierland and P. A. O'Leary (*J. Amer. Med. Assoc.*, 1941, **117**, 2035—2042).—Intraspinal injections of serum + small amounts of arsphenamine (Swift-Ellis technique) were given to 370 patients with neurosyphilis. Best therapeutic results were obtained in asymptomatic and meningeal neurosyphilis and in early tabes dorsalis.

C. A. K.

Massive dose arsenotherapy of early syphilis by intravenous drip method. I. Toxicology, clinical observations, and therapeutic results. J. F. Sadusk, B. Craige, N. Brookens, A. K. Poole, and M. J. Strauss. **II. Electrocardiographic abnormalities associated with massive arsenotherapy.** A. J. Geiger, B. Craige, and J. F. Sadusk. **III. Pregnancy, and its outcome, associated with or following the treatment of early syphilis by massive arsenotherapy.** J. F. Sadusk and T. E. Shaffer (*Yale J. Biol. Med.*, 1942, **14**, 333—355, 357—363, 365—371).—Primary and secondary fever, toxicodermma, jaundice, peripheral neuritis, nausea and vomiting, local thrombophlebitis, and leucopenia were encountered. 19 out of 21 cases followed for 6 months become Wasserman- and Kahn-negative. In 21 courses out of 25 in 23 patients there occurred e.g. abnormalities consisting principally of diminished T wave, and frequent inversion of T in leads other than the 3rd. 2 patients, who received massive arsenotherapy shortly before the onset of pregnancy, were delivered of normal infants, neither of whom developed congenital syphilis.

F. S.

Detoxifying action of vitamin-C in arsenical therapy. H. N. Bundesen, H. C. S. Aron, R. S. Greenebaum, C. J. Farmer, and A. F. Abt (*J. Amer. Med. Assoc.*, 1941, **117**, 1692—1695).—Ascorbic acid prevents oxidation of 3 times its wt. of nearsphenamine or mapharsen in solution. Of 38 patients who showed strongly positive cutaneous reactions to 30% nearsphenamine solution in patch test 32 showed no reaction when 10% ascorbic acid was added to the nearsphenamine. The patch test response was not influenced by plasma-ascorbic acid levels, but reactions may be prevented by giving large doses of ascorbic acid during nearsphenamine therapy.

C. A. K.

Zinc peroxide preparations. C. Hoyle, J. W. Spence, and S. H. Faulkner (*Lancet*, 1942, **242**, 7—9).—Active, stable preps. of ZnO_2 in ointments, liquid suspensions, and gelatin are described. Ordinary paraffins are the best vehicles for ointments and arachis oil for liquid suspensions. Glyceryl monostearate is a good suspending agent for oil suspensions.

C. A. K.

Derivatives of 3 : 5-di-iodohypuric acid.—See A., 1942, II, 283.

Expectorant action of iodides. L. Tuft and N. M. Levin (*Amer. J. med. Sci.*, 1942, **203**, 717—722).—Iodides given orally or intravenously are excreted into the bronchial secretion in man in 15—25 min. This excretion probably accounts for the action of iodides as expectorants. Oral administration is as effective as intravenous and less troublesome.

C. J. C. B.

Skeletal fluorosis in chronic sodium fluoride poisoning. P. C. Hodges, O. J. Fareed, G. Ruggy, and S. S. Chudnoff (*J. Amer. Med. Assoc.*, 1941, **117**, 1938).—X-Ray studies in subjects who had been exposed for many years to 3 p.p.m. of NaF in drinking-water showed no skeletal fluorosis.

C. A. K.

Toxicity of fluorine in dicalcium phosphate. F. DeEds (*Amer. J. med. Sci.*, 1942, **203**, 687—692).—The toxicity of F present in commercial $CaHPO_4$ was investigated, using the bleaching of rat incisor teeth as a criterion of injurious action. The F present was as physiologically active as F administered as NaF.

C. J. C. B.

Mustard oil—argemone oil theory of epidemic dropsy. S. N. Sarkar (*Ann. Biochem. Exp. Med.*, 1941, **1**, 59—63).—The amount of argemone oil necessary to provoke epidemic dropsy is not present in potent mustard oil samples from affected areas. A laboratory sample of toxic mustard oil has been obtained uncontaminated with argemone oil.

C. J. C. B.

Dermatitis due to "antiseptic oils." J. H. Lapin (*Amer. J. Dis. Child.*, 1942, **63**, 89—91).—Dermatitis followed the application of "antiseptic baby oil" in the cases of 6 infants under 3 months and 1 of 30 newborn infants due to quinol used as an antioxidant.

C. J. C. B.

External contact with monoethyl ether of diethylene glycol (carbitol solvent). A. G. Cranch, H. F. Smyth, jun., and C. P. Carpenter (*Arch. Dermat. Syphilol.*, 1942, **45**, 553—559).—In the rabbit eye dil. solutions of this solvent are less irritating to the mucous membrane than similar solutions of glycerin. When conc. solutions are kept in contact with large wounds in the rabbit flank extending into the muscular fascia, healing is not retarded, and no injury was observed after 23 days.

C. J. C. B.

Seasonal variation in toxicity of viper's blood. G. Bertrand and R. Vladesco (*Compt. rend.*, 1941, **213**, 153—155).—The toxicity of the blood and venom of the viper for guinea-pigs is higher in autumn than in spring.

W. McC.

Activity of derivatives of curare as prepared in liquid ammonia. R. G. Roberts, R. A. Hecht, and A. W. Jackman (*J. Pharm. Exp. Ther.*, 1942, **74**, 392—394).—Curare which has been treated with liquid NH_3 forms a much finer dispersion in water than does untreated curare. The NH_3 does not inactivate curare by remaining in contact with it for 48 hr. Curare can be fractionated in liquid NH_3 by the use of sintered glass filters with the removal of more than 50% of inert material. The fraction of curare insol. in liquid NH_3 when treated with glycine becomes 6 times as potent, its paralyzing power is more prolonged, and it is less toxic than curare.

H. H. K.

Intracorpuseular bile pigment formation. R. Lemberg and J. W. Legge (*Austral. J. Exp. Biol.*, 1942, **20**, 65—68).—Injection of phenylhydrazine into rabbits increases the amounts of choleglobin and biliverdin in the erythrocytes, and this intracorpuseular formation accounts for a large part of the bile pigment formation caused by the drug. Normal human blood contains only a few $\mu g.$ of biliverdin per c.c. The val. is not significantly higher in untreated pernicious anaemia, but is much higher in erythroblastosis fetalis.

J. N. A.

Tissue injury by trypsin. E. R. Trethewie (*Austral. J. Exp. Biol.*, 1942, **20**, 49—54).—Trypsin causes the liberation of an adenyly compound, an enzyme which will inactivate this compound, and a slow-reacting muscle stimulant from the isolated perfused rabbit's liver. The output of these substances is greater when ether instead of chloralose is used as anaesthetic. The significance of the results and the similarity between the substances liberated by trypsin and by snake venom are discussed.

J. N. A.

Relation of age and tolerance for atropine in white rats. Z. Kanda (*Japan. J. Med. Sci.*, 1941, **IV**, **14**, 13—17).—Young rats were more sensitive to subcutaneously administered atropine than adults.

H. H. K.

Immediate effect of cigarette smoking on basal metabolic rates. V. R. Goddard and J. G. Voss (*J. Lab. clin. Med.*, 1942, **27**, 787—791).—Effects on basal metabolism were variable. A rise in pulse rate, respiration rate, and body temp. following smoking is generally observed.

C. J. C. B.

Rôle of bases in ointments used for protection against sunlight. E. A. Strakosch (*J. invest. Dermatol.*, 1942, **5**, 1—5).—Petrolatum or lanolin afforded no protection against irradiation from a Hg arc; Aquaphor (containing 6% of a group of esters of cholesterol in an aliphatic hydrocarbon base) and Abbott's Ninol base (containing fatty acid esters of monoethanolamine, mixed with petrolatum) gave slight protection. The addition of quinine or tannic acid to petrolatum or lanolin did not increase the protection; when added to emulsions of fine distribution, such as Aquaphor and Abbott's Ninol base, protection was marked.

C. J. C. B.

Therapy with gluconic acid. S. Muntner (*Harefuah*, 1941, **21**, 1—24).—Good results were obtained in many disorders by administration of "mohal," a beverage obtained by fermenting sweet tea and containing 15% of gluconic acid.

V. J. W.

Artificial fever therapy in juvenile neurosyphilis. J. C. Nielsen, J. R. Marx, and H. A. Dickel (*Arch. Dermat. Syphilol.*, 1942, 45, 688—693).—5 patients were treated with artificial fever therapy and with subsequent chemotherapy. 1 died during treatment, and the rest showed physical and mental improvement during the next 1—3½ years. C. J. C. B.

Herpes simplex following artificial fever therapy. F. M. Keddle, R. B. Rees, and N. N. Epstein (*J. Amer. Med. Assoc.*, 1941, 117, 1327—1330).—Herpes simplex followed artificial fever therapy in 70% of 321 patients, most frequently after the first treatment. The incidence was higher in patients with syphilis of the nervous system than in those with gonococcal infections, and was roughly proportional to the degree of induced pyrexia. A single small-pox vaccination prior to therapy did not lessen the incidence of herpes in 100 cases. C. A. K.

Reduction of skin irritation by adhesive plaster. R. F. Legge (*J. Amer. Med. Assoc.*, 1941, 117, 1783).—Studies in 46 subjects showed that adhesive plaster caused cutaneous irritation in 30% of tests and that previous application of merthiolate in 50% alcohol and 10% acetone reduced the frequency to 20%. Metaphen and compound tincture of benzoin were less effective. C. A. K.

XXI.—PHYSIOLOGY OF WORK AND INDUSTRIAL HYGIENE.

Clothing in air conditioning. C. P. Yaglou and A. Messer (*J. Amer. Med. Assoc.*, 1941, 117, 1261—1262).—Men and women showed differences in comfort standards with respect to external temp., which were almost entirely due to differences in clothing. When women wore men's clothing and vice versa the comfortable external temp. was about the same for both sexes. C. A. K.

Silicosis of systemic distribution. K. N. Lynch (*Amer. J. Path.*, 1942, 18, 313—319).—In clinical silicosis SiO_2 was found in the spleen and liver, causing damage there. In the liver, the deposit was of central lobular location, associated with Kupffer cells in the sinusoids and with degeneration and necrosis of liver cells and early fibrosis. The material is not Fe-bearing and resembles the dust deposits in the lung; the tissues containing it showed significant amount of SiO_2 on chemical examination; the tissues damaged were in direct relation to the dust-like deposits. There was no associated tuberculosis. (3 photomicrographs.) C. J. C. B.

Aplastic anaemia. L. M. Meyer and V. Ginsberg (*J. Ind. Hyg.*, 1942, 24, 37—38).—Record of one case occurring 10 years after exposure for 1 year to benzene. E. M. K.

Mercury poisoning from the use of an anti-fouling plastic paint. L. J. Goldwater and C. P. Jeffers (*J. Ind. Hyg.*, 1942, 24, 21—23).—The plastic paint was a synthetic resin containing salts of Hg, Pb, and As; hazards arose in the heating of the paint and its spraying while hot. Among 17 workers 9 cases suggesting Hg poisoning were reported; 5 men exhibited tremor, 4 gingivitis, and 6 had increased urinary Hg. Recovery was almost complete a year after exposure had ceased. E. M. K.

Physics and protection against industrial dust.—See B., 1942, III, 173.

XXII.—RADIATIONS.

Biological-chemical applications of fast neutrons and artificial radioactive substances. N. W. Timoféeff-Ressovsky (*Angew. Chem.*, 1941, 54, 437—442).—A review. D. F. R.

Temperature and radiosensitivity of skin of new-born rats. IV. Effects of decreased circulation or breathing during irradiation. T. C. Evans, J. P. Goodrich, and J. C. Slaughter (*Radiology*, 1942, 38, 201—206).—Temporary inhibition of circulation of the part or of respiration increased the radio-resistance of the skin of new-born rats comparable with the effect of moderate cooling. An indirect effect through decrease of metabolism is therefore suggested. E. M. J.

Recovery function of irradiated tissues. A. Mutscheller (*Radiology*, 1942, 38, 53—73).—The mass-röntgen (m-r.) is introduced as a measure of the radiation absorbed in a layer of 1 cm. of a medium; the total m-r. stopped in the surface 1 cm. of water when the erythema dose was given by 4 types of X-radiation were equal and averaged 70. The latent dose for normal adult skin irradiated with the highly filtered 200-kv. radiation was calc. to be 130 r.-min. The biologically actinic rate $D_s = (\rho/\gamma)(1 - e^{-\gamma t})$, where ρ is the radiation absorbed in unit vol. of tissue and γ the recovery rate, which for the skin equals 0.22. ρ/γ is the equilibrium action rate. % killing curves are constructed for intensity rates of 10, 30, and 60 r. per min. with $\mu = 0.13$ for the skin ($\gamma = 0.22$) and at one of the rates for tissues with $\gamma = 0.44$ and 0.11. The shape of the killing curve varied with the intensity rates and recovery rates; they were generally skew-shaped. Below a crit. rate of m-r. a tissue reaction may fail. The same degree of biological activity is produced when the intensity and absorption factor are so adjusted that the ratio

m-r./ γ is kept const. Conditions for effective clinical treatment of slowly recovering tissues on the one hand and for deep-seated rapidly recovering tissues are outlined. E. M. J.

Concentration method of radiotherapy. M. Cutler (*J. Amer. Med. Assoc.*, 1941, 117, 1607—1610).—A new technique, the method of concn., for external irradiation of the more radio-resistant forms of cancer of the mouth, pharynx, and larynx is described. Higher daily dose and shorter total treatment period are its main features. C. A. K.

Radiation therapy in carcinoma of the lung. W. V. Tenzel (*J. Amer. Med. Assoc.*, 1941, 117, 1778—1782).—Studies of 192 patients with primary carcinoma of the lung showed that irradiated cases survived an average of 5 months longer than untreated cases, and that 45% had symptomatic relief. C. A. K.

Threshold erythema dose of Roentgen rays. J. C. Belisario and R. E. Pugh, jun. (*Arch. Dermat. Syphilol.*, 1942, 45, 519—544).—Review of the literature and comment on variation of doses in use in Australia, the United States, and England. C. J. C. B.

Threshold erythema dose of Roentgen rays. J. C. Belisario (*Arch. Dermat. Syphilol.*, 1942, 45, 641—669).—The average threshold erythema dose in 80% of 40 adults for a half-val. layer of 0.9 mm. of Al was 350 r. for a field 1 cm. diameter. The results of the erythema tests analysed according to colouring, sex, age, and texture of the skin were very variable. C. J. C. B.

Treatment of cutaneous diseases with radon ointment and radium pads. L. Isaak (*Arch. Dermat. Syphilol.*, 1942, 45, 560—573).—Excellent results were obtained with Rn ointment and Ra pad treatment in cases of lichen simplex chronicus (Vidal) and other eruptions of localised neurodermatitis. Good results were obtained in chronic lichenified eczema and in lichen planus and lichen hypertrophicus but not in psoriasis. C. J. C. B.

