Physiological Chemistry.

Subcutaneous Absorption of Oxygen in Mountain Climbing and Aviation. RAOUL BAYEUX (*Compt. rend.*, 1921, **173**, 937—939).—The resistance to subcutaneous injection of oxygen diminishes as the height increases in the ascent of a mountain. That this is not due to the fatigue of climbing is shown by experiments conducted in a decompression chamber. In the latter experiment, the decrease in resistance was accompanied by a slight increase in the beat of the pulse and a very slight increase in the velocity of respiration. The reverse process occurs as the altitude decreases or the pressure in the chamber increases. The injection of oxygen was not accompanied by formation of a gaseous tumour and the oxygen was rapidly absorbed. W. G.

Influence of Temperature on the Reaction of the Blood. JOSÉ M. DE CORRAL (*Biochem. Z.*, 1921, **117**, 1—9).—The reaction of blood at 38° is $P_H=0{\cdot}22$ lower than at 18°, in agreement with Michaelis and Davidoff's findings (A., 1912, ii, 1184), provided that the blood is in equilibrium with carbon dioxide at 38° and then measured at 18°. If the blood is in equilibrium with carbon dioxide at both temperatures, then the P_H is independent of temperature as found by Hasselbalch (A., 1917, i, 490). The results with serum still show discrepancies. H. K.

Excretion of Sweat and the Composition of the Blood. EBERHARD WILBRAND (*Biochem. Z.*, 1921, **118**, 61—66).—Heavy perspiration is followed by a thickening of the blood; parallel with this there is a loss of protein and sodium chloride from the serum. The residual (non-precipitable) nitrogen of the blood and the content of fat are unaltered. H. K.

Concentration of the Blood. II. The Action of Diuretics of the Purine Group on the Exchange of Substances between the Tissues and the Blood. W. NONNENBRUCH (*Arch. expt. Path. Pharm.*, 1921, **91**, 332—341).—Theophylline, theocine, and euphylline cause the blood to lose water, which is soon replaced. The serum proteins increase often to a very large extent, not only relatively, but absolutely, and this stream of protein from the tissues into the serum even occurs after extirpation of the kidneys.

G. B.

An Effect of the Ingestion of Colostrum on the Composition of the Blood of New-born Calves. PAUL E. HOWE (*J. Biol. Chem.*, 1921, **49**, 115—118).—The blood of the new-born calf does not contain euglobulin or pseudo-globulin I, but after ingestion of colostrum relatively large amounts of these proteins are present. If no colostrum is given, they are only formed slowly. The function of colostrum seems to be to supply them rapidly. G. B.

Calcium Content of Blood Plasma and Corpuscles in the New-born. MARTHA R. JONES (*J. Biol. Chem.*, 1921, **49**, 187—192).—The whole blood contains 8·8 mg., the corpuscles 5·0 mg., the plasma 12·3 mg. of calcium per 100 c.c. The average for plasma is higher and for corpuscles and whole blood less than for older children. In the first twelve days of life, the average percentage of red cells dropped from 55 to 42%. G. B.

Action of Pilocarpine on the Composition of the Blood. A. BORNSTEIN and ROBERT VOGEL (*Biochem. Z.*, 1921, **118**, 1—14). —Pilocarpine administered to dogs alters the distribution of water in the body, the blood showing increased content of hæmoglobin, corpuscles, and serum proteins. This change is only partly to be attributed to excretion of water from the body. In addition, pilocarpine produces hyperglycæmia in dogs and rabbits. Extirpation of the pancreas has no inhibiting action on these results, but atropine is antagonistic to all. H. K.

Blood and Metabolism Studies with Radium Emanations. J. HAUENSTEIN (*Munch. med. Woch.*, 1921, **68**, 809—810; from *Chem. Zentr.*, 1921, iii, 795).—Observations were made of the effect of radium radiations on the numbers of red and white blood corpuscles and on the behaviour of the individual leucocyte forms in cases of carcinoma of the uterus. Red corpuscles disintegrate and decrease in amount under the influence of γ-rays. Leucocytes increase in number. There is a relative and absolute increase in neutrophiles and a relative although not absolute decrease in lymphocytes. No effect was observed on the large, white blood cells, and the mononuclear, eosinophile, and basophile cells.

