Physiological Chemistry.

Physico-chemical Relations of Red-blood Corpuscles. Ivar Bang (*Biochem. Zeitsch.*, 1909, **16**, 255—276).—A repetition, correction, and extension of the older observations of others, chiefly as regards agglutination and the permeability of red-blood corpuscles. The erythrocytes of the calf are not agglutinated by treatment with sugar solution, but those of the ox are. This apparent discrepancy is due to the different method of bleeding, the calf's blood being arterial and containing less carbon dioxide. If the carbon dioxide in ox blood is first washed away, ox corpuscles are no longer agglutinated in sugar solution. Ox corpuscles have a fairly considerable permeability to salts. The rate of diffusion of carbon dioxide is, however, much greater, and must be taken into account when considering the isotonic coefficient of the blood. When blood is diluted with sodium chloride solution, the variable quantity of carbon dioxide in the erythrocytes is partly replaced by hydrochloric acid, making the isotonic coefficient somewhat variable and indeterminate. G. B.

Metabolism in the Infant. Walther Freund (*Biochem. Zeitsch.*, 1909, **16**, 453—472).—A number of observations on infants are recorded, the chief points examined being the amount of fat and soaps in the fæces during different diets. Some details regarding calcium metabolism are also given. No general conclusions are drawn. W. D. H.

Protein Metabolism. Emil Abderhalden (*Zeitsch. physiol. Chem.*, 1909, **59**, 177—193).—A discussion of Voit's well-known theory of the difference between "organ protein" and "circulating protein." The comparatively high output of urinary nitrogen during the first few days of starvation is attributed by the theory to the breakdown of the "circulating protein." It is pointed out that it is a pure assumption that the source of this extra nitrogenous waste is protein. It may be mere worthless ballast in non-protein form which is broken up and excreted. Some experiments on dogs are recorded at length, which show that the course of nitrogenous excretion during inanition is much the same, whether the animal had been previously fed on excess of protein food or not. W. D. H.

Rôle of the Ash Constituents of Wheat Bran in the Metabolism of Herbivora. Edwin B. Hart, Elmer V. McCollum, and G. C. Humphrey (*Amer. J. Physiol.*, 1909, **24**, 86—103).—Details are given of the relative amounts of potassium, magnesium, etc., in fæces and urine in accordance with differences in the intake. Magnesium, when supplied as a chloride or phytin compound, was largely excreted in the gut. Variations in the intake of various ash constituents or of phytin did not influence the composition of the milk. Phytin causes diuresis, probably because of the high potassium intake. Absence of phytin leads to constipation. W. D. H.

Influence of Alcohol on Metabolism in Animals during Inanition. MARTIN KOCHMANN and WALTER HALL (*Pflüger's Archiv*, 1909, **127**, 280—356).—In moderate doses, subcutaneous administration of alcohol in rabbits during inanition increases the period during which they live, but large doses hasten death. The favouring action is due to protein sparing, and to the retention of water. Death is accelerated by large doses owing to increase of protein catabolism, especially of proteins poor in sulphur, as evidenced by the N : S ratio. Alcohol produces a diuretic action only when given in large doses.

W. D. H.

Protein Absorption. OTTO COHNHEIM (*Zeitsch. physiol. Chem.*, 1909, **59**, 239—246).—Experiments on fishes are recorded into the intestine of which protein cleavage products were introduced. These are partly absorbed as ammonia, partly deamidised during absorption, and the remainder are absorbed in an unknown way. W. D. H.

Peptolytic Enzymes in the Stomach. II. EMIL ABDERHALDEN and ALFRED SCHITTENHELM (*Zeitsch. physiol. Chem.*, 1909, **59**, 230—232. Compare Abstr., 1908, ii, 1049).—Glycyl-*l*-tyrosine, or peptone from silk, which is rich in tyrosine, may be employed for the detection of peptolytic enzymes. They are absent from pure gastric juice, and when present in the stomach are due to regurgitation from the intestine, which may be increased by the administration of oil. Their presence may be employed for diagnosis of such regurgitation in disease. W. D. H.

Chemical Mechanism of Gastric Secretion. J. SYDNEY EDKINS and M. TWEEDY (*J. Physiol.*, 1909, **38**, 263—267).—By a specially devised method, the fundus and pyloric ends of the stomach in cats were functionally separated. Different substances were placed in the pyloric end or in the duodenum; the fundus responded by a marked secretion, although the same substances placed in the fundus itself provoked none. The effectiveness of the substances used was in the following order: meat extracts, dextrose, dextrin, and least of all hydrochloric acid. W. D. H.