X-Ray protection in diagnostic radiology. C. B. Braestrup (*Radiology*, 1942, 38, 207—216).—A survey of the stray radiation of various types of apparatus. E. M. J.

Photoröntgenography [in tuberculosis programme]. M. L. Pindell (*Radiology*, 1942, 38, 224—231).—The use of a 4 × 5-in. film is advocated. E. M. J.

New method of localisation by modified use of laminagraph. R. A. Corby (*Radiology*, 1942, 38, 186—187). E. M. J.

Tube ratings and exposure. M. M. Schwarzschild (*Radiology*, 1942, 38, 84—85).—Rating charts showing min. exposure time against charge for various peak kilo-voltages, min. exposure time against energy (peak kv. × amp. × sec.) with focal spot size as parameter, and max. current against charge with peak kv. as parameter are presented with double logarithmic co-ordinates. E. M. J.

Universal table for fluoroscopic localisation of foreign bodies. F. Blonek (*Radiology*, 1942, 38, 174—185).—The triangulation principle with a single or double tube-shift was used. A table and two nomograms are given. E. M. J.

Stepless voltage control for X-ray generators. A. H. Warner and R. H. Neil (*Radiology*, 1942, 38, 77—79). E. M. J.

Instruments for measuring X-ray tube voltage. M. M. D. Williams (*Radiology*, 1942, 38, 80—83).—A calibrating device for use with an oscillograph and a vac.-tube peak voltmeter are described. E. M. J.

Röntgen dose fractionation for varying periodicities. W. H. Meyer (*Radiology*, 1942, 38, 191—200).—Radiation dose decadence based on clinical impressions varied with the individual fraction used: 50% decadence was reached in 1 day after $\frac{1}{2}$ and 5 days after 1 skin unit dose. E. M. J.

Comparative isodose charts for 200-, 400-, and 1000-kv. X-rays. M. C. Reinhard and H. L. Goltz (*Radiology*, 1942, 38, 74—76).—Isodose charts for these 3 peak voltages are presented for 5 × 5-, 10 × 10-, and 20 × 20-cm. fields. The vol. of tissue outside the beam and receiving more than 10% of the incident radiation was 50, 35, and 20% of the vol. in the beam down to a depth of 20 cm. at these voltages. E. M. J.

Rapid film changer [for use in contrast angiocardiology]. M. L. Sussman, M. F. Steinberg, and A. Grishman (*Radiology*, 1942, 38, 232—233).—A wooden wheel, 62 in. in diameter, holding eight 10 × 12-in. cassettes and turned by hand, allowed 8 exposures to be made in 10 sec. E. M. J.

Effect of radiation from radioactive isotopes on protoplasm of Spirogyra. R. M. Muir (*J. Cell. Comp. Physiol.*, 1942, 19, 244—247).— β -Rays from ^{32}P increased protoplasmic viscosity when the solution had a concn. of 4 millicuries per l., but not at a concn. of 2.1 millicuries. P concn. of filaments fluctuated in such solutions, but remained const. in solutions which were not radioactive. V. J. W.

Action of X-rays on *Pandorina morum*. L. Halberstaedter and A. Back (*Brit. J. Radiol.*, 1942, 15, 124—128).—Hanging drop preps. of single colonies of *Pandorina* were irradiated at intensities

of 80,000 and 9000 r. per min. Immediate death occurred with doses of over 300,000 r., death at division time, *i.e.*, the 7th or 8th day, with doses of over 3000—300,000 r., and normal division with 1000—3000 r. Fractionisation showed the same results for equal total doses. All individuals of culture colonies died at the same time; with wild cultures a no. of individuals of a clone survived 600,000 r.

E. M. J.

XXIII.—PHYSICAL AND COLLOIDAL CHEMISTRY.

Emulsifying power of α -amino-acids.—See A., 1942, I, 295.

Semi-conductors and their rôle in electro-physiology.—See A., 1942, I, 300.

Membrane resting and action potentials from squid giant axon. H. J. Curtis and K. S. Cole (*J. Cell. Comp. Physiol.*, 1942, 19, 135—144).—Electrodes placed on the surface and in the axon gave an average p.d. of 51 mv., at rest, surface being positive, which was reduced by an average of 108 mv. in activity. The action response was almost abolished by a K concn. which did not affect the resting p.d.

V. J. W.

Protein sols with bile acid salts. C. Wunderly (*Helv. Chim. Acta*, 1942, 25, 498—507).—Five protein sols prepared from globular protein and Na cholate, Na deoxycholate, Na glycocholate, Na deoxycholate + cholesterol, and Na glycocholate + Na deoxycholate + cholesterol have been investigated. Behaviour towards physical changes (*e.g.*, p_H and heat changes) is characteristic for each system.

C. R. H.

X-Ray diagram of dehydrated muscle. W. Lotmar and L. E. R. Picken (*Helv. Chim. Acta*, 1942, 25, 538—551).—On the basis of interference diagrams of dehydrated sphincter muscle of *Mytilus edulis*, the mol. structure of the muscle-albumin is discussed. The unit cell has a 11.70, b 5.65, c 9.85 Å; β 73° 30'.

C. R. H.

XXIV.—ENZYMES.

Quantitative changes in substrate-dehydrogenase system of *Drosophila* pupae during metamorphosis. A. Wolsky (*Science*, 1941, 94, 48—49).—The substrate-dehydrogenase system of *Drosophila* pupae undergoes quant. changes during metamorphosis which run parallel with changes in the O_2 consumption.

E. R. S.

Components of succinic oxidase system. F. B. Straub (*Z. physiol. Chem.*, 1942, 272, 219—226).—The prep. from pig's heart of a mixture ("cholate prep.") of succinic dehydrogenase and cytochrome oxidase containing small proportions of malic dehydrogenase and cytochrome-*a*, -*b*, and -*c* and of a mixture ("SC factor," which binds succinic dehydrogenase and cytochrome-*c*) of cytochrome oxidase and cytochrome-*a* containing traces of -*b* and -*c* (but no succinic or malic dehydrogenase) is described. Succinic dehydrogenase is inactivated in 10—15 min. at 55° and p_H 9 but is inactivated at room temp. only when the p_H is increased to 10.2—10.5. The SC factor catalyses the reaction between succinic dehydrogenase and cytochrome-*c*. In the succinic dehydrogenase system, the SC factor is essential for reduction of cytochrome-*a*, which is reduced at the same rate as -*c*. If the cholate prep. is added to a mixture of SC factor, cytochrome-*c*, succinized, and KCN, cytochrome-*a* is at once reduced and -*c* is at first oxidized and then reduced, since -*a* catalyses the reaction between -*c* and cytochrome oxidase. The activity of SC factor is greatest at p_H 8 and diminishes very rapidly at other p_H . In the biological oxidation of malic acid, the SC factor does not catalyse the reaction between diaphorase and cytochrome-*c*.

W. McC.

Inhibitory action of sulphonamides. E. Baur and H. Rûf (*Helv. Chim. Acta*, 1942, 25, 523—527).—Of five sulphonamides examined, sulphalanilic acid and cibazol had the strongest inhibitory action on the oxidation of tyrosine (by means of tyrosinase) and quinol.

C. R. H.

Photochemical spectrum of cytochrome oxidase in heart muscle. J. L. Melnick (*Science*, 1941, 94, 118—119).—Cytochrome oxidase from rat heart muscle, like the respiratory ferment in yeast and bacteria, exhibits a spectrum characteristic of phæohæmin compounds with a main absorption band at 450 μ . (430 μ . for yeast and bacteria).

E. R. S.

Intervention of deuterium in enzymic processes. A. de Pereira Forjaz, K. P. Jacobsohn, and J. Tapadinhas (*Bull. Soc. Port. Sci. Nat.*, 1940, 13, 71—73).—The enzymic action of the fumarico-aminase on the reaction fumaric acid + $NH_3 \rightleftharpoons$ aspartic acid was studied, using as enzyme a dry prep. of *B. coli*. The enzymic reaction was carried out in presence of NH_4Cl + H_2O and ND_4Cl + D_2O . In the latter system ND_3 was fixed on the double bond of fumaric acid but the reaction velocity was decreased; the final equilibrium was not influenced by deuterium.

I. C.

Influence of deuterium oxide on enzymic action of aconitases. A. de Pereira Forjaz, K. P. Jacobsohn, and J. Tapadinhas (*Bull. Soc. Port. Sci. Nat.*, 1939, 13, 37—41).— α - and β -Aconitase, present

in an extract of pig liver, were made to act on aconitic acid in presence of D_2O and H_2O . The speed of the enzymic reactions aconitic acid \rightarrow citric acid and aconitic acid \rightarrow isocitric acid is lowered by D_2O , but the final equilibria reached are the same in presence of H_2O and D_2O .

I. C.

Aconitases in placenta. D. Pedro da Cunha (*Bull. Soc. Port. Sci. Nat.*, 1939, 13, 43—45).—Placental extracts acting on Na citrate produce isocitrate, owing to the presence of α -aconitase.

I. C.

Structure of enzymic system of aconitases. K. P. Jacobsohn (*Bull. Soc. Port. Sci. Nat.*, 1940, 13, 75—77).—Extracts of pig liver contain enzymes active on the same substrates as aconitases. Dialysis decreases the enzymic potency of the extracts; KCN does not destroy the enzymes.

I. C.

Enzymes acting on double bonds. K. P. Jacobsohn (*Bull. Soc. Port. Sci. Nat.*, 1940, 13, 79—83).—Enzymic extracts of animal organs, *B. coli*, and a dry prep. of taka-diastrase do not act on Na *d*-tartrate or on Na citrate.

I. C.

Poisoning of aconitases. K. P. Jacobsohn and M. Soarez (*Bull. Soc. Port. Sci. Nat.*, 1940, 13, 91—93).—Aconitases in extracts of pig liver are resistant to morphine, quinine, quinidine, strychnine, and atoxyl.

I. C.

Equilibrium in enzymic system of aconitases. K. P. Jacobsohn (*Bull. Soc. Port. Sci. Nat.*, 1940, 13, 96—98).—In enzymic systems of aconitases the lowering of the temp. from 37° to 5° does not alter the final equilibrium; enzymic preps. of different age and origin establish different final equilibria.

I. C.

Equilibria of systems of aconitases. K. P. Jacobsohn (*Bull. Soc. Port. Sci. Nat.*, 1940, 13, 115—117).—If the ratio substrate/enzyme is decreased in the system Na citrate-extract of pig liver, the quantity of isocitric acid produced is decreased, while that of citric acid is correspondingly increased.

I. C.

Insulin and citric fermentation [and aconitases]. K. P. Jacobsohn and A. da Cruz (*Bull. Soc. Port. Sci. Nat.*, 1940, 13, 111—114).—Insulin is inactive towards α - and β -aconitase. In high doses insulin decreases the reaction velocity in systems of isocitric dehydrogenases.

I. C.

Crystalline catalase from beef erythrocytes. M. Laskowski and J. B. Sumner (*Science*, 1941, 94, 615).—A method of prep. is described. The visible absorption spectrum is identical with that of ox liver catalase, but the activity is greater ("kat.f." = 48,000) and prosthetic groups are lacking.

E. R. S.

Sulphonamide and urethane inhibition of *Cypridina* luminescence *in vitro*. F. H. Johnson and A. M. Chase (*J. Cell. Comp. Physiol.*, 1942, 19, 151—161).—These inhibitions are reversible and act on the luciferase, so that the velocity coeff. is decreased and total luminescence is not affected. *p*-Aminobenzoic acid is also inhibitory and summates with sulphonamide in effect.

V. J. W.

Reaction of *Cypridina* luciferin with azide. A. M. Chase (*J. Cell. Comp. Physiol.*, 1942, 19, 173—181).— NaN_3 concns. of 0.001—0.1M. progressively decrease total luminescence from purified luciferin and luciferase. 2.5 times as much NaN_3 is required at p_H 6.6 as at p_H 5.4 to cause the same decrease. The action is almost all on the luciferin and is reversible. It is suggested that HN_3 reacts with a benzenoid-quinoid system in the luciferin mol.

V. J. W.

Kinetics of *Cypridina* luminescence. A. M. Chase and E. N. Harvey (*J. Cell. Comp. Physiol.*, 1942, 19, 242—243).—If luciferin and luciferase preps. are highly purified there is no increase in velocity coeff. on dilution as was stated by earlier investigators.

V. J. W.

Oxidation, reduction, and thiols in autolysis. B. Bailey, S. Belfer, H. Eder, and H. C. Bradley (*J. Biol. Chem.*, 1942, 143, 721—728).—Removal of cysteine from autolysing liver tissue by an oxidant such as KIO_3 or a high O_2 tension decreases the rate of autolysis. Results suggest that two enzymes are concerned in the primary cleavage of the proteins. One of these is active even in the absence of cysteine, whilst the other requires thiol activation which, although it accelerates digestion, still only achieves the same equilibrium point as measured by sol. N and the tyrosine reaction.

P. G. M.

Activation of papain trypsinase as function of nature of activator. G. W. Irving, jun., J. S. Fruton, and M. Bergmann (*J. Gen. Physiol.*, 1942, 25, 669—677; cf. A., 1941, III, 705).—The reversible activation of papain- β -trypsinase is due to the formation of dissociable activator- β -trypsinase compounds, which are formed from several activators, *e.g.*, HCN, H_2S , cysteine, and glutathione. These compounds represent different enzymic entities the proteolytic properties of which depend on the nature of the particular activator. Under conditions of optimum activity, HCN-activated trypsinase hydrolyses benzoylarginineamide at more than twice, and cysteine- or glutathione-activated trypsinase at more than 3 times, the rate observed for H_2S -activated trypsinase.

J. N. A.

Enzymes in snake venom. B. N. Ghosh, S. S. De, and D. K. Chowdhury (*Ann. Biochem. Exp. Med.*, 1941, 1, 31—42).—The peptidase in venom from Russell's viper, cobra, banded krait, or *Echis carinata* is probably trypsin since it has the same p_H optima

and crit. inactivation temp. Unheated venom from the last 2 snakes activates trypsin, that from the first 2 inhibits. All the venoms hydrolyse Witte's peptone at an optimum p_H of 8.4. A dipeptidase is present in all 4 venoms capable of hydrolysing glycylglycine and *l*-leucylglycine, also a polypeptidase capable of hydrolysing *l*- but not *d*-leucylglycylglycine, and a carboxypolypeptidase. Choline-esterase was present in cobra and banded krait venoms. A method of effecting an 11-fold concn. of the venom hæmolysis is described. The extract contains lecthinase activity but no other enzyme. P. C. W.

Trehalose and trehalase. M. Frèrejacque (*Compt. rend.*, 1941, 213, 88—90).—The prep. of trehalase from insect parasites of fungi is described. Besides trehalose, this enzyme hydrolyses (more slowly) sucrose and maltose, but not α -methylglycoside. The optimum p_H is approx. 5.8, with a max. activity at 52—53° in the presence of $PO_4^{''}$ buffer. The insects contain the enzyme irrespective of whether the fungus on which they are parasitic contains trehalose. P. G. M.