The metabolism experiments showed that the nitrogen content of the urine decreased markedly during and after treatment. Similar results were obtained for uric acid. Acetone and aceto-acetic acid were not found. The figures for indican were abnormal and slight albuminuria was observed. G. W. R.

Permeability of the Red Corpuscles of Human Blood for Anions. ERNST WIECHMANN (*Pflüger's Archiv*, 1921, **189**, 109—125; from *Chem. Zentr.*, 1921, iii, 895).—In native human blood the chlorine ion is distributed between corpuscles and plasma in the ratio 1 : 2·1. This distribution is unaltered by isotonic sodium chloride solution. In the presence of sodium sulphate solution, chlorine ions pass out from the corpuscles. The partition ratio between corpuscles and suspending liquid is found to be 1 : 19·7 for the sulphate ion, 1 : 9·7 for the phosphate ion, and 1 : 3·1 for the bromine ion and the chlorine ion, under similar conditions of experiment. The permeability for the phosphate ion increases with the temperature. Permeability for the bromine ion is decreased by the presence of calcium. "Cyanol," "light green-F.S," "setopalm," and "ponceau 2R" were scarcely absorbed after two hours. G. W. R.

Quinine Hæmolysis. ALFRED LUGER (*Biochem. Z.*, 1921, **117**, 145—152).—When treated with quinine, blood corpuscles show a diminished resistance to acids and an increased resistance to alkalis. In the presence of saline solution, such corpuscles show a diminished resistance to water, but an increased resistance to saponin. H. K.

The Amino-acid Content of Plasma and Corpuscles according to Bang. A. COSTANTINO (*Biochem. Z.*, 1921, **117**, 140—144).—Polemical against I. Bang (cf. A., 1916, i, 528). H. K.

Normal Sugar Content of the Blood. P. J. CAMMIDGE, J. A. C. FORSYTH, and H. A. HOWARD (*Brit. Med. J.*, 1921, ii, 586—590).—As the result of observations on the blood-sugar of man and animals, the authors hold the view that the liver contains a diastatic ferment the action of which is reversible. In the fasting state, the glycogenolytic activities of this enzyme are largely inhibited by an anti-ferment formed by the pancreas, the impermeability of the resting liver cells to sodium chloride, and the reaction of the blood and liver cells. After the taking of food, when acids enter the duodenum, the secretion formed stimulates the liver cells to produce bile, thus permitting the entrance of sodium chloride, which activates the diastatic ferment. At the same time, it causes a secretion of alkaline pancreatic juice which combines with the acid gastric contents, forming acid salts and sodium chloride, which pass to the liver and increase the activity of the diastatic ferment. It also interferes with the formation of the internal secretion of the pancreas, thus diminishing its inhibitory effect on glycogenolysis in the liver. Carbohydrates reaching the liver from the intestine or formed from proteins in the liver are converted into glycogen by the diastatic ferment, the efficiency of the process depending on the extent to which the glycogenolytic action of the enzyme is inhibited by the internal secretion of the pancreas. Unless the power of glycogen formation possessed by the liver is exceeded, sugar as such, or formed from starch in the intestine, does not pass into the general circulation or play any direct part in the rise of blood-sugar following food. G. B.

Lactic Acid in the Blood of Dogs in Exercise. A. B. HASTINGS (*Proc. Soc. Exp. Biol. Med.*, 1921, **18**, 306—307).—Severe exercise of short duration increases the lactic acid, but prolonged moderate exercise decreases it. The significance of lactic acid as a primary factor in physiological fatigue not carried to exhaustion seems to be an open question (cf. similar results in man, Ryffel, A., 1910, ii, 325). G. B.

Distribution of Uric Acid in the Blood. R. C. THEIS and S. R. BENEDICT (*J. Lab. Clin. Med.*, 1921, **6**, 680—683).—Uric acid was estimated in plasma and corpuscles in 104 cases, 51 of which showed equal distribution, 45 showed plasma uric acid greater than corpuscle uric acid, and 8 the converse. This relationship holds for oxalated and defibrinated blood, and does not depend on pathological conditions. G. B.

Use of Frogs to Demonstrate the Anticoagulating Action of Nucleic Acids. DOYON (*Compt. rend.*, 1921, **173**, 1120—1122).—The frogs are decapitated and sixty drops of their blood allowed to drop into 0·5 c.c. of a solution containing 0·0033 gram of nucleic acid, 0·0025 gram of sodium carbonate, and 0·002 gram of sodium chloride. No coagulation occurs. Other experiments with frogs are described. W. G.