Action of Certain Hitherto Unknown Constituents of the Pancreas on Sugar. I. ERNST VAHLEN (*Zeitsch. physiol. Chem.*, 1909, **59**, 194—222).—The theory propounded is that the cleavage of sugar is the result of the catalytic action of certain substances formed in the pancreas. In support of this, certain substances are stated to have been separated from the pancreas, one of which produces a breakdown of sugar and evolution of carbon dioxide, and also favours alcoholic fermentation, whilst another produces the opposite results. No details are given either of the mode of preparation or chemical nature of the substances in question.

W. D. H.

Action of Secretin and Receptive Substances. WALTER E. DIXON and P. HAMILL (*J. Physiol.*, 1909, **38**, 314—336).—Enzymes

exist in the pancreas as precursors: protrypsinogen, proamylopsin, and prosteapsin. Secretin combines chemically with these and liberates the active enzyme in the two last cases, but only liberates trypsinogen in the first, which in its turn is converted into trypsin by the entero-kinase of the succus entericus.

No evidence that vegetable alkaloids exert a specific effect in the body by combining with "receptive substances" was obtained; but it is suggested that the physiological activity of muscle and gland is due in all cases to the liberation of specific hormones, which combine with "receptive substances."

The statement that secretin and choline are identical is criticised.

W. D. H.

The Rôle of the Small Intestine in the Formation of Glycogen from Dextrose. KARL GRUBE (*Pflüger's Archiv*, 1909, 127, 529—532).—Croftan (this vol., ii, 328) has stated that the small intestine produces some preliminary condensation of sugar molecules, without which the liver is unable to make glycogen from dextrose. The present experiments show that the injection of dextrose into a mesenteric vein leads to glycogen formation in the liver.

W. D. H.

A Mucoid in the Intestinal Mucous Membrane of the Horse. HUBERT W. BYWATERS (*Proc. physiol. Soc.*, 1909, xlii—xliii; *J. Physiol.*, 38).—About 20 grams of a mucoid, believed to be identical with sero-mucoid, were separated from 20 kilos. of moist mucous membrane. It contains from 5·68 to 7·91% of ash. W. D. H.

Transformations in the Phosphorised Compounds of the Hen's Egg during Development. R. H. ADERS PLIMMER and FREDERICK H. SCOTT (*J. Physiol.*, 1909, 38, 247—253).—The following table gives the distribution of phosphorus in (1) the unincubated egg, and in (2) the newly-hatched chick:

	(1.)	(2.)	
Inorganic phosphate	trace	60·0	per cent. of total
Water soluble organic compounds	6·2	8·6	,, ,,
Ether soluble substances	64·8	19·3	,, ,,
Nuclein-like substances	1·9	12·0	,, ,,
Vitellin	27·1	0·0	,, ,,

Ether soluble and other organic compounds must therefore have been transformed into inorganic phosphates; this change begins markedly about the sixteenth or seventeenth day of incubation. Glycero-phosphoric acid is believed to give rise to inorganic phosphates only. There is also a probable transformation of the phospho-protein (vitellin) into nucleo-protein as well as into inorganic phosphate.

W. D. H.

Fatty Infiltration of the Liver in Hunger. V. H. MOTTRAM (*J. Physiol.*, 1909, 38, 281—313).—After twenty-four hours' inanition in rabbits and guinea-pigs (but not in hedgehogs, pigeons, or rats), the percentage of fat in the liver increases; this is sometimes due to the

shrinkage of the liver, but in other cases, especially in rabbits, is produced by a migration of fat into the liver from other parts, and in the process the fat undergoes a change in the direction of desaturation.

W. D. H.

Desaturation of Fatty Acids in the Liver. JOHN B. LEATHES and L. MEYER-WEDELL (*Proc. physiol. Soc.*, 1909, xxxviii—xl; *J. Physiol.*, **38**) —By feeding rats on various fats, it is shown that the liver as well as the connective tissue takes up fats conveyed to it by the blood. Other organs do not do the same to any extent. The connective (adipose) tissue stores the fat as brought to it; the liver, however, changes it so as to increase its power of absorbing iodine. This furnishes additional evidence in support of the view that one function of the liver is to prepare fat for oxidation in other tissues, and that the preparatory treatment consists, in part, of a desaturation process. W. D. H.