Action of phloridzin on acid phosphatase activity and on glucose phosphorylation of kidney cortex extracts. L. V. Beck (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 435—439).—At p_H 5 formation of inorg. $PO_4^{''}$ from glycerophosphate by kidney cortex extracts is markedly decreased by 0.01M-phloridzin and occasionally by 0.001M. At p_H over 7 no such inhibition is caused. With intestinal mucosa extract results are not const. The least concn. of phloridzin which inhibits phosphorylation of glucose by rabbit kidney cortex is 0.003M. V. J. W.

Enzymic activity of extracts of placenta. D. Pedro da Cunha (*Arch. Port. Sci. Biol.*, 1938, 4, 134—147).—The fumarico-hydratase activity of foetal blood is higher than that of maternal venous blood. Extracts of placenta hydrolyse K diphenylpyrophosphate, glycerophosphoric acid, and succinic acid, whilst they are inactive on lactic, *l*-malic, hydroxybutyric, and citric acids. I. C.

XXV.—MICROBIOLOGICAL AND IMMUNOLOGICAL CHEMISTRY. ALLERGY.

Proliferation-promoting activities of extracts from ultra-violet-injured yeast cells and of bios components. E. S. Cook and A. G. Cronin (*Nature*, 1942, 150, 93—94).—Cell-free wound hormone preps. from ultra-violet-injured yeast cells maintain much of their proliferation-promoting potency for yeast in media containing amino-acids, inositol, thiamin, pantothenic acid, biotin, vitamin- B_6 , riboflavin, uracil, choline, acetylcholine, ethanalamine, nicotinic acid, and β -aminobenzoic acid as well as the required inorg. constituents and sugar. A. A. E.

Complement-fixation reaction in response to *Plasmodium knowlesi* antigen in experimental animals. J. C. Ray, S. Mukerjee, and A. N. Roy (*Ann. Biochem. Exp. Med.*, 1941, 1, 101—115).—*P. knowlesi* vaccine free from red blood cells gave rise to complement-fixing antibodies in the sera of injected rabbits and monkeys. Complement-fixing antigens were prepared from water-sol. extracts of the spleen and blood of monkeys in the terminal stages of *P. knowlesi* infection. P. C. W.

Agglutinating titre obtained in rabbit against strain of *Leishmania tropica* after active immunisation. T. J. Gupta (*Ann. Biochem. Exp. Med.*, 1941, 1, 116).—Agglutination with the sp. antigen was obtained in a titre of 1 : 20,000 after active immunisation. P. C. W.

Sterile culture of *Paramecium multimicronucleata*. W. H. Johnson and E. G. S. Baker (*Science*, 1942, 95, 333—334).—Sterile paramecia have been cultured in Buchner's pressed yeast juice. The highest division rate was 0.5 per day. Growth was not obtained with heated yeast juice. E. R. S.

Origin of dipeptidase in protozoan. W. L. Doyle and E. K. Patterson (*Science*, 1942, 95, 206).—*Didinium nasutum* feeds exclusively on paramecia. Starved *Didinia* divide, but the dipeptidase content of the progeny is the same as that of the parents. *Didinia* fed on paramecia have the same dipeptidase content as the original total organisms before ingestion of the paramecia. Either *Didinia* synthesise dipeptidase at the same rate at which it is destroyed or *Didinia* absorb dipeptidase quantitatively from paramecia. E. R. S.

Effect of vitamin-C and other substances on growth of micro-organisms. G. C. Das Gupta and B. C. Guha (*Ann. Biochem. Exp. Med.*, 1941, 1, 14—26).—Ascorbic acid stimulates the growth of *Aspergillus niger*, *A. oryza*, *A. flavus*, *Sacch. cerevisiae*, and *S. ellipsoideus* in synthetic media in a concn. of 1/50,000; at 1/10,000 it inhibits. In concns. of 1/50,000—1/20,000 it inhibits the growth of *B. subtilis*, *B. typhosus*, *B. coli*, *Aerobacter aerogenes*, *Staph. aureus*, *Strep. hemolyticus*, and *B. diphtheria*; at 1/100,000 it has no effect. Glutathione and cysteine have similar but smaller effects. Certain fungi are capable of synthesising ascorbic acid but until the synthesis starts added ascorbic acid stimulates growth.

Nicotinic acid, insulin, and adrenaline stimulate the growth of bacteria and fungi in concn. of 1/50,000. P. C. W.

Use of avidin in studies on biotin requirement of micro-organisms. M. Landy, D. M. Dicken, M. M. Bicking, and W. R. Mitchell (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 441—444).—Biotin requirement of any bacterium can be determined by observing the effect on its growth of avidin, an egg-white constituent, which combines with and neutralises biotin. Results for 30 organisms are tabulated. V. J. W.

Influence of chemical constitution on antiseptic activity. I. Monoaminoacridines. S. D. Rubbo, A. Albert, and M. Maxwell (*Brit. J. exp. Path.*, 1942, 23, 69—83).—In a series of 5 mono-aminoacridines biological activity (bacteriostatic and bactericidal powers, toxicity for mammalian tissue, effect on phagocytic action) ran parallel to chemical basicity which is attributed to variation in the state of chemical union of the N atoms in the acridine nucleus. The series can be divided into class 1 with high antiseptic action, high basicity, and the imino (NH) grouping; class 2 with moderate antiseptic action and basicity and the normal amino (NH₂) grouping; and class 3 with low antiseptic action, abnormally low basicity, and an amino-group masked by H-bonding. F. S.

[Lasting] self-sterilising surfaces. A. Goetz, R. Tracy, and S. Goetz (*Science*, 1942, 95, 537—538).—Ag is compounded with plastics. E. R. R.

Use of complete fertilisers in cultivation of micro-organisms. V. L. Loosanoff and J. B. Engle (*Science*, 1942, 95, 487—488). E. R. R.

Grinder for homogenising bacterial clumps or infected tissues. J. H. Hanks (*Science*, 1941, 94, 615—616).—One Pyrex tube fits closely into another containing the material and is rotated mechanically. E. R. S.

Bacterial oxidation of hydrocarbons. F. H. Johnson, W. D. Goodale, and J. Turkevich (*J. Cell. Comp. Physiol.*, 1942, 19, 163—172).—*Bact. aliphaticum*, Tausz, isolated from soil near a petrol pump, grew well in an inorg. solution with various aliphatic but not aromatic hydrocarbons. Q_{10} for octane was 84 and R.Q. 0.48. Oxidation was inhibited by 0.00008M-KCN, benzene, butyl alcohol, or acetone, but not by methylcyclohexane. V. J. W.

New bacterium isolated from tamarind. G. C. Das Gupta and A. K. Chowdhury (*Ann. Biochem. Exp. Med.*, 1941, 1, 10—13).—A new type of aerobic bacillus was isolated from old tamarind. It can ferment glucose, sucrose, starch, glycerol, dextrin, mannose, maltose, lactose, galactose, and arabinose but has no action on mannitol, inulin, and salicin. The optimal p_H for fermentation is 9; growth is completely suppressed at p_H 5. Products of fermentation are butyl alcohol, butyric acid, and traces of lactic acid. The bacillus differs from *Cl. butyricum* in that it is aerobic, evolves no gas with carbohydrates or milk, and it peptonises litmus milk without coagulation. On molasses it can produce 35% of butyric acid and 25% of butyl alcohol cal. on sugar content. P. C. W.

Enzymic production of bacterial polysaccharides. M. Stacey (*Nature*, 1942, 149, 639).—*Leuconostoc mesenteroides*, grown in symbiotic association with *Saccharomyces cerevisiae*, formed a mucoid dextran the production of which, at one stage, is attributed to exocellular enzymic action. The purified dextran, $[\alpha]_D + 180^\circ$ in water, contained N 0.5% and gave only glucose on acid hydrolysis. A. A. E.

Air-borne bacteria in operating room. D. Hart (*J. Amer. Med. Assoc.*, 1941, 117, 1610—1613).—Air-borne bacteria from the noses and throats of the personnel of the operating room are considered to be the cause of the majority of wound infections after straightforward operations. A marked reduction of infections was produced over a 5-year period by ultra-violet irradiation (2537 Å.) of the wound area and there were no toxic effects to patient or operating team. C. A. K.

Experimental blastomycosis in mice. J. M. Hitch (*J. invest. Dermat.*, 1942, 5, 41—45).—*Blastomyces dermatitidis* given intraperitoneally caused infection. There was no protective or therapeutic effect of gentian-violet on blastomycosis in mice. C. J. C. B.

[Intestinal organisms and] chronic arthritis. A. Bassler (*Amer. J. med. Sci.*, 1942, 203, 698—708).—Using rectal installations of cultures of coliform bacilli, oral phage, and vaccines, 68% of 181 cases of chronic arthritis were markedly improved. C. J. C. B.

Presence of *B. coli* agglutinin in serum of cholera cases and possible rôle of *B. coli* in cholera. H. Ghosh and S. Mukerjee (*Ann. Biochem. Exp. Med.*, 1941, 1, 99—100).—71% of 35 convalescent cholera cases developed agglutinin against autogenous *B. coli*; such agglutinin was present in 28—30% of cases of typhoid and normal controls. The absorption of *B. coli* from the intestine in the early stages of cholera may aggravate vasomotor and toxæmic symptoms. P. C. W.

Immediate tellurite test for diphtheria. H. R. Bierman and R. W. Maxwell (*J. Amer. Med. Assoc.*, 1941, 117, 1255—1256).—In 117

patients with membranes in the throat the K tellurite test was frequently positive in non-diphtheritic cases but was falsely negative in only 2 cases. C. A. K.

New culture medium for microbial toxins; application to the production of diphtheria toxin and staphylococcal toxin with a view to preparing the corresponding antitoxins. G. Ramon, G. Amoureux, and J. Pochon (*Compt. rend.*, 1941, 213, 846—848).—A medium for the culture of staphylococcus and (with addition of Na acetate, glucose, and maltose) of diphtheria bacillus is prepared by digesting horse meat with papain at 50—85°. A. Lr.

Production of experimental osteomyelitis [injection of sodium morrhuate and staphylococci]. L. Scheman, M. Janota, and P. Lewin (*J. Amer. Med. Assoc.*, 1941, 117, 1525—1529).—After the injection of Na morrhuate into the tibial metaphysis of rabbits, intravenous or local introduction of *Staph. aureus* produced a tibial osteomyelitis which was most developed in animals living 3 weeks or more. Na morrhuate alone produced aseptic necrosis of bone, and staphylococcal infection alone produced local or widespread abscess formation but no osteomyelitis. C. A. K.

Staphylococcal antitoxin in treatment of staphylococcal septicæmia. W. W. Sager and O. B. Hunter (*Med. Ann. Columbia*, 1940, 9, 306—308).—Recovery is reported in a case of staphylococcal septicæmia complicated by multiple metastatic foci including two in adjacent cervical vertebrae and in the lung and by the presence *Salmonella suispestifer* in the blood stream. The patient, a 25-year-old man, received 2,340,000 units of staphylococcal antitoxin, 17 doses of staphylococcal toxoid, and 47 blood transfusions over a period of 3 months. E. M. J.

Intracutaneous immunisation against scarlet fever. L. Jacobs and H. Orris (*J. Pediat.*, 1942, 20, 466—474).—187 infants and children were intracutaneously immunised with scarlet fever toxin and were retested at intervals of 3 months to 4 years. 3 general groupings of 5, 4, and 3 injections were used, averaging 12,847, 14,067, and 11,808 skin test doses, respectively. 69% of the patients Dick-tested 3 months after the last injection gave a negative reaction. The no. and severity of the reactions resulting from the intracutaneous method of immunisation were less than those resulting from the subcutaneous method. Of 875 immunising injections given intracutaneously, 83% were followed by no reaction. C. J. C. B.

Trypanocidal serum titre in scarlet fever. J. Ströder (*Arch. Kinderheilk.*, 1939, 118, 1—10).—Vals. equalled those of normal serum. H. L.

***Streptococcus hæmolyticus*: study of virulence.** G. P. Blundell (*Yale J. Biol. Med.*, 1942, 14, 373—386).—An acetone-pptd. substance from the saline washings of group A streptococci produced a slow oedematous spread in the skin of rabbits, retained this capacity after 30 min. at 100°, increased the inflammatory response in rabbit skin after the injection of virulent streptococci, and increased the virulence of streptococci for mice. The spreading factor in a testicle extract prepared by acetone pptn. differed in that it produced a rapid non-irritating spread in rabbit skin, it lost this capacity after 30 min. at 100°, it decreased the inflammatory response of rabbit skin to virulent streptococci, and decreased the virulence of streptococci for mice. The virulence-enhancing substance produced by streptococci may contain hyaluronic acid and testicular extract an enzyme which can destroy this acid. F. S.

Typing of hæmolytic streptococci. P. L. Boisvent (*Science*, 1941, 94, 193—194).—Rabbit antisera which give a pro-zone in the slide agglutination method may be used effectively diluted to 1:80. E. R. S.

Pigment observed in cultures of Lancefield A streptococci. S. M. Wheeler and G. E. Foley (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 421—424). V. J. W.

Streptococci in air as indicator of nasopharyngeal contamination. J. C. Torrey and M. Lake (*J. Amer. Med. Assoc.*, 1941, 117, 1425—1430).—Bacterial analyses of the air of a large department store by means of the Wells air centrifuge showed during the course of a year a close correlation between nos. of streptococci of respiratory origin and the prevailing rate of colds in employees. The streptococcal content of air was more influenced by the prevalence of colds than by the density of crowds. C. A. K.

Immunity in syphilis. J. E. Kemp (*Med. Ann. Columbia*, 1940, 9, 37—41).—A review. E. M. J.

Cerebral inoculation tuberculosis in guinea-pigs. H. Good (*Schweiz. Arch. Neurol. Psychiat.*, 1941, 46, 191—202).—The histology of the early stages (2nd to 22nd day) is described. H. L.

Tuberculin in dermatologic diagnosis. C. C. Thomas (*Arch. Dermat. Syphilol.*, 1942, 45, 544—549).—From 109 tests in a wide variety of dermatoses the purified bacteria derivative of tuberculin is equal to freshly prepared dilutions of a potent old tuberculin in detecting sensitised persons. C. J. C. B.

Method of obtaining sustained controlled hyperpyrexia with triple typhoid vaccine. H. A. Solomon and E. Somkin (*Amer. J. med. Sci.*, 1942, 203, 736—740).—Diluted vaccine is continuously run by the drip method. Using this method in 14 cases for 67 treatments, the temp. was maintained over 104° F. for 4 hr. 20 min. C. J. C. B.