Changes in the Blood after Oral Administration of Sodium Chloride. G. SAMSON (*Biochem. Z.*, 1921, **118**, 55—60).—Oral administration of sodium chloride is followed by increased sodium chloride content of the blood-serum, the major portion, however, passing into the tissues. There is also an increase of the protein content of the blood. H. K.

Are there Protective Enzymes against Polysaccharides? EMIL ABDERHALDEN (*Biochem. Z.*, 1921, **117**, 161—165).—Mainly polemical against Herzfeld and Klinger (cf. A., 1921, i, 286). H. K.

The Fate of some Polysaccharides in the Digestive Tract of Mammals. TOMIHIDE SHIMIZU (*Biochem. Z.*, 1921, **117**, 227—240).—Fæcal constituents are able to convert inulin, lichenin, and hemicellulose into acetic, propionic, and butyric acids. Lactic acid also appears. The agent is probably bacterial, as pure cultures, for example, *Bacillus coli*, *B. lactis*, *B. proteus*, and *B. subtilis*, have the same power. H. K.

Hydrolysis of some Polysaccharides (Inulin, Lichenin, and Hemicellulose) in the Digestive Tract of Mammals. TOMIHIDE SHIMIZU (*Biochem. Z.*, 1921, **117**, 241—244).—Macerated gut or pancreas, separately or combined, failed to liquefy or produce reducing sugars from the polysaccharides named. H. K.

Cellulose Fermentation in the Paunch of the Ox and its Importance for Metabolic Experiments. W. KLEIN (*Biochem. Z.*, 1921, **117**, 67—68).—A criticism of Krogh and Schmit-Jensen's results (*J. Physiol.*, 1921, Sept. 20) on the carbon dioxide–methane ratio, chiefly on the grounds of priority. H. K.

Basal Metabolism of Underweight Children. KATHARINE BLUNT, ALTA NELSON, and HARRIET CURRY OLESON (*J. Biol. Chem.*, 1921, **49**, 247—262).—The basal metabolism tends to be (up to 40%) higher than in the normal child. G. B.

Variations in Chloride-metabolism Due to Menstrual Processes. W. EISENHARDT and R. SCHAEFER (*Biochem. Z.*, 1921, **118**, 34—38).—As a rule, immediately before or during the menstrual period there is an increased content of chloride in the circulating blood, as estimated by Bang's micro-method. H. K.

Calcium and Phosphoric Acid Metabolism with Large Doses of Calcium and Sodium Phosphate. K. BLÜHDORN (*Z. Kinderheilk.*, **29**, 43—55; from *Chem. Zentr.*, 1921, iii, 886).—No harmful effects followed the administration of large quantities of calcium. A portion of the calcium given as chloride or lactate is probably retained, but the greater part is excreted in the fæces. The phosphoric acid exchanges run parallel with the calcium exchanges. Addition of sodium phosphate increases the retention of calcium. When calcium chloride is administered, it is apparently retained as such at first. G. W. R.

Facilitation of Intermediary Sugar Metabolism. H. STAUB (*Biochem. Z.*, 1921, **118**, 93—102).—There is a diminished capacity for assimilating the first dose of dextrose in fasting persons, or after a diet of fat and protein, and also after hard work. In a fasting person, the assimilation increases to a maximum after ten hours, and then falls off after fifteen or more hours. To explain these and other results, "equilibrating ferments" (Gleichgewichtsfermente) are postulated as produced in the blood by foodstuffs to restore to equilibrium the sudden abnormal conditions produced by a high concentration of the food administered. H. K.

Influence of some Polysaccharides (Inulin, Lichenin, and Hemicellulose) on Protein Exchange. TOMIHIDE SHIMIZU (*Biochem. Z.*, 1921, **117**, 245—251).—Feeding experiments on dogs show that the polysaccharides named have a protein-sparing action. H. K.

The Fate of Parenteral Administered Sulphur and its Influence on Metabolism. ROBERT MEYER-BISCH and E. BASCH (*Biochem. Z.*, 1921, **118**, 39—49).—Intramuscular injection of sulphur in oil is followed by increased protein breakdown, shown by increased nitrogen and sulphur output in the urine, the proportion of the latter element being greater than that administered. H. K.