The Behaviour of the Liver to Foreign Proteins. FELIX REACH (*Biochem. Zeitsch.*, 1909, **16**, 357—363).—Iodoprotein perfused through the liver was taken up by that organ. A cleavage of the protein was only recognisable in small measure. W. D. H.

Liver Ferments, with Special Reference to the Gelatinolytic Enzyme. S. HATA (*Biochem. Zeitsch.*, 1909, **16**, 383—390).—This is a contribution to the subject of intracellular enzymes in the liver, and deals especially with the details of action (time, quantity, etc.) of liver extracts in liquefying gelatin. W. D. H.

Pressor Substances in Placental Extracts. OTTO ROSENHEIM (*J. Physiol.*, 1909, **38**, 337—342).—The pressor substances which are obtainable from human placenta are products of initial putrefaction; the autolytic enzymes without the aid of micro-organisms are unable to produce them, that is, they are unable to split off the terminal carboxyl group of the amino-acids. The most active substance separated out was identified as *p*-hydroxyphenylethylamine; the identity of another with *iso*amylamine is probable. The bases are identical with those found by Barger and Walpole in putrid meat (see next abstract). W. D. H.

Pressor Substances in Putrid Meat. GEORGE BARGER and GEORGE S. WALPOLE (*J. Physiol.*, 1909, **38**, 343—352. Compare this vol., ii, 254).—In the putrefaction of horse-flesh, bases are formed which cause a rise of arterial blood-pressure when injected intravenously; they are derived from amino-acids by the loss of carbon dioxide. The following were isolated: *iso*amylamine (from leucine), *p*-hydroxyphenylethylamine (from tyrosine), and probably phenylethylamine (from phenylalanine). The second is the most powerful. The pressor base previously obtained from putrid meat by Abelous and his colleagues is probably *iso*amylamine. W. D. H.

Lipoids of the Adrenal. OTTO ROSENHEIM and M. CHRISTINE TEBB (*Proc. physiol. Chem.*, 1909, liv—lvi; *J., Physiol.*, **38**).—The anisotropic substance of the adrenal cortex is not, as Powell White

suggests, a mixture of cholesterol and fatty acids, although such a mixture readily produces anisotropic globules. Free cholesterol is absent, but cholesterol esters (palmitic and stearic) as well as free stearic and other fatty acids are present. In the brain and other organs, cholesterol exists in a free state. A small quantity of sphingomyelin was also separated.

Whether the function of the adrenal cortex is the neutralisation of toxins is a subject to be pursued. The present analyses tend to support this view. W. D. H.

The Human Pituitary. William D. Halliburton, J. P. Candler, and A. W. Sikes (*Proc. physiol. Soc.*, 1909, xxxvii; *J. Physiol.*, 38).—The human pituitary weighs about 0·5 gram, and contains 76% of water. A single pituitary will, however, make sufficiently strong extracts to test their physiological action. Extracts of the anterior lobe are inactive or produce an insignificant fall of blood-pressure, such as is caused by tissue extracts generally. Extracts of the posterior lobe produce, as was found by Schäfer and his colleagues in their work on the pituitary of other mammals, (1) a rise of arterial pressure at the first injection, (2) a constriction of peripheral vessels, but (3) prolonged dilatation of the kidney vessels, accompanied by (4) diuresis. The pituitaries used came from asylum cases, but in nearly all cases the structure was normal. The number and size of the colloid cysts vary a good deal, but the colloid material does not appear to be the substance to which the extracts owe their activity. In man and ox, the pituitary contains no iodine.

W. D. H.

Heat Coagulation in Smooth Muscle. The Connexion between Protein Coagulation and Heat Rigor. Edward B. Meigs (*Amer. J. Physiol.*, 1909, **24**, 1—13, 178—186. Compare this vol., ii, 251).—Lactic acid formation is an accompaniment of heat coagulation in smooth muscle; this is believed to cause the fibre cells to swell in such a way that they lengthen.

The view is advanced that the heat shortening of tissues is not due to coagulation of their protein constituents, but to some other process, the nature of which is left vague. W. D. H.