Agglutination of red cells by allantoic fluid of chick embryos infected with influenza virus. G. K. Hirst (*Science*, 1941, 94, 22—23).—Allantoic fluid of chick embryos infected with influenza A virus agglutinates red cells. Virus titrations and serum neutralisation tests were carried out in eggs, making use of this reaction. Agglutination occurred *in vitro* in 5—20 min., and the virus disappeared from the supernatant fluid. Centrifuging at 11,500 r.p.m. for 45 min. reduced the agglutinating capacity of the supernatant allantoic fluid to 25%. Influenza A ferret antiserum inhibited the agglutination, whilst the B antiserum did not. Agglutination was obtained at a dilution of 1:8 with acute influenza A human serum, 1:512 with the convalescent serum and infected allantoic fluid; these results correspond with mouse neutralisation tests. E. R. S.

Western equine and St. Louis encephalitis in the sera of mammals and birds from an endemic area. W. McD. Hammon, J. A. Gray, jun., F. C. Evans, E. M. Izumi, and H. W. Lundy (*Science*, 1941, 94, 305—307).—An uncompleted survey shows the presence of antibodies to Western equine type virus in the sera of 50% of domestic and 20% of wild birds, 30% of domestic and 5% of wild mammals; to St. Louis type virus in 50% of domestic and 15% of wild birds, 40% of domestic and 10% of wild mammals. Barnyards and fowl runs are considered to be principal foci of infection. E. R. S.

Syndrome in *Macacus rhesus* after inoculation of stool from carriers of poliomyelitis virus. G. Y. McClure (*Science*, 1941, 94, 307—308).—A mild clinical syndrome in monkeys, accompanied by pathological changes in the sensory parts of the vagus ganglia, intervertebral ganglia, and sometimes in the Gasserian ganglia, is described. The syndrome was produced by intraperitoneal inoculation of faecal material from contacts and patients with infantile paralysis in an epidemic in a rural community. When inoculation was also made intranasally the olfactory bulbs were sometimes involved. E. R. S.

Flies as carriers of poliomyelitis virus in urban epidemics. A. B. Sabin and R. Ward (*Science*, 1941, 94, 590—591). E. R. S.

Primary virus pneumonitis. J. M. Adams, R. G. Green, C. A. Evans, and N. Beach (*J. Pediat.*, 1942, 20, 405—420; cf. A., 1941, III, 808). C. J. C. B.

***In vitro* cultivation of street virus of rabies.** H. Plotz and R. Reagan (*Science*, 1942, 95, 102—104). E. R. S.

Susceptibility of Eastern cotton rat, *Sigmodon hispidus hispidus*, to European typhus. J. C. Snyder and C. R. Anderson (*Science*, 1942, 95, 23).—Cotton rats are more suitable than guinea-pigs for studies of problems in typhus fever. E. R. S.

Rôle of burrowing owl and sticktight flea in spread of plague. C. M. Wheeler, J. R. Douglas, and F. C. Evans (*Science*, 1941, 94, 560—561). E. R. S.

Permanent mounts of virus-infected chorio-allantoic membranes. W. B. Dunham (*Science*, 1941, 94, 120).—The membranes were dehydrated with alcohol and treated with xylol and then a solution of 50 g. of isobutyl methacrylate polymer in 100 ml. of xylol. E. R. S.

Infectivity of extracted, unpreserved tobacco mosaic virus retained 28 years. H. A. Allard (*Science*, 1942, 95, 479).—Retained virulence depends on the type of fermentation which predominates. E. R. R.

Analysis of tobacco mosaic virus for biotin, riboflavin, and pantothenic acid. H. Sprince and E. B. Schoenbach (*Proc. Soc. Exp. Biol. Med.*, 1942, 49, 415—418).—All 3 substances were absent from the samples examined. V. J. W.

Fractionation of amino-acids of tobacco mosaic virus protein. A. F. Ross (*J. Biol. Chem.*, 1942, 143, 685—693).—The presence of arginine, phenylalanine, tyrosine, and proline was confirmed. In addition, glutamic acid 5:3, aspartic acid 2:6, leucine 6:1, valine 3:9, and alanine 2:4 were isolated. The constituents of the protein so far isolated total 68%. P. G. M.

Equilibria in antigen-antibody reaction. A. D. Hershey (*Science*, 1942, 95, 280—282).—Theoretical. E. R. S.

Production of antibodies *in vitro*. L. Pauling and D. H. Campbell (*Science*, 1942, 95, 440—441).—Protein is subjected to denaturing reagents in the presence of the antigen; after the denaturing treatment, the mol. refolds to give a configuration complementary to that of the latter. Antibodies have been prepared from serum-albumins and -globulins, especially bovine γ -globulin. E. R. R.

Artificial antigens with agar, gum acacia, and cherry gum specificity. S. M. Partridge and W. T. J. Morgan (*Brit. J. exp. Path.*

1942, 23, 84—94).—The non-antigenic polysaccharides, agar, gum acacia, and cherry gum, were combined in formamide solution with the conjugated protein component of the sp. antigens of *Bact. shiga* and *Bact. typhosum*. The complexes so formed induced in rabbits the formation of immune-body sp. for the polysaccharide components of the artificial antigenic complexes. The homologous gum-anti-gum pptn. reactions were not inhibited by glucuronic or galacturonic acid and the anti-gum sera fail to agglutinate virulent pneumococci (types II or III). F. S.

Purified preparations of streptolysin. H. Okamoto, S. Kyōda, and R. Itō (*Japan. J. Med. Sci.*, 1941, IV, 14, 99—113).—The prep. is free from protein and produces hæmolysis of rabbit's blood corpuscles *in vitro* in a dilution of 1:200 million. H. H. K.

Histamine therapy of anaphylactic shock especially in rabbit. M. Rocha e Silva (*Arch. Path.*, 1942, 33, 387—408).—A general review. C. J. C. B.

Endogenous allergy. E. Urbach (*Arch. Dermat. Syphilol.*, 1942, 45, 697—722).—A general review with case report. C. J. C. B.

Immunological response of allergic children to toxoid. T. B. Friedman, J. A. Bigler, and M. A. Werner (*J. Allergy*, 1942, 13, 114—123).—A stimulating dose of tetanus toxoid given to an immunised child causes a rapid and high response of antitoxin. Sensitisation to toxoid was not found in 109 allergic children nor in a similar control group of non-allergic children. This is in contrast to the frequent sensitisation to both horse and bovine antitoxic sera. Active immunisation against tetanus or diphtheria in allergic children had no effect on the allergic manifestation. Concurrent allergic therapy had no effect on the antitoxin levels produced. C. J. C. B.

Preparation and properties of concentrates of house dust allergen. C. H. Boatner and B. G. Efron (*J. invest. Dermat.*, 1942, 5, 7—10).—Allergically potent concentrates of house dust allergen were prepared by subjecting aq. extracts of house dust to 2 successive fractional pptns. with dioxan, 2 successive pptns. from conc. $(\text{NH}_4)_2\text{SO}_4$ solution, and dialysis. The purified fraction was a dark brown, glossy solid completely miscible with water. The action of pepsin, heat, and acid and base indicates that it is a stable substance of protein nature. 16% trichloroacetic acid produces a colourless, water-sol. ppt. from the purified fraction which shows both protein and carbohydrate reactions. C. J. C. B.

Extraction of ragweed pollen as observed with ultramicroscope. E. A. Brown and N. Benotti (*J. Allergy*, 1942, 13, 144—148).—With buffered saline solutions, from the pores or the grooves of the pollen grains fine tenuous threads grew out extending radially. Along these threads, and arranged like beads on a string, were the colloid particles. After 30 min. the colloid particles were uniformly spread and in Brownian movement. (4 photomicrographs.) C. J. C. B.

Use of enteric coated pills of pollen extract in allergic states. N. F. Thiberge (*New Orleans Med. J.*, 1942, 94, 390—393). E. M. J.

Electrophoretic skin studies [and allergens]. H. H. Shilkret (*J. invest. Dermat.*, 1942, 5, 11—14).—Biologically active constituents of orchard, red top, sweet vernal, and June grasses can be transported readily into the skin by electrophoresis in allergic persons. The skin reactions produced parallel those demonstrated by the usual skin tests (scratch and intradermal). C. J. C. B.

Contact dermatitis from emetine hydrochloride. R. L. Kile and A. L. Welsh (*Arch. Dermat. Syphilol.*, 1942, 45, 550—552).—In 5 of 10 persons filling ampoules with it an eruption developed. C. J. C. B.

Allergic dermatitis from tear gas. F. B. Queen and T. Stander (*J. Amer. Med. Assoc.*, 1941, 117, 1879).—One of the authors had severe dermatitis following exposure to chloroacetophenone. C. A. K.

Unilateral nickel dermatitis of left forearm caused by zippers. L. Goldman and H. L. Claassen (*Arch. Dermat. Syphilol.*, 1942, 45, 578—579). C. J. C. B.

XXVI.—PLANT PHYSIOLOGY.

Effects of calcium and other bivalent ions on accumulation of univalent ions by barley root cells. F. G. Viets, jun. (*Science*, 1942, 95, 486—487).—Ca⁺⁺, Mg⁺⁺, Sr⁺⁺, in that order, increased the absorption of K⁺ and Br⁻. The theory of ion antagonism is discussed. E. R. R.

Control of flowering with phytohormones. H. E. Clark and K. R. Kerns (*Science*, 1942, 95, 536—537).—Flowering was induced earlier or delayed much later in *Ananas comosus* (L.), Merr., by appropriate concn. of α -naphthylacetic acid, acetnaphthyl-amide and -thioamide, and a commercial product "Fruitone," applied as foliage sprays. Acetylene and ethylene also induce premature flowering. E. R. R.

Symptoms of zinc deficiency in wheat and flax. C. R. Millikan (*J. Austral. Inst. Agric. Sci.*, 1942, 8, 33—35).—Improved growth was induced in cereals and flax by dressing with ZnSO₄. In water cultures Zn-deficient plants were shorter, tillering was reduced, spots appeared on the leaves, which soon died, secondary growth was restricted, and the leaves were small and chlorotic. The effect was more marked in flax than in wheat. None of these symptoms was noted in the field experiments, although the Zn-treated plants were more robust and darker in colour. The "grey leaf" condition of oats resembles that caused by Zn deficiency. H. M. J.

XXVII.—PLANT CONSTITUENTS.

Sterol from apple seeds and cherry seeds. H. M. Sell and R. E. Kremers (*J. Amer. Pharm. Assoc.*, 1941, 30, 134).—Apple and red cherry seeds yield 19.1 and 8.2%, respectively, of oil (n_D^{20} 1.4735, 1.4744; acid val. 0.9, 0.8; sap. val. 186, 189; unsaponifiable fraction 1.75, 4.15%, respectively) from which was isolated sitosterol (identified as such and as acetate). F. O. H.

Lipin fraction of lucerne leaf. H. S. Jefferies (*Chem. and Ind.*, 1942, 324—325).—Lucerne leaf contains approx. 4% of material sol. in benzene, 50% of which is sol. in cold acetone and 5% of the latter consists of sterols (m.p. 140—186°) invariably associated with hydrocarbons. The two chief sterols have acetates with m.p. 186° and 172°; two others are present in relatively small proportions. The most abundant fat-sol. portion of the leaf is phosphatide (35—37% of the extractable matter) with which tartaric acid, tartrates, and polysaccharide are persistently associated; the fats and oils represent about 12%. H. G. R.

Carboxyl content of fibre- and wood-cellulose.—See A., 1942, II, 279.

Protoplasm of green plant cells. IV. Lipins of spinach chloroplasts. W. Menke and E. Jacob (*Z. physiol. Chem.*, 1942, 272, 227—231; cf. A., 1939, III, 220).—The lipin contains approx. 2—7% of phosphatides and 79—84% is sol. in acetone. The combined ether-sol. P varies greatly (0.07—0.30%) according to the season of the year. The crude wax content is 15—17%. Approx. half of the lipin is neutral fat (triglyceride). The sterol content is 1.8—2.5%. W. McC.

Crystalline sulphur protein from wheat. A. K. Balls (*J. Washington Acad. Sci.*, 1942, 32, 132—137).—Flour was extracted with light petroleum and the extract was conc. to a small vol. in vac. After keeping at -1.5° for several weeks the pptd. sterols were removed, and the supernatant was diluted with 1 vol. of ether and 3 vols. of cold N-HCl in alcohol. After keeping at 0° the ppt. was collected, washed with alcohol and ether, and dried in vac. The portion sol. in 75 vol.-% alcohol was recryst. several times by dissolving in water and adding 9 vols. of alcohol. The material contained N 17.3, Cl 6.56, and S 4.44%. It is the hydrochloride of an oxidised fragment of a cysteine-containing lipoprotein in the original plant material. It has mol. wt. approx. 12,000 and two thirds consists of arginine, cystine, and tyrosine. 95% of the S is present as cystine. It is toxic to yeasts and certain animals by mouth, reversibly inhibits chymopapain, and protects carotene from oxidation by carotene oxidase. It is readily decomposed by trypsin, chymotrypsin, etc. P. G. M.

Chlorophyll-protein complex. I. Electrophoretic properties and isoelectric point. M. Fishman and L. S. Moyer (*J. Gen. Physiol.*, 1942, 25, 755—764).—Previous reports on the effect of different conditions on the stability of purified chlorophyll-protein complexes are confirmed. The electrophoretic behaviour of the complex from *Aspidistra elatior* and *Phaseolus vulgaris* are dissimilar and in 0.02M-acetate buffer at 25°, the isoelectric points of the complexes are p_H 4.7 and 3.9, respectively. Dil. acid causes irreversible denaturation of the complex from both species, and there is a shift in the mobility- p_H curves to more basic vals. The cytoplasmic proteins of *Phaseolus* have isoelectric point p_H 4.22 and the electrophoretic behaviour is different from that of the chlorophyll-protein complex. J. N. A.

Chromatophores. II. Isolation and properties of the ultramicroscopic chromatophores of carrots and spinach leaves. W. Straus (*Helv. Chim. Acta*, 1942, 25, 489—497).—The dimensions of the chromatophores of carrots and spinach leaves vary from microscopic to ultramicroscopic. Change in the size is accompanied by change in the physical properties of their solutions, degree of dispersion and colour of the pigments, degree of turbidity, Tyndall effect, and dynamic birefractory power. Chromatophores of similar size from the two sources have the same chemical and morphological properties and, in particular, the same content of proteins and lipins. Large chromatophores contain much protein in addition to lipin. Diminution of the particle size is accompanied by increase in protein content at the expense of lipins. As the size of the particles increases, the increased lipin content of carrot chromatophores is paralleled by increased carotene. The acidic character of the

chromatophores increases with diminution of particle size and a method of separating chromatophores of different size is based on this property. H. W.

Toxic substance of croton oil. V. Isolation of croton resin, mobile oil, and phorbol from croton oil by alcoholysis. B. Flaschenträger and G. Wigner (*Helv. Chim. Acta*, 1942, 25, 569—581).—Details are given of the isolation of croton oil from the seeds, the prep. of acid and neutral extracts and the alcoholysis of the latter, the treatment of the residue by the phorbol process, and the isolation of "mobile oil" and croton resin. The mobile oil is recognised as a mixture of methyl esters of higher fatty acids formed by alcoholysis of the glycerides by methyl-alcoholic Ba(OH)₂. Phorbol is therefore the parent alcohol of the toxic substance and the resin is a degradation product of the natural material which still retains part of the fatty acids. The non-toxic glycerides of croton oil do not contain all the fatty acids of the mobile oil. Octoic acid is absent and the % of palmitic acid is reduced from 2.1 to 0.9. Since the alcoholysis of the resin leads to a "mobile oil" the acids herein found must be regarded as structural elements of the toxic substance in addition to tiglic, butyric, acetic, and formic acid. H. W.