Antiketogenesis. III. Calculation of the Ketogenic Balance from the Respiratory Quotients. PHILIP A. SHAFFER (*J. Biol. Chem.*, 1921, **49**, 143—162; cf. A., 1921, i, 754).—The author makes the following assumptions (not wholly justified by experiment). (1) Each molecule of fat gives 3 molecules of acetoacetic acid and 0·5 molecule of dextrose or its equivalent antiketogenic derivative. (2) Protein is convertible (*a*) into antiketogenic dextrose or its equivalent to the extent of 3·6 grams for each gram of urine nitrogen, (*b*) into acetoacetic acid for each molecule of leucine, phenylalanine, and tyrosine, it being calculated that each gram of urine nitrogen corresponds with approximately 10 millimols. of ketogenic substance. (*c*) Valine, lysine, histidine, and tryptophan are neutral as to ketogenesis. (3) Carbohydrate exerts its antiketogenic function in the form of dextrose, 1 gram of which is therefore equivalent to $1000/180 = 5{\cdot}56$ millimols. of antiketogenic substance.

A method is described by which the ratio of ketogenic to antiketogenic molecules in the metabolic mixture can be calculated from the respiratory quotient. The molecular ratio 1 : 1 corresponding according to the calculation with a respiratory quotient of 0·76, appears to be the limit for the avoidance of acetone substances. With a quotient $>0{\cdot}76$ the katabolism of the antiketogenic dextrose or its equivalent from protein and glycerol is great enough to remove aceto-acetic acid as fast as it is formed. G. B.

The Minimum of Odour Perceptible in an Absolutely Inodorous Space (Camera Inodorata). K. Komuro (*Arch. Néerl. Physiol.*, 1921, **6**, 20—24).—The camera is a large glass box which can be made inodorous by means of a mercury vapour lamp and into which the head of the experimenter can be introduced. Inside this chamber the minimum necessary for perception of a number of odours is 20—25% less than outside, that is, the nose becomes more sensitive when all other odours are eliminated.

G. B.

Acid Taste. Wolfgang Ostwald and Alfred Kuhn (*Kolloid Z.*, 1921, **29**, 266—271).—The connexion between the acid taste and the power of producing swelling is considered. It is shown that neither quantity is strictly proportional to the free hydrogen-ion concentration, nor is this quantity in any way a quantitative measure of either. The stronger the swelling action of an acid, the greater the hydrogen-ion concentration must be before an acid taste is detectable. Consequently, swelling action and acid taste are directly opposed to one another. Strongly swelling acids taste less acid than weakly swelling acids of the same hydrogen-ion concentration. The series of minimum hydrogen-ion concentrations which can be detected by taste and the series of swelling constants do not run parallel for the 13 acids examined, but may be connected by means of an experimental equation which contains two constants. Acid salts and buffer solutions exhibit the above-named relationship between acid taste and swelling power. Solutions of these substances taste much more acid than solutions of their acids of the same hydrogen-ion concentration. This is in keeping with the colloid–chemical rule that the addition of salts reduces the swelling power of acids. A tentative hypothesis is put forward that the acid taste is qualitatively due to the hydrogen ion, but quantitatively to the simultaneous swelling action of the colloids in the region of the nerve-endings which is not determined by the hydrogen-ion concentration. J. F. S.

Chemical Constituents of the Egg of the Common Frog (*Rana temporaria*) and their Rôle in its Embryonic Development. E. FAURÉ-FREMIET and (MLLE) DU VIVIER DE STREEL (*Bull. Soc. Chim. Biol.*, 1921, **3**, 476—482).—The ripe egg has the following composition: water 57·60%, glycogen 3·31%, lipoids 10·14%, vitellin tablets 26·51%, the remaining 2·44% consisting of pigment, nucleus, and cytoplasma. The vitellin tablets, which are partly soluble in alkalis, contain phosphorus, nitrogen, and sulphur. E. S.

Constitution of the Egg of *Sabellaria alveolata*, L. E. FAURÉ-FREMIET (*Compt. rend.*, 1921, **173**, 1023—1026).—The eggs of *Sabellaria alveolata*, L., contain 70% of water; 19·08% of protein; 6·80% of fats and lipoids; 1·27% of glycogen, and 1·53% of ash. The protein fraction consists of two distinct substances, one slightly acid, the other neutral. The fatty substances in the eggs exist in three principal forms, namely, neutral fats, soaps, and phosphatides. W. G.