Hydrolysis of Muscle of Scallop (Pectens viradians). Thomas B. Osborne and D. Breese Jones (*Amer. J. Physiol.*, 1909, **24**, 161—169).—The amounts of amino-acids obtained are not vastly different from those previously given for the muscle of halibut and chicken. Glycine is absent in the muscle of halibut and scallop, but present in small amount in chicken's muscle. Ox muscle, on the other hand, yields a larger amount. The scallop contains relatively a good deal of free glycine. W. D. H.

Chemico-physical Investigations on the Crystalline Lens. Filippo Bottazzi and Noè Scalinci (*Atti. R. Accad. Lincei*, 1909, [v], **18**, i, 225—228. Compare this vol., ii, 162).—Lenses of dogs' eyes, immersed in aqueous or vitreous humour, were found in one case,

first to diminish and then increase, and in another, first to increase and then diminish in weight. The diminution in weight may be explained as due to the diffusion outwards of the protein substances of the lens surpassing the penetration of liquid into the lens. The increase of weight can only be the effect of an increase in the degree of imbibition of the lens in consequence of a diminution of the elasticity of the capsule. In all the experiments, the body of the lens remained quite transparent, not only when the uninjured capsule limited the imbibition, but even for nineteen hours after the capsule had been removed. Hence a much longer period is necessary for the increase of the degree of imbibition of the crystalline lens, immersed in normal ocular liquids, to produced opacity of the lens.

T. H. P.

The Influence of Electrolytes on the Rhythmical Movements of Medusæ. II. ALBRECHT BETHE (*Pflüger's Archiv*, 1909, **127**, 219—273. Compare Abstr., 1908, ii, 969).—Medusæ continue to live and move in artificial mixtures of salts provided they are present in the same proportions as in sea-water.

Sodium chloride alone hastens, then paralyses their movements; this action is reversible; potassium chloride stimulates in large doses; calcium chloride strengthens the systole, and in large doses lessens its frequency, and finally stops it, producing inexcitability. Magnesium chloride and sulphate have primary paralysing action; aluminium has the same action, only more markedly. The accelerating action of sodium salts is as follows: $Na_2SO_4 > NaCl > NaI > NaBr > NaNO_3$, and the potassium salts: $K_2SO_4 > KCl > KNO_3$; the paralysing action of magnesium sulphate is greater than that of the chloride. Increase of hydrogen ions stimulates, of hydroxyl ions, paralyses. The membrane of the medusæ is probably not permeable to hydrogen and hydroxyl ions.

W. D. H.

Formation of Silk. EMIL ABDERHALDEN and H. R. DEAN. EMIL ABDERHALDEN and WOLFGANG WEICHARDT (*Zeitsch. physiol. Chem.*, 1909, **59**, 170—173, 174—176).—Silk contains much tyrosine, glycine, and alanine. On the view that these acids are present in the silk-worm in abundance, the mono-amino-acids were estimated in the body of the silk-worm and in the moth after silk formation, with the following results.

	In silk-worm.	In moth.
Glycine	10·2 %	3·5 %
Alanine	8·7	3·2
Valine	1·7	1·7
Leucine	4·8	8·5
Aspartic acid	1·6	2·7
Glutamic acid	3·5	5·7
Phenylalanine	2·4	2·7
Tyrosine	4·3	1·6
Proline	1·5	4·0

In the first column the high percentage of glycine, alanine, and tyrosine is noteworthy, so also is the fall in each in the second column.

W. D. H.

Connexion between Changes of Permeability and Stimulation. RALPH S. LILLIE (*Amer. J. Physiol.*, 1909, **24**, 14—44).—A number of experiments are given on the influence of salts on the contraction of *Arenicola* larvæ. Solutions which produce contraction, and these only, produce a diffusion outwards of a yellow pigment in the larvæ; stimulating agents increase the normal permeability; their effect is considered to depend essentially on their influence in varying the rate at which carbon dioxide leaves the cell. W. D. H.

Sugar Formation in Pupæ. OTTO KRUMMACHER and ERNST WEINLAND (*Zeitsch. Biol.*, 1909, **52**, 273—279).—The experiments were performed with the pupæ of *Calliphora*. Calorimetric observations are recorded, and the general conclusion is drawn that sugar is formed from protein and not from fat. W. D. H.