Alkaloids of American hellebore and their toxicity to the American cockroach. E. J. Seiferle, I. B. Johns, and C. H. Richardson (*J. Econ. Entom.*, 1942, 35, 35—43).—Determinations of total alkaloids in *Veratrum viride* is modified to include less non-alkaloidal material. The alkaloids thus obtained yield jervine (17%), m.p. 241—243° (decomp.; darkens above 200°), [α]_D²⁵ —158.5° in alcohol, [α]_D²⁰ —160.1° in 10% acetic acid [hydrochloride, m.p. 300—302° (decomp.); hydriodide, m.p. 288—290° (decomp.); picrate, darkens above 210°, decomp. 274—284°], and ψ-jervine (about 3.3%), m.p. 298—300° (decomp.; darkens above 280°), [α]_D²⁵ —133.4° in 1:3 alcohol-CHCl₃, [α]_D²² —133.1° in 10% acetic acid, with small amounts of protoveratridine, darkens above 250°, decomp. 265—270° [picrate, m.p. 245—252° (decomp.)], rubijervine, m.p. 239—243° (slight decomp.), hydriodide, m.p. 269—273° (decomp.), and germine, +xMeOH, m.p. partly at 170—175°, resolidifies partly above 190°, remelts at 215—227° (decomp.), [α]_D¹⁹ +23.1°, [α]_D²⁵ +20.0° in 10% acetic acid. To *Periplaneta americana*, L., germine has M.L.D. approx. 0.26 mg. per g. body wt., but jervine and ψ-jervine are not toxic. The crude alkaloids have a toxicity much greater than is accounted for by the pure alkaloids isolated. R. S. C.

XXVIII.—APPARATUS AND ANALYTICAL METHODS.

Cotton as suture material. W. H. Meade and C. H. Long (*J. Amer. Med. Assoc.*, 1941, 117, 2140—2143).—Cotton sutures were satisfactory with respect to pliability, tensile strength, high coeff. of friction, stability on exposure to heat and moisture, and absence of tissue reaction. Clinical use in 465 consecutive wounds was highly satisfactory. C. A. K.

Head holder for intracranial operations on monkeys. L. E. Beaton and H. W. Magoun (*Science*, 1942, 95, 105—106). E. R. S.

Apparatus for milking mice. H. Kahler (*J. Nat. Cancer Inst.*, 1942, 2, 457—458).—An electrically operated machine is described. Mice give about 0.7 c.c. of milk per milking for 10—20 days. E. B.

Photo-electric membrane manometer. W. E. Gibson (*Science*, 1942, 95, 513—514). E. R. S.

Apparatus to deliver a measured amount of carbon dioxide for blood cultures. M. Levine and H. Siedentopf (*Science*, 1942, 95, 130—131).—A 50-ml. syringe is used as an automatic gas burette. E. R. S.

Mixing apparatus for preparation of suspensions of faeces for helminthological examinations. G. P. Kauzal and H. McL. Gordon (*J. Council. Sci. Ind. Res. Austral.*, 1941, 14, 304—305).—The apparatus consists of an electric hand drill fitted with mixing blades on a spindle. R. G. W.

Simple tissue liquefier. M. C. Shelesnyak and M. S. Biskind (*J. Biol. Chem.*, 1942, 143, 663—664).—A press that converts the tissue (10—15 c.c.) into a heavy fluid of smooth, even consistency is described. H. G. R.

Device for marking fields on microscope slides. C. Olson, jun. (*J. Lab. Clin. Med.*, 1942, 27, 939—940). C. J. C. B.

Agar compositions for moulding: technique of compounding and using. C. D. Clarke and E. S. Cone (*J. Lab. Clin. Med.*, 1942, 27, 966—976). C. J. C. B.

Photo-electric cell method for measuring leaf areas. F. L. Milthorpe (*J. Austral. Inst. Agric. Sci.*, 1942, 8, 27).—A simple and

inexpensive modification of the low light intensity device of Hibbard (*Papers Michigan Acad. Sci.*, 1937, 23, 141) is described. H. M. J.

Spectrocomparator. Instrument for estimating concentration of pigments in presence of other pigments, and for comparing absorption spectra. P. Ellinger (*Biochem. J.*, 1942, 36, 283—286).—The instrument described combines the qualities of the Duboscq absorptiometer and a spectroscope. Simultaneous qual. and quant. determination of certain pigments, e.g., coproporphyrin in 25% HCl by use of the absorption band at 5502 Å. with a suitable filter, may be made in the absence of other pigments. Determinations can also be carried out in the presence of other pigments, provided the absorption bands do not coincide. P. G. M.

Determination of ethyl alcohol normally present in blood. A. O. Gettler and C. J. Umberger (*J. Biol. Chem.*, 1942, 143, 633—641).—The method of Gettler *et al.* (A., 1932, 958) has been modified to determine 0.02 mg. of alcohol in 5 ml. of blood or urine. The gravimetric procedure is replaced by a titration method and no preliminary purification of the sample is required. H. G. R.

Determination of ethyl alcohol with photo-electric colorimeter. H. Newman and M. Abramson (*J. Pharm. Exp. Ther.*, 1942, 74, 369—371).—The sample is distilled in vac. with anhyd. Na₂SO₄ at 50—55° into a solution of K₂Cr₂O₇ in conc. H₂SO₄. The amount of K₂Cr₂O₇ reduced is determined photoelectrically. H. H. K.

Isolation of fructose-1-phosphoric acid from biological material. J. Pany (*Z. physiol. Chem.*, 1942, 272, 273—279).—The mixture of carbohydrate monophosphates obtained from liver yields glucose 1-phosphate (K salt) and is shown by aldose determinations before and after acid hydrolysis to contain approx. 7—13% of this substance. After removal of aldoses from the mixture by treatment with Ba(OH)₂ and Br, fructose 1-phosphate is isolated as brucine or Ba salt from the residual mixture of fructose esters. W. McC.

Extraction of proteins from aqueous solution by emulsification with chloroform. J. C. Andrews, W. E. Cornatzer, and A. B. Sample (*J. Lab. Clin. Med.*, 1942, 27, 941—948).—The best proportions were 100 vols. of aq. protein solution, 35 of CHCl₃, and 10 of 95% ethyl or of isoamyl alcohol. The mixture should be shaken vigorously for 5 min. in a container of twice its vol. and then centrifuged for 5 min. at a speed of 2000 r.p.m. C. J. C. B.

Modification of colorimetric phosphorus determination for use with photo-electric colorimeter. G. Gomori (*J. Lab. Clin. Med.*, 1942, 27, 955—960). C. J. C. B.

Adaptation of silver cobaltinitrite method for potassium to photo-electric colorimeter. E. H. Wood (*J. Lab. Clin. Med.*, 1942, 27, 960—965). C. J. C. B.

Mixed colour dithizone method for the determination of bismuth in biological material. E. F. Kluchesky, B. J. Longley, and F. L. Kozelka (*J. Pharm. Exp. Ther.*, 1942, 74, 395—400).—Treatment of the digest with SO₂ prevents decomp. of the dithizone by the Fe and eliminates Sn as an interfering metal, and so permits the determination of Bi with a single extraction. The method eliminates the necessity of removing the excess of dithizone or preparing standard dithizone solutions. Consistent recoveries with a mean error of less than 1 μg. are obtainable. H. H. K.

Spectrochemical determination of trace metals in biological material. J. Cholac and R. V. Story (*J. Opt. Soc. Amer.*, 1941, 31, 730—738).—The technique of spectroscopic determination of trace metals, by the process of absorbing the solutions containing the metals on pure C electrodes, is described. J. W. S.

XXIX.—NEW BOOKS.

Chemistry and Physiology of the Vitamins. H. R. Rosenberg (Interscience Publishers Inc., New York, 1942, xix + 674 pp. Price 12s).—By omitting the more purely medical aspects of vitamin therapy, on which books are already available, the author has succeeded in presenting within reasonable compass an adequate, comprehensive, and up-to-date account of the chemistry and physiological action of all the known vitamins. After a general introduction each vitamin is dealt with in a separate chapter, under the following headings: nomenclature, historical development, isolation, proof of chemical constitution, synthesis, industrial methods of prep., specificity, methods of determination (physical, chemical, biochemical, and biological), standards, physiology of plants and micro-organisms, animal physiology (metabolism, physiological action, mechanism of the action), interrelationship of vitamins, hormones, and inorganic nutrients, pathological aspects, clinical test methods, and vitamin requirements. An appendix deals briefly with the essential non-vitamin nutrients (fatty acids, amino-acids, carbohydrates, etc.). In addition to the usual author and subject index a comprehensive patent index is given. J. H. B.

INDEX OF AUTHORS' NAMES, A., III.

SEPTEMBER, 1942.