Tetrodon Poison and some of its Chemical Characteristics. F. ISHIHARA (*Tōkyō Igakukai Zasshi*, 1917, **31**, 1—39).—The poison, which was extracted from eggs of the globe fish, is a tasteless, white powder containing sulphur and an amino-group; it gives a positive ninhydrin reaction and a positive reaction for creatinine. Dextrose is present, probably as a dextrose ester. CHEMICAL ABSTRACTS.

The Chemical Composition of Brain. TOMIHIDE SHIMIZU (*Biochem. Z.*, 1921, **117**, 252—262).—From 35 kilos. of ox-brain, fractions of a gram of most of the amino-acids were isolated, together with purine and pyrimidine bases and choline. Non-nitrogenous constituents identified were succinic acid, *d*-lactic acid, and inositol. H. K.

The Calcium–Potassium Action. K. SPIRO (*Schweiz. med. Woch.*, **51**, 457—460; from *Chem. Zentr.*, 1921, iii, 888—889).—Examples are given of the antagonistic physiological action of calcium and potassium. With isolated frogs' hearts, poisoning by potassium salts was neutralised by calcium salts. The effect of certain alkaloids may be influenced by the relative amounts of calcium and potassium present. Changes in the reaction of the medium influence the calcium–potassium action. G. W. R.

Choline as Hormone for Intestinal Movement. III. Participation of Choline in the Action of Various Organic Acids on the Intestine. IV. Effect of Choline on Normal Gastric Movement. J. W. LE HEUX (*Pflüger's Archiv*, 1921, **190**, 280—300, 301—310; cf. *Ann. Report*, 1919, 160).—III. The effect on the isolated intestines of salts of various organic acids is explained as being due to the formation from these acids of esters of choline from the choline present in the walls of the bowel, with the aid of a synthetic enzyme which is also there. The activity of these esters, compared with choline, as estimated by the contraction produced, is: Acetic ester 1000, propionic 300, formic 100, *n*-butyric 40, *iso*valeric 15, benzoic 2, succinic 1. The sodium salts of the acids have no effect, if the intestine is first freed from choline by washing; in some cases the further addition of choline or of the washings restores the effect. Atropine antagonises the effect of these salts, as it does that of choline. The possibility that the stimulating effect of sugars on the intestine may be due to intermediate formation of a pyruvic ester is discussed. IV. *X*-Ray observations on cats showed that 4—10 mg. of choline chloride given intravenously accelerates the movements of the stomach and small intestine. G. B.

Liver Function. Benzoate Administration and Hippuric Acid Synthesis. G. D. DELPRAT and G. H. WHIPPLE (*J. Biol. Chem.*, 1921, **49**, 229—246).—A severe liver injury, for instance, extensive necrosis due to chloroform, delays but does not prevent the synthesis of hippuric acid. The authors attribute the synthesis in these cases to the subsidiary action of other cells of the body. The intravenous administration of benzoate always increases ammonia, urea, and total nitrogen of the urine. Under certain conditions benzoate injection causes a considerable breakdown of protein, due probably to the acute need of glycine. G. B.

The Part Played by Acid in Carbohydrate Metabolism. IV. The Relation between Acid and Alkali and Adrenaline-glycosuria. H. ELIAS and U. SAMMARTINO (*Biochem. Z.*, 1921, **117**, 10—40; cf. A., 1919, i, 54).—Glycosuria induced by injection of acids into rabbits does not cause congestion of the liver such as occurs in piqûre or adrenaline glycosuria. There is marked acidosis produced in rabbits by subcutaneous administration of adrenaline, the lactic acid content of the liver increasing threefold. The mobilisation of sugar produced by adrenaline in isolated tortoise liver is inhibited by alkali, but restored by neutralisation. H. K.