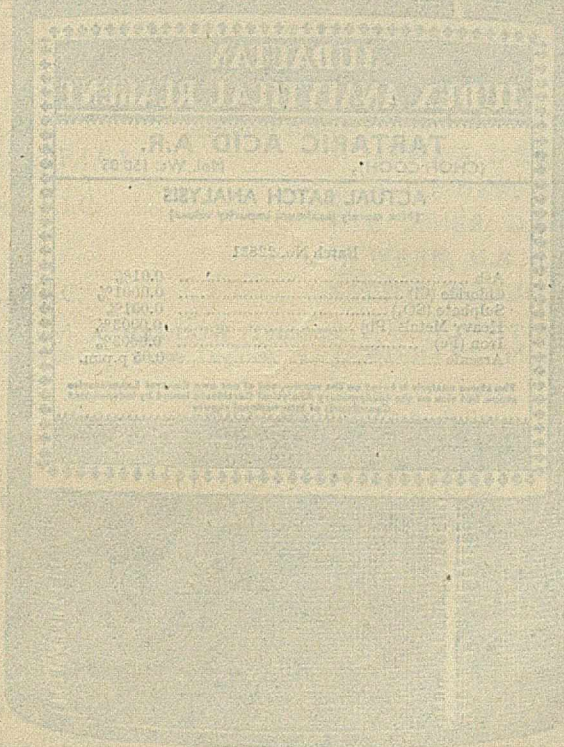
- Abbu, C., 682.
 Abelin, I., 699.
 Aboim, A. M., 685.
 Abramson, M., 724.
 Abt, A. F., 711.
 Acton, E. V., 705.
 Adams, J. M., 720.
 Adler, F. L., 706.
 Aggeler, P. M., 693.
 Alabaster, E. B., 677.
 Albert, A., 718.
 Albert, S., 690.
 Albriex, A. S., 688, 689.
 Allard, H. A., 720.
 Allen, J. G., 673, 703.
 Allen, T. H., 659.
 Amoroso, E. C., 658.
 Amoureux, G., 719.
 Anders, M. V., 659.
 Andersen, D. H., 692.
 Anderson, C. R., 720.
 Anderson, H. H., 710.
 Anderson, J., 660.
 Anderson, N. L., 686.
 Anderson, W. A. D., 661.
 Andervont, H. B., 697.
 Andrews, F. N., 685.
 Andrews, J. C., 724.
 Angelescu, C., 700.
 Anson, B. J., 657.
 Arena, J. M., 706.
 Aron, H. C. S., 711.
 Aronoff, S., 699.
 Ash, R., 666.
 Ashworth, C. T., 666.
 Ayer, G. D., 662.
 Aylward, F. X., 668.
- Back, A., 714.
 Bailey, B., 716.
 Bailey, L. J., 688.
 Baker, B. L., 660.
 Baker, E. G. S., 717.
 Baker, F., 693.
 Baker, J. R., 660.
 Baker, L. C., 702.
 Bakker, A., 680.
 Ball, H. A., 686, 698.
 Ballantyne, A. J., 681.
 Balls, A. K., 722.
 Banerjee, S., 699, 702.
 Baugter, A., 679.
 Bar, J. A., 664.
 Barber, S. B., 661.
 Barbour, J. H., 684.
 Barclay, A. E., 667.
 Barelare, B., 690.
 Barker, M. H., 670.
 Barnard, R. D., 685.
 Barne, I. C., 680.
 Barnes, R. W., 706.
 Barrett, G. S., 705.
 Barton-Wright, E., 701.
 Basak, M. N., 703.
 Bassler, A., 718.
 Basu, K. P., 703.
 Battersby, J. S., 692.
 Baum, W. W., 677.
 Baumberger, J. P., 697.
 Baur, E., 715.
 Beach, N., 720.
 Beamer, P. R., 706.
 Beard, D., 697.
 Beard, J. W., 697.
 Beardwood, J. T., 704.
 Beare, J. B., 676.
 Beaton, L. E., 657, 723.
 Becker, L. V., 717.
 Becker, T. J., 708.
 Belfer, S., 716.
 Belisario, J. C., 714.
 Bell, H. J., 686.
 Bell, J., 662.
 Beller, A. J., 666.
 Bender, M. B., 679.
 Benedek, L., 675.
 Benjamin, B., 672.
 Benkó, A., 702.
 Bennett, A. L., 710.
 Benotti, N., 721.
 Benson, O. O., 674.
 Benson, R. A., 700.
 Berenblum, I., 696.
 Bergeim, O., 700.
 Berglund, G., 676.
 Bergmann, M., 716.
 Bernheim, F., 697.
 Bernheim, M. L. C., 697.
 Berliner, M. L., 676.
 Berman, R., 709.
 Berry, L. H., 691.
 Bertrand, G., 712.
 Bessey, O. A., 700.
 Best, C. H., 686.
 Bezsonoff, N., 701.
- Bick, M., 663, 709.
 Bickers, W., 691.
 Bicking, M. M., 718.
 Bierman, H. R., 718.
 Bigg, E., 708.
 Bigler, J. A., 721.
 Bing, R. J., 694.
 Biskind, M. S., 723.
 Black, D. A. K., 661.
 Black, J. B., 684.
 Black, J. R., 657.
 Blalock, A., 671.
 Bland, E. F., 709.
 Blattner, R. J., 671.
 Bloch, K., 698.
 Blonck, F., 714.
 Blotner, H., 687.
 Bloom, F., 698.
 Bloxson, A., 671.
 Blum, H. F., 696.
 Blumberg, R., 657.
 Blumenthal, J. S., 709.
 Blundell, G. P., 719.
 Boatner, C. H., 721.
 Bodine, J. H., 659.
 Bogan, I. K., 687.
 Boisvent, P. L., 719.
 Bordley, J. E., 683.
 Bornstein, B. T., 699.
 Botterell, E. H., 675.
 Bourke, G. M., 693.
 Boyd, E. M., 688.
 Boyd, J. S. K., 706.
 Boyle, H. H., 657.
 Bozalis, G. S., 707.
 Bradley, H. C., 716.
 Bradley, S. E., 694.
 Braestrup, C. B., 714.
 Branster, R., 658.
 Brassfield, C. R., 676.
 Breedis, C., 697.
 Brickner, R. M., 674.
 Bridgman, C. S., 681.
 Briggs, A. P., 701.
 Brody, H., 658.
 Bronstein, I. P., 684.
 Brookens, N., 711.
 Brown, E. A., 721.
 Bruce, J. W., 705.
 Bruck, S., 710.
 Bruenn, H. G., 666.
 Brumm, L. P., 681.
 Brunschwig, A., 699.
 Bryan, W. R., 697.
 Bueding, E., 686.
 Buhs, R. P., 702.
 Buka, R., 680.
 Bunch, C. C., 683.
 Bundesen, H. N., 711.
 Burchenal, J. H., 662.
 Burk, D., 697.
 Burns, R. K., 658.
 Burton, I. F., 662.
 Butterworth, T., 711.
 Button, W. H., 707.
- CALLISON, E. C., 700.
 Camp, J. D., 657.
 Campbell, D. H., 720.
 Cantarow, A., 689.
 Capper, A., 684.
 Cardoso, M. R., 667.
 Carlen, S. A., 706.
 Carlson, L. D., 659.
 Carlson, W. A., 674.
 Carpenter, C. P., 712.
 Carroll, W. R., 700.
 Casten, D., 666.
 Castrodale, D., 689.
 Chalkley, H. W., 698.
 Chamberlain, D., 683.
 Chambers, R., 688.
 Chang, H. C., 703.
 Chargin, L., 707.
 Charlton, G. P., 685.
 Chase, A. M., 716.
 Chaudhuri, S., 704.
 Chen, K. K., 709.
 Chen, T., 659.
 Chiteng, C. H., 710.
 Ch'In, K. Y., 681.
 Cholak, J., 724.
 Chornock, C., 700.
 Chow, B. F., 688.
 Chowdhury, A. K., 718.
 Chowdhury, D. K., 716.
 Chudnoff, S. S., 712.
 Churg, J., 704.
 Ciocco, A., 683.
 Claassen, H. L., 721.
 Clapp, C. A., 679.
 Clark, D. E., 699, 703.
 Clark, H. E., 721.
 Clark, J. H., 708.
 Clark, S. L., 674.
- Clark, W. G., 705.
 Clarke, C. C., 677.
 Clarke, C. D., 723.
 Clarke, T. W., 666.
 Cobb, W. M., 659.
 Code, C. F., 691.
 Cogan, D. G., 678.
 Cohen, A. B., 663.
 Cohen, F. P., 694.
 Cohn, A., 706.
 Cohn, A. L., 691.
 Cole, K. S., 715.
 Coman, D. R., 660.
 Comroe, B. L., 707.
 Cone, E. S., 723.
 Congdon, E. D., 657.
 Connolly, C. I., 659.
 Cook, E. S., 717.
 Cook, S. F., 696.
 Cooper, E. L., 661.
 Cooper, F. B., 704.
 Cooper, M. L., 706.
 Copley, A. L., 663, 664.
 Corbit, H. O., 694.
 Corbit, J. D., 708.
 Corby, R. A., 714.
 Cordes, F. C., 676.
 Corkhill, A. B., 710.
 Cornatzer, W. E., 724.
 Cosgrove, K. W., 678.
 Council on Pharmacy & Chemistry, 689.
 Cowan, A., 678.
 Cowdry, E. U., 697.
 Cowgill, G. R., 699.
 Craig, J. D., 694.
 Craige, B., 711.
 Cranch, A. G., 712.
 Crawford, J. W., 681.
 Crohn, B. B., 693.
 Cronin, A. G., 717.
 Cross, R. M., 707.
 Crowley, R. T., 670.
 Croxatto, H., 669.
 Croxatto, R., 668.
 Crudden, C. H., 661.
 Curtis, G. M., 691.
 Curtis, H. J., 715.
 Cutler, M., 714.
- DA CRUZ, A., 716.
 Dale, D. U., 664.
 Dalton, A. J., 697.
 Dann, L., 708.
 Das Gupta, G. C., 717, 718.
 Davies, B. D., 705.
 Davis, A. E., 706.
 Davis, H. A., 683.
 Davison, C., 672.
 Day, M. F., 676.
 Day, P. L., 678.
 De S. S., 716.
 De Beer, E. J., 644.
 De Bettencourt, J. M., 667.
 De Eds, F., 712.
 De Gwin, E. L., 662.
 Der Heydt, R., 680.
 De Lor, J., 664.
 Delory, G. E., 665.
 De Ment, J., 695.
 De Mira, F., 686.
 De Pereira Forjaz, A., 715.
 De Sanctis, A. G., 694.
 De Vaughn, N. M., 701.
 Dias, M. V., 672, 674.
 Dicke, D. E., 677.
 Dickel, H. A., 713.
 Dicken, D. M., 718.
 Dill, L. V., 669.
 Dillon, J. B., 676.
 Dimick, M. K., 701.
 Dively, R. L., 708.
 Dohan, F. C., 670.
 Doljanski, L., 697.
 Don, R. S., 676.
 Donahue, H. C., 679.
 Donovan, P. B., 710.
 Dorfman, R. I., 690.
 Dorr, E. M., 689.
 Douglas, J. R., 720.
 Dowdy, A. H., 683.
 Doyle, W. L., 717.
 Dragstedt, L. R., 703.
 Dragutsky, D., 704.
 Dreszer, R., 667.
 Dronocki, Z., 674.
 Drosd, R., 693.
 Duca, C. J., 707.
 Duman, 675.
 Dun, P. T., 673.
 Duncan, C. N., 663.
 Dunham, W. B., 720.
 Duran-Reynolds, E., 697.
 Durlacher, S. H., 666.
 Du Vigneaud, V., 697.
- EAKIN, R. E., 701.
 Eaton, L. G., 663.
 Eaton, L. M., 672.
 Eblen, J. G., 706.
 Echlin, F. A., 674.
 Eder, H., 716.
 Edwards, J. E., 697.
 Efron, B. G., 721.
 Eldersfield, R. C., 709.
 Elek, S. R., 709.
 Elkeles, A., 691.
 Ellinger, F., 672.
 Ellinger, P., 724.
 Elliott, R., 683.
 Ellis, A., 694.
 Ellis, F. F., 675.
 Elsberg, C. A., 673, 674.
 Elson, K. O., 700.
 Emerson, E. B., jun., 683.
 Emerson, G. A., 670.
 Emmett, J. L., 676.
 Enders, J. F., 707.
 Ennor, A. H., 710.
 Epstein, N. N., 713.
 Evans, C. A., 720.
 Evans, F. C., 720.
 Evans, H. M., 686, 687.
 Evans, J. P., 676.
 Evans, T. C., 713.
- FABRICANT, N. D., 682.
 Fairley, N. H., 706.
 Fano, U., 659.
 Fantl, P., 695.
 Fareed, O. J., 712.
 Farmer, C. J., 711.
 Farr, L. E., 665.
 Faulkner, J. M., 663.
 Faulkner, S. H., 711.
 Fazekas, J. F., 686.
 Feingold, B. F., 699.
 Feldman, J. B., 677.
 Fenner, F., 660.
 Fenton, P. F., 691.
 Ferber, L., 699.
 Ferguson, R. R., 663.
 Ferree, C. E., 681.
 Fetterman, G. H., 660.
 Field, J., 703.
 Field, J., 2nd, 703.
 Finkelman, I., 710.
 Fischer, F. P., 677, 679, 680.
 Fishman, M., 722.
 Flaschenträger, B., 723.
 Flaxman, M., 709.
 Fleischmann, W., 684.
 Fletcher, P. F., 706.
 Foerster, O., 675.
 Foglia, V. G., 686.
 Foley, G. E., 719.
 Fontes, J., 688, 688.
 Ford, F. R., 671.
 Forschebach, G., 675.
 Foster, M. A., 684.
 Foster, R. C., 684.
 Foster, R. H. K., 663.
 Fowler, E. P., 682.
 Fox, C. L., jun., 705.
 Fraenkel-Conrat, H., 686, 687.
 Frame, E. G., 704.
 Francis, T., jun., 665.
 François, J., 682.
 Franklin, K. J., 667.
 Freedman, H., 689.
 Frèrejacque, M., 717.
 Fried, J., 709.
 Friedenwald, J. S., 680.
 Friedgood, H. B., 684.
 Friedman, T. B., 721.
 Friedmann, E. D., 679.
 Frondel, C., 694.
 Frost, G., 702.
 Fruchtman, J. M., 710.
 Fuhrman, F. A., 703.
 Fulton, G. P., 667.
 Furth, J., 697.
 Fruton, J. S., 716.
- GAGEL, O., 675.
 Gambill, W. D., 668.
 Gammo, I., 702.
 Garand, N. D., 688.
 Gardiner, R. H., 707.
 Gatch, W. D., 692.
 Gates, R. R., 662.
 Gauld, A. G., 662.
 Geiger, A. J., 711.
 Geist, S. H., 688, 690.
 Gershon-Cohen, J., 692.
 Gesell, R., 676.
 Gesty, F. J., 686.
 Gettler, A. O., 724.
 Ghormley, R. K., 657.
 Ghosh, B., 701.
 Ghosh, B. N., 716.
- Ghosh, H., 718.
 Gibson, O. J., 706.
 Gibson, W. E., 723.
 Giegel, A., 665.
 Gifford, S. R., 677.
 Gillespie, J. M., 704.
 Gilman, L. C., 659.
 Gilson, W. E., 667.
 Ginsberg, V., 713.
 Giral, F., 702.
 Glasson, B., 703.
 Glazebrook, A. J., 707.
 Glicksmann, A., 708.
 Goar, E. L., 681.
 Goddard, V. R., 712.
 Goetz, A., 718.
 Goetz, S., 718.
 Goldberg, H., 667.
 Goldberg, L., 702.
 Goldman, L., 721.
 Goldmann, H., 679, 681.
 Goldschmidt, R., 676.
 Goldwater, L. J., 713.
 Goldzieher, M. A., 688.
 Goltz, H. L., 714.
 Gomes, K., 617, 688.
 Gomori, G., 724.
 Good, H., 719.
 Goode, W. D., 718.
 Goode, J. V., 666.
 Goonick, A., 668.
 Goodrich, E. S., 660.
 Goodrich, J. P., 713.
 Gorbman, A., 704.
 Gordon, H., 661.
 Gordon, H. McL., 723.
 Gordon, W. G., 676.
 Goth, A., 704.
 Gottesman, J., 666.
 Grady, H., 659.
 Grady, H. G., 696.
 Grafflin, A. L., 660.
 Gray, J. A., jun., 720.
 Gray, P., 658.
 Gray, S. J., 673.
 Green, J. W., 694.
 Green, R. G., 720.
 Greenberg, D. M., 694.
 Greene, R. R., 689.
 Greenebaum, R. S., 711.
 Greenstein, J. P., 698.
 Creep, R. O., 688.
 Gregory, R. A., 691.
 Griffith, J. M., 663.
 Griffith, J. Q., 687.
 Griffith, J. Q., jun., 694.
 Griffiths, M., 687.
 Griffiths, W. F., 658.
 Grinnell, S. W., 666.
 Grishman, A., 714.
 Grobstein, C., 694.
 Grodins, F. S., 660.
 Gross, H. T., 710.
 Gross, P., 662, 704.
 Grunberg, A., 665.
 Guha, B. C., 702, 717.
 Gupta, T. J., 717.
- HAAM, E., 675.
 Haage, L. F., 691.
 Hagan, M. L., 704.
 Haist, R. E., 686.
 Hakim, D. N., 699.
 Halberstaedter, L., 697, 714.
 Haldar, M. K., 703.
 Hall, I. S., 682.
 Hallenbeck, G. A., 691.
 Hamilton, F. E., 691.
 Hamilton, J. B., 690.
 Hamilton, W. J., 658.
 Hammon, W. McD., 720.
 Hanks, J. H., 718.
 Hansen, A. E., 684.
 Hansen, E. T., 676.
 Hansen, I. B., 670.
 Hanzlik, P. J., 711.
 Hardin, R. C., 662.
 Harding, E. R., 699.
 Hardy, M. C., 657.
 Harnisch, O., 695.
 Harpman, J. A., 673.
 Harrington, P. R., 706.
 Harris, J. E., 662.
 Harsh, G. F., 710.
 Hart, D., 718.
 Hartley, P. H. T., 696.
 Hartman, F. W., 660.
 Hartman, F. W., jun., 660.
 Hartz, P. H., 660.
 Harvey, A. M., 671.
 Harvey, E. N., 716.
 Harvey, H. T., 686.
 Hayes, E. R., 683.
 Hayman, J. M., jun., 666.
 Healy, C. A., 683.

INDEX OF AUTHORS' NAMES, A., III.

- Hecht, R. A., 712.
 Hecke, G. P., 707.
 Heckel, N. J., 690.
 Hedin, R. F., 668.
 Heinbecker, P., 673.
 Heller, E. J., 691.
 Hellman, L. M., 664.
 Helmer, O. M., 668, 669.
 Henry, R. L., 700.*
 Henry, W., 657.
 Herbut, P. A., 698.
 Herrlich, H., 686.
 Herlihy, W. F., 658.
 Herrick, C. J., 682.
 Herring, V. V., 686.
 Herrmann, H., 680.
 Hershey, A. D., 720.
 Hiatt, E. P., 694.
 Hiatt, R. B., 694.
 Hiestand, W. A., 667.
 Hilger, D. W., 661.
 Hill, J. M., 663.
 Himwich, H. E., 686.
 Hinshaw, H. C., 666.
 Hirst, G. K., 719.
 Hitch, J. M., 718.
 Hodges, P. C., 712.
 Höber, R., 694.
 Hoff, H., 667.
 Hoff, H. E., 711.
 Hoffman, H. T., 707.
 Hogan, M. J., 676.
 Holt, H. D., 706.
 Houssay, A. B., 686.
 Houssay, B. A., 686.
 Hoyle, C., 711.
 Hoynes, A. L., 707.
 Hoyt, W. A., 706.
 Hrdlicka, A., 657.
 Hubert, G. R., 690.
 Hueper, W. C., 668.
 Hughson, W., 683.
 Humphrey, G., 695.
 Hunter, F. R., 661.
 Hunter, O. B., 719.
 Hussey, H. H., 667.
 Hutchinson, M., 708.
 Huysman, H. J. B. M., 679, 680.
- INGHAM, D. W., 683.
 Ingleby, H., 691.
 Irvine, A. D., 668.
 Irving, C., 666.
 Irving, G. W., jun., 716.
 Irving, H., 698.
 Isaak, L., 714.
 Isbell, H., 701.
 Isenhour, C. E., 669.
 Itô, R., 721.
 Ivy, A. C., 664.
 Izaki, N., 708.
 Izumi, E. M., 720.
- JACKLIN, J., 665.
 Jackman, A. W., 712.
 Jackman, W. A., 706.
 Jacob, E., 722.
 Jacobs, L., 719.
 Jacobsohn, K. P., 715, 716.
 Jacoby, A., 707.
 Jacox, H. W., 662.
 Jackson, B., 665.
 Jamieson, W. A., 705.
 Janota, M., 719.
 Jaques, L. B., 664.
 Jefferies, H. S., 722.
 Jeffers, C. P., 715.
 Jennes, M. L., 682.
 Johns, I. B., 723.
 Johnson, F. H., 716, 718.
 Johnson, M. J., 703.
 Johnson, R. B., 659.
 Johnson, W. H., 717.
 Johnstone, A. S., 691.
 Jolliffe, N., 690.
 Jones, H., 707.
 Jones, H. W., 663.
 Jones, T. R., 671.
 Joseph, V., 684.
 Juba, A., 673, 675.
 Julian, O. C., 703.
- KABAT, H., 668.
 Kahler, H., 697, 723.
 Kalz, F., 706.
 Kanda, Z., 712.
 Kanda, E., 665.
 Karn, H. W., 700.
 Kasahara, M., 702.
 Kassar, R. J., 701.
 Katz, L. N., 709.
 Katzenstein, R., 667.
 Kaufman, M. S., 689.
 Kauzal, G. P., 723.
 Kaylor, C. T., 659.
 Keddie, F. M., 713.
 Keith, H. M., 671.
 Keliher, T. F., 706.
 Keller, A. D., 687.
 Keller, L., 674.
 Kemp, J. E., 719.
 Kempf, G. F., 668.
 Kensler, C. J., 697.
 Kerns, K. R., 721.
 Kidd, J. C., 697.
- Kierland, R. R., 711.
 Kile, R. L., 721.
 Kilvington, B., 672.
 Kimbrough, R. A., jun., 694.
 Kimmel, G. C., 670.
 King, C. G., 700.
 Kingsley, V. R., 665.
 Kinsley, V. E., 678.
 Kirby-Smith, J. S., 696.
 Kirsh, E. R., 700.
 Kitchin, P. C., 695.
 Kjølhed, K. T., 702.
 Kleiber, M., 703.
 Klein, C., 668.
 Klenk, E., 704.
 Klotz, S., 685.
 Kluchsky, E. F., 724.
 Kohlbray, C. O., 705.
 Kohlstaedt, K. G., 668.
 Koke, M. P., 680.
 Koller, P. C., 698.
 Kolm, R., 692.
 Kornblith, B. A., 707.
 Kortum, R., 694.
 Kotschneva, N. P., 692.
 Kotz, J., 689.
 Kozelka, F. L., 724.
 Krause, M. E., 701.
 Krayer, O., 665, 709.
 Kremers, R. E., 722.
 Kuhlmann, D., 657.
 Kuntz, A., 676.
 Kyôda, S., 721.
- LAKE, M., 719.
 Lalich, J. J., 663, 664.
 Lamanna, C., 705.
 Lampe, L., 699.
 Lampitt, L. H., 702.
 Lampton, A. K., 661.
 Landy, M., 718.
 Lanier, L. H., 679.
 Langlois, J., 702.
 Lapin, J. H., 712.
 Laskowski, M., 661, 716.
 Laslo, D., 671.
 Laszlo, D., 698.
 Larimore, G. W., 707.
 Latsky, J. M., 695.
 Latta, J. S., 686.
 Lawrence, R. D., 680.
 Lawrence, W. L., 697.
 Lawson, D. W., 658.
 Leach, C. E., 663.
 Lebowick, R. J., 658.
 Lee, L. Y., 703.
 Lees, H. D., 707.
 Legge, J. W., 712.
 Legge, R. F., 713.
 Lehr, D., 704.
 Lemberg, R., 712.
 Leopold, I. H., 678.
 Lekovsky, S., 701.
 LeRoy, G. V., 668.
 Levin, N. M., 711.
 Levine, M., 723.
 Levy, L. F., 702.
 Levy, R. C., 694.
 Levy, R. L., 666.
 Leuchtenberger, C., 698.
 Leuchtenberger, R., 698.
 Leuthardt, F., 703.
 Lewey, F. H., 675.
 Lewin, P., 719.
 Lewis, L., 700.
 Lewisohn, R., 698.
 Lieber, M. M., 663.
 Lifson, N., 692.
 Lilienthal, J. L., 671.
 Lillie, F. R., 659.
 Lindberg, H. A., 670.
 Linder, G. C., 695.
 Lindsay, J. W., 662.
 Linstead, R. P., 665, 709.
 Lippincott, S. W., 696.
 Lockhart, J. A., 671.
 Loebl, H. G., 688.
 Loeffel, E., 689.
 Löwenstein, O., 679.
 London, E. S., 692.
 Long, C. H., 723.
 Longley, B., 724.
 Longley, L. P., 666.
 Loosli, C. P., 708.
 Lord, F. D., 707.
 Lorenz, E., 696.
 Lotnar, F., 674.
 Lotnar, W., 715.
 Lowenhaupt, E., 662.
 Lu, C., 710.
 Lucia, S. P., 693.
 Lundy, H. W., 720.
 Lushbaugh, C. C., 668.
 Lutz, R. B., 667.
 Lyman, R. S., 674.
 Lynch, K. N., 713.
- McANALLY, R. A., 693.
 MacBryde, C. M., 689.
 McCarthy, W. C., 665.
 McClure, G. Y., 720.
 McCollum, E. V., 672.
 McCutcheon, F. H., 670.
 MacDonald, H., 664.
 McDonald, J. M., 665.
- McDonald, J. R., 698.
 MacDonald, R., 705.
 McElroy, L. W., 699.
 McElroy, R., 708.
 McGavack, T. H., 685.
 McGavie, J. S., 679.
 McGinn, S., 663.
 McGrew, D., 663.
 McIlwain, H., 705.
 McIntyre, A. R., 710.
 McIver, M. A., 684.
 McKenna, R. D., 693.
 MacKenzie, C. G., 672.
 MacKenzie, J. D., 672.
 MacKenzie, K. G., 675.
 MacKinney, G., 699.
 McLean, J., 663.
 MacLennan, R. F., 658.
 Macnaughton-Jones, H., 682.
 McQuarrie, I., 684.
 Magoun, H. W., 723.
 Mao, C. Y., 683.
 Marsh, D. G., 708.
 Martin, A. W., 661.
 Martin, G. J., 668.
 Martin, N. H., 706.
 Marx, J. R., 713.
 Marx, W., 687.
 Mawson, C. A., 665.
 Maxwell, M., 718.
 Maxwell, R. W., 707, 718.
 Meade, W. H., 723.
 Means, J. W., 664.
 Meduna, L. J., 686.
 Meiklejohn, A. P., 694.
 Meites, J., 687.
 Melnick, J. L., 715.
 Mendez, R., 709.
 Meng, C. W., 703.
 Menke, W., 722.
 Messer, A., 713.
 Meyer, B. B. M., 663.
 Meyer, C. E., 662.
 Meyer, L. M., 713.
 Meyer, W. H., 714.
 Miller, B. F., 708.
 Miller, R. A., 666.
 Millikan, C. R., 722.
 Mills, F. H., 684.
 Milthorpe, F. L., 723.
 Mitchell, L. C., 662.
 Mitchell, W. R., 718.
 Möller, E. F., 701.
 Moisset de Espanes, E., 709.
 Moog, F., 703.
 Moon, V. H., 663.
 Moore, J. A., 659.
 Moore, R. M., 711.
 Morgan, D. R., 663.
 Morgan, E. J., 702.
 Morgan, F., 669.
 Morgan, H. J., 684.
 Morgan, W. T. J., 720.
 Morehead, O. J., 700.
 Morel, F., 675.
 Morris, H. P., 696.
 Morrison, D. B., 661.
 Morrison, J. L., 670.
 Morrissey, M., 665.
 Moussatché, H., 672, 674.
 Moyer, L. S., 722.
 Mueller, J. H., 707.
 Muir, R. M., 714.
 Muirhead, E. E., 663.
 Mukerjee, S., 717, 718.
 Muller, F., 706.
 Mulliken, B., 696.
 Muntner, S., 712.
 Murray, M. M., 699.
 Mutscheller, A., 713.
 Muzzo, J. P., 665.
 Mylon, E., 667.
- NACHMANSOHN, D., 672.
 Nathanson, L. M., 679.
 Nearles, J., 662.
 Needham, A. E., 695.
 Neil, R. H., 714.
 Nelson, J. P., 710.
 Nesbit, R. M., 676.
 Newcomb, A. L., 657.
 Newman, H., 724.
 Nicholson, J. T. L., 700.
 Nicodemus, R. E., 671.
 Nielsen, J. C., 712.
 Nigg, C., 707.
 Nitzescu, I. I., 700.
 Nolan, H. H., 676.
 Nordmann, J., 681.
 Nowland, R. J., 658.
 Nutting, R. E., 704.
- OAKLEY, W., 680.
 Obreshkove, V., 665.
 O'Donnell, J. J., 675.
 Ogle, K. N., 676.
 Okamoto, H., 721.
 Okushima, Y., 708.
 O'Leary, P. A., 711.
 Olson, C. jun., 723.
 Olson, M., 705.
 O'Melveny, K., 659.
 O'Neill, J. F., 663.
 Opps, F. A., 658.
 Orban, B., 657.
- Ornstein, E. A., 690.
 Orr, M. L., 664.
 Orris, H., 719.
 Osenkop, R. S., 697.
 Otorio de Almeida, M., 672.
- PAGE, I. H., 668, 669.
 Page, R. C., 664.
 Palmer, C. E., 683.
 Pan, S., 710.
 Pan, S. Y., 678.
 Panikkar, N. K., 695.
 Pany, J., 724.
 Parker, E., 689.
 Parkinson, T. L., 702.
 Parpart, A. K., 661.
 Partridge, S. M., 720.
 Paschke, K. E., 689.
 Patterson, E. K., 717.
 Patterson, J. E., 666.
 Patton, R. A., 700.
 Pauling, L., 720.
 Pearlman, S., 705.
 Pearce, D. C., 659.
 Pearson, A. A., 683.
 Pedro da Cunha, D., 716, 717.
 Peet, M. M., 670.
 Pereira, B., 688.
 Pereira, F. B., 671.
 Peterson, H. O., 658.
 Peyton, W. T., 658.
 Pfeiffer, H. H., 671.
 Phillips, F. S., 659.
 Picken, L. E. R., 715.
 Pierce, H. B., 691.
 Piersol, G. M., 695.
 Pike, R. M., 705.
 Pindell, M. L., 714.
 Pinkerton, M. C., 695.
 Pitcher, W. H., 663.
 Pitt, F. H. G., 681.
 Pittinos, G. E., 694.
 Plotz, H., 720.
 Pochon, J., 719.
 Pohlman, A. G., 682.
 Polan, C. G., 676.
 Pollock, L. J., 710.
 Poncher, H. G., 684.
 Poole, A. K., 711.
 Poole, J. L., 672.
 Porter, R. R., 663.
 Powell, H. M., 705.
 Powell, J. F., 661.
 Power, M. H., 685.
 Prados, M., 673.
 Prichard, M. M. L., 667.
 Prien, E. L., 694.
 Prinz, M. V. H., 706.
 Pritchard, W. H., 666.
 Procita, L., 658.
 Puck, T. T., 708.
 Pugh, R. E., jun., 714.
- QUEEN, F. B., 721.
 Quick, E. D., 707.
- RADOS, A., 679.
 Rake, G., 707.
 Rakoff, A. E., 689.
 Raman, T. K., 682.
 Ramasarma, G. B., 699.
 Rammelkamp, C. H., 705, 708.
 Ramon, G., 719.
 Rand, G., 681.
 Ray, J. C., 717.
 Raynaud, A., 689.
 Reagan, R., 720.
 Reddy, D. V. S., 664.
 Redlich, P. C., 671.
 Rees, R. B., 713.
 Reese, A. B., 679.
 Reid, G., 663, 709.
 Reid, J. D., 298.
 Reinecke, R. M., 686.
 Reinhard, H., 700.
 Reinhard, M. C., 714.
 Reinhard, W. O., 687.
 Reinhold, J. G., 700.
 Reinstein, H., 693.
 Rennkamp, F., 704.
 Rhoads, C. P., 697.
 Rhodes, A. J., 665.
 Rhyn, E., 699.
 Rice, E. C., 682.
 Rice, J. L., 706.
 Ricewasser, J. C., 684.
 Richardson, C. H., 723.
 Richter, C. P., 685.
 Rife, D. C., 674.
 Ritchie, G., 660.
 Robb, J. S., 670.
 Robb, R. C., 670.
 Roberts, E., 694.
 Roberts, R. G., 712.
 Robertson, O. H., 708.
 Robertson, T., 697.
 Robinson, F. J., 685.
 Robson, M. M., 678.
 Rocha Silva, M., 721.
 Roe, J. H., 701.
 Rogers, L. K., 699.
 Rohner, P., 701.
 Rook, G., 704.
 Rose, C. L., 709.
 Rose, H. M., 705.
- Rosenbaum, E. E., 694.
 Rosenberg, H. R., 724.
 Rosenblatt, P., 692.
 Rosenblum, J., 705.
 Rosenblum, L. A., 699.
 Ross, A. F., 720.
 Ross, J. R., 668.
 Ross, S., 674.
 Rothen, A., 688.
 Rothenberg, R. E., 692.
 Rothenmich, N. O., 675.
 Rouse, G. P., 704.
 Roy, A. N., 717.
 Rubbo, S. D., 704, 718.
 Rudd, C., 677.
 Ruff, H., 715.
 Ruggy, G., 712.
 Russell, H., 667.
 Ruzsnyak, S., 702.
 Rutherford, R. B., 687.
 Rutledge, D. I., 666.
- SABIN, A. B., 720.
 Sabine, P. E., 683.
 Sadusk, J. F., 711.
 Sager, W. W., 719.
 Saha, P. P. T., 710.
 Saha, K. C., 671, 701.
 Sai, E., 708.
 Sailer, S., 668.
 Saland, G., 668.
 Salmon, U. J., 688, 690.
 Sample, A. B., 724.
 Samuels, L. T., 686, 698.
 Sarkar, S. N., 712.
 Savin, L. H., 678.
 Sawin, P. B., 659.
 Scarff, J. E., 675.
 Schafer, P. W., 670.
 Schaeffer, G. C., 689.
 Scheie, H. G., 678.
 Scheman, L., 719.
 Schenck, J. J., 702.
 Scherer, H. J., 699.
 Scherer, J. H., 698.
 Schmid, A. E., 681.
 Schoenbach, E. B., 707, 720.
 Schoental, R., 696.
 Scholander, P. F., 666.
 Scholz, W., 667.
 Schott, H. F., 698.
 Schriff, M. H., 663.
 Schroeder, H. A., 669.
 Schroeter, M., 674.
 Schuller, A., 669.
 Schwarz, A., 688.
 Schwartzman, J., 658.
 Prinz, M. V. H., 706.
 Schwertzer, K., 700.
 Schwichtenberg, A. H., 681.
 Sciarra, D., 700.
 Scott, E. P., 705.
 Scott, G. I., 678.
 Scudi, J. V., 702.
 Searcy, G. L., 685.
 Seiferle, E. J., 723.
 Selinger, M. A., 682.
 Sell, H. M., 722.
 Selye, H., 685, 690.
 Sen, P. B., 702.
 Seyringhaus, E. L., 684, 685.
 Rammelkamp, C. H., 705, 708.
 Ramon, G., 719.
 Rand, G., 681.
 Ray, J. C., 717.
 Raynaud, A., 689.
 Reagan, R., 720.
 Reddy, D. V. S., 664.
 Redlich, P. C., 671.
 Rees, R. B., 713.
 Reese, A. B., 679.
 Reid, G., 663, 709.
 Reid, J. D., 298.
 Reinecke, R. M., 686.
 Reinhard, H., 700.
 Reinhard, M. C., 714.
 Reinhard, W. O., 687.
 Reinhold, J. G., 700.
 Reinstein, H., 693.
 Rennkamp, F., 704.
 Rhoads, C. P., 697.
 Rhodes, A. J., 665.
 Rhyn, E., 699.
 Rice, E. C., 682.
 Rice, J. L., 706.
 Ricewasser, J. C., 684.
 Richardson, C. H., 723.
 Richter, C. P., 685.
 Rife, D. C., 674.
 Ritchie, G., 660.
 Robb, J. S., 670.
 Robb, R. C., 670.
 Roberts, E., 694.
 Roberts, R. G., 712.
 Robertson, O. H., 708.
 Robertson, T., 697.
 Robinson, F. J., 685.
 Robson, M. M., 678.
 Rocha Silva, M., 721.
 Roe, J. H., 701.
 Rogers, L. K., 699.
 Rohner, P., 701.
 Rook, G., 704.
 Rose, C. L., 709.
 Rose, H. M., 705.
- SABIN, A. B., 720.
 Sabine, P. E., 683.
 Sadusk, J. F., 711.
 Sager, W. W., 719.
 Saha, P. P. T., 710.
 Saha, K. C., 671, 701.
 Sai, E., 708.
 Sailer, S., 668.
 Saland, G., 668.
 Salmon, U. J., 688, 690.
 Sample, A. B., 724.
 Samuels, L. T., 686, 698.
 Sarkar, S. N., 712.
 Savin, L. H., 678.
 Sawin, P. B., 659.
 Scarff, J. E., 675.
 Schafer, P. W., 670.
 Schaeffer, G. C., 689.
 Scheie, H. G., 678.
 Scheman, L., 719.
 Schenck, J. J., 702.
 Scherer, H. J., 699.
 Scherer, J. H., 698.
 Schmid, A. E., 681.
 Schoenbach, E. B., 707, 720.
 Schoental, R., 696.
 Scholander, P. F., 666.
 Scholz, W., 667.
 Schott, H. F., 698.
 Schriff, M. H., 663.
 Schroeder, H. A., 669.
 Schroeter, M., 674.
 Schuller, A., 669.
 Schwarz, A., 688.
 Schwartzman, J., 658.
 Prinz, M. V. H., 706.
 Schwertzer, K., 700.
 Schwichtenberg, A. H., 681.
 Sciarra, D., 700.
 Scott, E. P., 705.
 Scott, G. I., 678.
 Scudi, J. V., 702.
 Searcy, G. L., 685.
 Seiferle, E. J., 723.
 Selinger, M. A., 682.
 Sell, H. M., 722.
 Selye, H., 685, 690.
 Sen, P. B., 702.
 Seyringhaus, E. L., 684, 685.
 Rammelkamp, C. H., 705, 708.
 Ramon, G., 719.
 Rand, G., 681.
 Ray, J. C., 717.
 Raynaud, A., 689.
 Reagan, R., 720.
 Reddy, D. V. S., 664.
 Redlich, P. C., 671.
 Rees, R. B., 713.
 Reese, A. B., 679.
 Reid, G., 663, 709.
 Reid, J. D., 298.
 Reinecke, R. M., 686.
 Reinhard, H., 700.
 Reinhard, M. C., 714.
 Reinhard, W. O., 687.
 Reinhold, J. G., 700.
 Reinstein, H., 693.
 Rennkamp, F., 704.
 Rhoads, C. P., 697.
 Rhodes, A. J., 665.
 Rhyn, E., 699.
 Rice, E. C., 682.
 Rice, J. L., 706.
 Ricewasser, J. C., 684.
 Richardson, C. H., 723.
 Richter, C. P., 685.
 Rife, D. C., 674.
 Ritchie, G., 660.
 Robb, J. S., 670.
 Robb, R. C., 670.
 Roberts, E., 694.
 Roberts, R. G., 712.
 Robertson, O. H., 708.
 Robertson, T., 697.
 Robinson, F. J., 685.
 Robson, M. M., 678.
 Rocha Silva, M., 721.
 Roe, J. H., 701.
 Rogers, L. K., 699.
 Rohner, P., 701.
 Rook, G., 704.
 Rose, C. L., 709.
 Rose, H. M., 705.
- SABIN, A. B., 720.
 Sabine, P. E., 683.
 Sadusk, J. F., 711.
 Sager, W. W., 719.
 Saha, P. P. T., 710.
 Saha, K. C., 671, 701.
 Sai, E., 708.
 Sailer, S., 668.
 Saland, G., 668.
 Salmon, U. J., 688, 690.
 Sample, A. B., 724.
 Samuels, L. T., 686, 698.
 Sarkar, S. N., 712.
 Savin, L. H., 678.
 Sawin, P. B., 659.
 Scarff, J. E., 675.
 Schafer, P. W., 670.
 Schaeffer, G. C., 689.
 Scheie, H. G., 678.
 Scheman, L., 719.
 Schenck, J. J., 702.
 Scherer, H. J., 699.
 Scherer, J. H., 698.
 Schmid, A. E., 681.
 Schoenbach, E. B., 707, 720.
 Schoental, R., 696.
 Scholander, P. F., 666.
 Scholz, W., 667.
 Schott, H. F., 698.
 Schriff, M. H., 663.
 Schroeder, H. A., 669.
 Schroeter, M., 674.
 Schuller, A., 669.
 Schwarz, A., 688.
 Schwartzman, J., 658.
 Prinz, M. V. H., 706.
 Schwertzer, K., 700.
 Schwichtenberg, A. H., 681.
 Sciarra, D., 700.
 Scott, E. P., 705.
 Scott, G. I., 678.
 Scudi, J. V., 702.
 Searcy, G. L., 685.
 Seiferle, E. J., 723.
 Selinger, M. A., 682.
 Sell, H. M., 722.
 Selye, H., 685, 690.
 Sen, P. B., 702.
 Seyringhaus, E. L., 684, 685.
 Rammelkamp, C. H., 705, 708.
 Ramon, G., 719.
 Rand, G., 681.
 Ray, J. C., 717.
 Raynaud, A., 689.
 Reagan, R., 720.
 Reddy, D. V. S., 664.
 Redlich, P. C., 671.
 Rees, R. B., 713.
 Reese, A. B., 679.
 Reid, G., 663, 709.
 Reid, J. D., 298.
 Reinecke, R. M., 686.
 Reinhard, H., 700.
 Reinhard, M. C., 714.
 Reinhard, W. O., 687.
 Reinhold, J. G., 700.
 Reinstein, H., 693.
 Rennkamp, F., 704.
 Rhoads, C. P., 697.
 Rhodes, A. J., 665.
 Rhyn, E., 699.
 Rice, E. C., 682.
 Rice, J. L., 706.
 Ricewasser, J. C., 684.
 Richardson, C. H., 723.
 Richter, C. P., 685.
 Rife, D. C., 674.
 Ritchie, G., 660.
 Robb, J. S., 670.
 Robb, R. C., 670.
 Roberts, E., 694.
 Roberts, R. G., 712.
 Robertson, O. H., 708.
 Robertson, T., 697.
 Robinson, F. J., 685.
 Robson, M. M., 678.
 Rocha Silva, M., 721.
 Roe, J. H., 701.
 Rogers, L. K., 699.
 Rohner, P., 701.
 Rook, G., 704.
 Rose, C. L., 709.
 Rose, H. M., 705.