Energy Exchanges in Muscle. IV. Formation of Lactic Acid in Cut Muscle. OTTO MEYERHOF (*Pflüger's Archiv*, 1921, **188**, 114—160; from *Chem. Zentr.*, 1921, iii, 892; cf. A., 1921, i, 76).—In the estimation of lactic acid in frog's muscle, the material is extracted directly with 96% ethyl alcohol. The extract is evaporated to dryness, and the residue ground and washed with saturated sodium sulphate solution. The lactic acid maximum observed in cut muscle is attributed to inhibition of its production owing to increase of acidity. By varying the conditions, the whole of the glycogen may be changed into lactic acid. Addition of dextrose, hexosephosphoric acid, or glycogen to muscle suspended in a phosphate solution does not increase the rate of formation of lactic acid if the addition takes place in the first hour. Disappearance of lactic acid runs parallel with oxidation. Whilst under anaerobic conditions there is an equivalence between the disappearance of carbohydrate and the formation of lactic acid, the equivalence of the reverse process does not hold for cut muscle.

A correlation exists between respiration intensity and lactic acid formation. In cut muscle, respiration intensity is nearly equal to the maximal respiration intensity for uncut muscle. G. W. R.

The Oxidative Degradation of Dextrose in the Animal Body. JULIUS HIRSCH (*Biochem. Z.*, 1921, **117**, 113—116).—By use of dimethylhydroresorcinol (dimedon) as a fixative for acetaldehyde, the presence of acetaldehyde in 900 grams of frog's muscle was detected by isolation of 0·3 gram of condensation product (aldomedon). H. K.

Fixation of Lime by Animal Tissues. III. E. FREUDENBERG and P. GYÖRGY (*Biochem. Z.*, 1921, **118**, 50—54; cf. A., 1921, i, 382).—Cartilage which has absorbed the alkaline-earth metals has also the power of fixing phosphate. The colloids of the cartilage are assumed to play a part in this chemical combination. H. K.

Zinc in the Human and Animal Organism. E. ROST (*Med. Klin.*, 1921, **17**, 123—124).—In the human body zinc is to be found in almost all organs and tissues, particularly in the liver and in the muscles. In the liver of infants there is 39—82 mg. per kilo. of tissue, in adults, 52—145 mg. per kilo. Zinc is present in the secretions (milk, urine, fæces), and in epidermal structures such as hair. Human milk contains 1·3—1·4 mg. per litre; goat milk 2·3 mg.; cow milk 3·9 mg. In the urine 0·6—1·6 mg., and in the fæces 3—19 mg. are eliminated daily. Hair contains 9 mg. per kilo. The zinc is derived largely from the meat eaten but some is taken in as vegetable matter. In the tissues, the zinc exists in a more or less firm union with protein. CHEMICAL ABSTRACTS.

The Measurement of the Influence of Heat and Light on the Activity of Reduction of Animal Tissues, and Applications to Heliotherapy. J. VALLOT (*Compt. rend.*, 1921, **173**, 1196—1198).—The rate of reduction of methylene-blue by animal tissues is markedly increased by rise in temperature or by an increase in the intensity of the illumination and the beneficial therapeutic effects of solar radiation are attributed to this increased activity of reduction. W. G.

The Chemical Composition of Starfish. GUSTAV HINARD and ROBERT FILLON (*Compt. rend.*, 1921, **173**, 935—937).—The oil extracted from fresh starfish has d^{15} 0·9372; n^{22} +47° (Amagat and Jean); brismer index 48°; iodine value (Wijs) 132·7; saponification value 159·1; unsaponifiable matter 38·94%. W. G.

Inorganic Constituents of Milk. I. Chlorides in Human Milk. W. R. SISSON and W. DENIS (*Amer. J. Dis. Children*, 1921, **21**, 389).—The average chloride content of all specimens examined was 58·2 mg. Cl per 100 c.c. It is higher in the first weeks of lactation, and after the second week the average is 52·6 mg. Cl per 100 c.c. G. B.

The "Alkaline Tide" after Meals. I. CYRUS H. FISKE (*J. Biol. Chem.*, 1921, **49**, 163—170).—The author lays stress on the P_H of the urine, rather than on titration values. The influence of the food taken renders the interpretation of small variations of P_H uncertain, but after a full meal an undoubted increase in alkalinity occurs quite suddenly in the second or third hour. G. B.

Inorganic Phosphate and Acid Excretion in the Post-absorptive Period. CYRUS H. FISKE (*J. Biol. Chem.*, 1921, **49**, 171—181).—During the night the rate of excretion of inorganic phosphorus in the urine is greater ($1\frac{1}{2}$ times to twice) than during the day. This the author attributes to retention of phosphorus in the morning. The rate of phosphate excretion is to some extent parallel to the hydrogen-ion concentration, but does not wholly account for the variations in the latter (cf. preceding abstract). G. B.