INDEX OF AUTHORS' NAMES, A., III.

- Spangler, J. M., 697.
 Spence, J. W., 711.
 Spiegelman, S., 703.
 Spotnitz, H., 673, 674.
 Sprince, H., 720.
 Sproston, N. G., 696.
 Stabler, N. G., 660.
 Stacey, M., 718.
 Staemmler, M., 668, 672.
 Stander, T., 721.
 Steer, A., 706.
 Steinbach, H. B., 672.
 Steinbach, M. M., 707.
 Steinberg, M. F., 714.
 Steiner, P. E., 668.
 Steldt, F. A., 709.
 Stern, I., 675.
 Sternberg, W. H., 684.
 Stevenson, S. S., 701.
 Stewart, J. D., 693.
 Stirling, A. C., 662.
 Stoesser, A. V., 710.
 Stohlmann, E. F., 705.
 Story, R. V., 724.
 Stotz, E., 700.
 Stowell, D. D., 707.
 Strakosch, E. A., 712.
 Straub, F. B., 715.
 Straus, W., 722.
 Strauss, M. B., 662.
 Strauss, M. J., 711.
 Ströder, J., 719.
 Strouse, C. D., 694.
 Stuart, H. C., 657.
 Sturgis, C. C., 662.
 Süllmann, H., 681.
 Sugiura, K., 697.
 Sutor, E. H., 661.
 Sulkin, S. E., 706.
 Sumner, J. B., 716.
 Suntzeff, V., 697.
- Sure, B., 701.
 Sussman, M. L., 714.
 Sutton, M. B., 690.
 Sweet, N. J., 693.
 Sweet, W. H., 673.
 Swank, R. L., 673.
 Swann, C. C., 683.
 Sycenstricker, V. P., 701.
- TAGUON, H. J., 664.
 Tansley, K., 708.
 Tapadinhas, J., 715.
 Tarlov, I. M., 672.
 Tartar, V., 659.
 Taterka, H. D., 682.
 Taylor, A. F., 677.
 Taylor, A. R., 697.
 Taylor, C. B., 661.
 Taylor, E. S., 663.
 Taylor, F. H. L., 664.
 Taylor, R. D., 668.
 Teague, R. S., 693.
 Tenenbaum, E., 697.
 Tenzel, W. V., 714.
 Thaddea, S., 702.
 Thannhauser, S. J., 693.
 Thiberge, N. F., 721.
 Thiersch, J. B., 662.
 Thomas, C. C., 719.
 Thompson, R. C., 701.
 Thompson, W. O., 690.
 Thomson, S., 707.
 Tigay, E. L., 710.
 Timoféeff-Ressovsky, N. W., 713.
 Timofeev, N. V., 692.
 Tocantins, E. S., 663.
 Top, F. H., 706.
 Torrey, J. C., 719.
 Tracy, R., 718.
 Tree, M., 677.
 Trethewie, E. R., 708, 712.
- Troescher, F. M., 694.
 Trowbridge, B. C., 683.
 Tuft, L., 711.
 Tui, C., 663.
 Turell, R., 690.
 Turkevich, J., 718.
 Turner, C. W., 687.
 Turner, J. C., 696.
 Tyler, A., 659.
- URBERGER, C. J., 724.
 Urbach, E., 721.
 Urse, V. G., 686.
- VAN BUREN, G., 706.
 Van Dyke, H. B., 688.
 Van Liere, E. J., 666, 670.
 Van Winkle, M., jun., 711.
 Varco, R. L., 692.
 Veal, J. R., 667.
 Venkataramiah, C., 664.
 Verhoeff, F. H., 680, 681.
 Vermeulen, C., 703.
 Vest, S. A., 690.
 Viets, F. G., jun., 721.
 Visscher, M. B., 692.
 Vladesco, R., 712.
 Voss, J. G., 712.
- WADE, H. W., 684.
 Wagenaar, J. W., 677.
 Wagnan, I. H., 679.
 Wagner, J. C., 710.
 Wagner, R., 687.
 Wagoner, S., 706.
 Wald, G., 665, 700.
 Wald, M. H., 670.
 Waldbott, G. L., 688.
 Waldmann, H., 702.
 Walter, R. I., 688.
 Walze, E. M., 683.
 Wang, Y. K., 703.
- Ward, A. B., 720.
 Warden, C. J., 674.
 Warren, C. O., 703.
 Warren, M. R., 708.
 Warner, A. H., 714.
 Waters, E. G., 689.
 Waugh, T. R., 693.
 Weber, G., 676.
 Webster, B., 684.
 Weddell, G., 673.
 Weedon, F. R., 691.
 Weekers, R., 680.
 Weisman, A. I., 688.
 Weld, J. T., 662.
 Welebir, F., 706.
 Wellach, H., 675.
 Welsh, A. L., 721.
 Werner, M. A., 721.
 Werner, S., 694.
 Wernstein, E. A., 679.
 Westphal, U., 698.
 Weymouth, F. W., 703.
 Weyrauch, H. B., 691.
 White, A. S., 691.
 White, F. R., 699.
 White, H. L., 673.
 White, J., 699.
 White, P. D., 663, 709.
 Wheeler, C. M., 720.
 Wheeler, N. C., 685.
 Wheeler, S. M., 719.
 Wieland, T., 701.
 Wiener, M., 678.
 Wierda, J. L., 657.
 Wigner, G., 723.
 Wilder, R. M., 685.
 Wilkins, L., 684.
 Williams, E. F., jun., 661.
 Williams, G., 695.
 Williams, M. D. D., 714.
 Williams, R. J., 701.
- Wilson, D. C., 699.
 Wilson, D. M., 685.
 Wilson, H. E. C., 700.
 Wilson, J. W., 659.
 Wilson, T. E., 684.
 Wills, J. H., 676.
 Winans, H. M., 666.
 Wings, W. J., 711.
 Winkler, A. W., 711.
 Winter, F. A., 684.
 Winternitz, M. C., 666, 667.
 Witzberger, C. M., 700.
 Wolf, W., 686.
 Wolfe, L. W., 711.
 Wolf-Heidigger, G., 693, 695, 702.
 Wood, E. H., 724.
 Woods, W. W., 670.
 Woolley, D. W., 703.
 Woolley, P. M. B., 694.
 Wolsky, A., 715.
 Worcester, J., 705.
 Weything, H., 659.
 Wragge, W. B., 708.
 Wright, H. D., 706.
 Wunderly, C., 715.
- YAGLOU, C. P., 713.
 Yama, E., 708.
 Yarnoe, E., 708.
 Yater, W. M., 674.
 Young, D. C., 706.
 Young, F. G., 687.
 Yudkin, A. M., 676.
- ZAIKO, N. N., 692.
 Zamenhof, S., 674.
 Ziegler, M. R., 684.
 Zimmerman, M., 694.
 Zscheile, F. P., 700.
 Zucker, R. L., 706.
 Zurrow, H., 668.



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