The Iodine Number of Urine. OSKAR WELTMANN (*Wiener Arch. inn. Med.*, 1921, **2**, 107—120).—The affinity of urines for iodine normally varies directly with the density and inversely with the amount of the urine. The amount of iodine with which 100 c.c. of urine combines is termed the "percentage iodine number," and the corresponding amount for twenty-four hours, the "absolute iodine number." When the iodine number and the density show wide variation, a relatively high iodine number indicates extra-renal factors, and a relatively low iodine number, a severe injury to the kidney. High iodine numbers have been noted in certain diseases of the liver, acute febrile conditions, and certain rapidly progressing malignant neoplasms. CHEMICAL ABSTRACTS.

Amino-nitrogen in the Urine by the Formol Method. C. CIACCIO (*Arch. Sci. med.*, 1920, **43**, 177—181).—This nitrogen is considered to be present, not as amino-acids, but as polypeptides. This conclusion is based on a comparison of results by the Henriquez method and those obtained by a preliminary treatment with mercuric acetate, or by tannin and lead acetate. G. B.

Quantitative Measurement of the Transient Excretion of Caffeine in Man by a New Biological Method. EDUARD FRIEDBERG (*Biochem. Z.*, 1921, **118**, 164—184).—The method depends on the observation that there is a sharp contraction of the transversely striped musculature of the frog at a concentration of caffeine of 1 in 3,500. The caffeine in urine is isolated from the dried residue by extraction with chloroform. In man, diuresis is not solely dependent on the dose of caffeine, but partly on the water content of the tissues. The cessation of excretion of caffeine is early, possibly due to degradation of the caffeine to a methylxanthine. The smallest proportion of caffeine taken by the mouth and recognisable in the urine is 10 mg. H. K.

A Red Colouring Matter Produced by the Action of *p*-Dimethylaminobenzaldehyde on Normal Urine. PAUL HÁRI (*Biochem. Z.*, 1921, **117**, 41—54).—When *p*-dimethylaminobenzaldehyde is added to a hot concentrated urine which has previously been treated with lead acetate, a dark red coloration is produced. On cooling, and careful addition of ammonia, the colouring matter is precipitated and may be purified by crystallization from dilute alcohol. Ten to 12 litres of fresh urine yield 0·02 to 0·06 gram of pure substance, m. p. about 220°. The spectral behaviour of the substance has been examined and its extinction coefficient used as a measure of purity. Its tinctorial power is very great. The substance is apparently not identical with the colouring matter of Ehrlich's reaction on pathological urine. H. K.

Origin and Destiny of Cholesterol in the Animal Organism. XII. The Excretion of Sterols in Man. JOHN ADDYMAN GARDNER and FRANCIS WILLIAM FOX (*Proc. Roy. Soc.*, 1921, [*B*], **92**, 358—367).—The present paper revises earlier results (Ellis and Gardner, A., 1913, i, 222). It is now shown that, in man, the amount of sterols excreted in the fæces is in excess of that taken in with the food. The intake, however, of unsaponifiable matter not precipitated by digitonin (cf. A., 1921, i, 639) is larger than the output. It is concluded from the results that the human organism is capable of synthesising cholesterol. E. S.

Experimental Toxic Hæmatoporphyria. PIETRO BINDA (*Arch. Farm. sperim. Sci. aff.*, 1921, **31**, 184—191).—The results of the author's experiments with rabbits indicate that chronic sulphonal poisoning does not determine elimination of hæmatoporphyrin by the kidneys, that animals poisoned by sulphonal keep their power of retaining and elaborating injected hæmatoporphyrin, and that in the organs of animals killed by chronic sulphonal poisoning, the original property of reducing hæmatoporphyrin in vitro is preserved. T. H. P.

Blood Fat in Diabetes. N. R. BLATHERWICK (*J. Biol. Chem.*, 1921, **49**, 193—199).—Cases of mild and moderate diabetes can utilise satisfactorily large amounts of fat as indicated by the blood fat level and the absence of acetone substances from the urine. G. B.

Lipæmia. W. R. BLOOR (*J. Biol. Chem.*, 1921, **49**, 201—227).—In most cases a sequence in the appearance and disappearance of fat, lecithin, and cholesterol is perceptible, fat being the first to increase and to disappear. In most cases the ratio lecithin/cholesterol is distinctly below normal, as the cholesterol is increased in greater proportion than the lecithin. The increase in fat is generally in still greater proportion. G. B.

Action of certain Bismuth Derivatives on Syphilis. R. SAZERAC and C. LEVADITI (*Compt. rend.*, 1921, **173**, 1201—1204).—It is shown that ammoniacal bismuth citrate, bismuth lactate, bismuth subgallate, and bismuth oxyiodogallate are all active against syphilis, but vary in their toxic power. For human therapeutics sodium or potassium bismuthotartrate are the best bismuth preparations to use. W. G.

The Action of Polished Metals on Toxins. F. ERDSTEIN and L. FÜRTH (*Biochem. Z.*, 1921, **118**, 256—258).—A confirmation of Luger and Baumgarten's results (*Wien. klin. Woch.*, 1912, 1222) that copper and to a very slight extent silver have a harmful effect on toxins. An actual destruction of the toxin takes place in the sense that a complex metal–toxin compound is formed. H. K.

Toxicity of Methyl Alcohol. ASTRID CLEVE VON EULER (*Svensk. Kem. Tidskr.*, 1921, **33**, 114—119; from *Chem. Zentr.*, 1921, iii, 740).—Methyl alcohol is considered by the author to be less poisonous in large doses than ethyl alcohol. Cases of poisoning by methyl alcohol are to be attributed to accompanying poisonous impurities. G. W. R.

The Action of Organic Kations on the Vascular System and its Modification by Inorganic Ions. WERNER TESCHENDORF (*Biochem. Z.*, 1921, **118**, 267—285).—The action of a number of salts of strong organic bases was examined on the frog's vascular system. Acetylcholine had the most powerful constricting action. Nitrosocholine was much less active and guanidine still less so. In the homologous series of quaternary ammonium bases, tetramethylammonium chloride was intermediate between acetylcholine and nitrosocholine, the tetraethyl derivative resembled guanidine, whilst the tetrapropyl derivative depressed the vascular tonus. The action of the above organic kations was inhibited by the bivalent inorganic kations in the order: Mg, Ca, Sr, Ba. H. K.

Degradation of Fatty Acids in the Animal Organism. P. WORINGER (*Bull. Soc. Chim. Biol.*, 1921, **3**, 311—450).—A review on much the same lines as Dakin's monograph. Here and there the author puts forward independent views. Thus he argues against Dakin's conception of the breakdown of tyrosine and phenylalanine, and considers that the fundamental condition necessary for the combustion of an aromatic substance is its capacity of being transformed into homogentisic acid. He thus accepts Abderhalden's view (A., 1912, ii, 585) that this acid is produced in the normal tyrosine metabolism.

The title of the review scarcely represents its full scope, as it also deals with hydroxy-, keto-, and amino-acids. A special feature is a tabulation of the transformations of acids hitherto observed in the animal, with a statement of the method employed and a literature reference. There is also a full bibliography. G. B.

A New Antianaphylactic Substance, Sodium Formaldehydesulphoxylate. P. BRODIN and P. HUCHET (*Compt. rend.*, 1921, **173**, 865—867; cf. *ibid.*, 1919, **168**, 369; **169**, 9).—Sodium formaldehydesulphoxylate, $CH_2(OH)\cdot SO_2Na$, can be injected into dogs or rabbits to the extent of 1 gram per kilo. of live weight without any ill-effect and, like sodium chloride, it has an immunising action against an anaphylactic injection. W. G.

The Behaviour of Pyrrole in the Animal Body. TOMIHIDE SHIMIZU (*Biochem. Z.*, 1921, **117**, 266—268).—Injection of an aqueous suspension of pyrrole into dogs is followed by its elimination in the urine as methylpyridine. H. K.

Behaviour of Phrenosine in the Animal Body. TOMIHIDE SHIMIZU (*Biochem. Z.*, 1921, **117**, 263—265).—Phrenosine administered to a dog appeared in the urine as sphingosine; the latter, when given either by the mouth or subcutaneously, to dogs or rabbits, appeared unchanged. H. K.