Physiology of Mollusca. IV. Purine Substance of Sycotypus. LAFAYETTE B. MENDEL and H. GIDEON WELLS (*Amer. J. Physiol.*, 1909, **24**, 170—177).—The purine bases obtained by acid hydrolysis of the liver of the gasteropod, *Sycotypus canaliculatus*, are the same as those derived from the comparable tissues of the higher animals, namely, adenine, guanine, hypoxanthine, and xanthine. The amino-purines preponderate; hence it is probable that the nucleoprotein complexes are much the same in molluscs as in vertebrates. Nuclease, adenase, and guanase are present in the molluscan liver; xantho-oxydase, the uricolytic enzyme, and uric acid were not found. W. D. H.

Chemical Processes in Worms. II. ERNST J. LESSER (*Zeitsch. Biol.*, 1909, **52**, 282—297. Compare Abstr., 1908, ii, 309).—In anoxybiosis the chief product formed by the earth worm is volatile fatty acid, probably a valeric acid. During the process, the alcoholic fermentation of sugar does not occur. The parent substance of the fatty acid is probably carbohydrate (glycogen). In the first eight days of inanition, during six hours anoxybiosis, 1 molecule of fatty acid is formed per 3 molecules of carbon dioxide. W. D. H.

Creatinine Output in Man. PHŒBUS A. LEVENE and L. KRISTELLER (*Amer. J. Physiol.*, 1909, **24**, 45—65).—In pathological conditions of the muscular system, the rate of catabolism of ingested creatine is lowered, and part of the creatine is removed in the form of creatinine. In some forms of muscular disease, the creatinine output is normal, in others it is altered; in others, ingestion of meat increases the output of both creatine and creatinine.

These facts are considered inexplicable by any of the current theories, and two factors are stated to be of importance: (1) the formation of creatinine, and (2) its further oxidation; disturbances of either factor will lead to an abnormal creatinine output. W. D. H.

Hypno-anæsthetics. A. BRISSEMORET and J. CHEVALIER (*Compt. rend.*, 1909, **148**, 731—733).—A description of the physiological action of $\beta\beta$-dichloropropane and $\beta\beta$-diethoxypropane.

The experiments, which were carried out on dogs by intraperitoneal injection, show that the hypno-anæsthetic properties of the former compound are not sufficiently well marked to render it of practical value. In its pharmacodynamic action $\beta\beta$-diethoxypropane resembles the acetals already studied. The accelerating influence it exerts on the heart restricts its field of useful application. W. O. W.

The Effect on the Animal Organism of Chloroform and Cocaine or Strychnine. Joh. Dogiel (*Pflüger's Archiv*, 1909, **127**, 357—442).—A large number of experiments on the effect of chloroform on the heart, pulse, and circulation generally, on the respiration, nervous system, reflexes, etc., are recorded. The cessation of respiration so often observed in the preliminary induction of chloroform anæsthesia is attributed to a reflex action from the respiratory passages and lungs. In many points cocaine, like strychnine, acts antagonistically to chloroform, and the main outcome of the research is a recommendation to employ cocaine with chloroform, in order to lessen the danger of the latter. W. D. H.

[Physiological Action of Optical] Isomerides of Adrenaline. Arthur R. Cushny (*J. Physiol.*, 1909, **38**, 259—262. Compare Abstr., 1908, ii, 720).—The minimal lethal dose of *l*-adrenaline in rats is 1—2 mg. per 100 grams of body-weight; that of *d*-adrenaline is 12 to 15 more. The same relationship in activity is seen in the effects on blood-pressure and in producing glycosuria. No evidence was obtained suggesting that adrenaline acts elsewhere than on the "receptive substances" of the sympathetic myo-neural junction. W. D. H.

Physiological Action of *l*-, *d*-, and *dl*-Adrenalines. III. Emil Abderhalden and Slavu (*Zeitsch. physiol. Chem.*, 1909, **59**, 129—137. Compare this vol., ii, 333; also Cushny, preceding abstract).—The present experiments confirm the conclusions previously arrived at, that *d*-adrenaline is less active physiologically than *l*-adrenaline; the points specially referred to are: (1) contraction of the pigment cells of the frog's skin; (2) lowering of body temperature, and (3) fatal dose. W. D. H.

Glycine as a Detoxicating Agent. Henry D. Dakin (*J. Biol. Chem.*, 1909, **5**, 413—418).—When benzoic acid is introduced into the body, it is promptly converted into hippuric acid and excreted. It is not clear whether this union with glycine is protective, as the toxic action of benzoic acid is not known.

The glycine compounds of phenylpropionic acid, cinnamic acid, and β-hydroxyphenylpropionic acid are non-toxic, but the acids themselves are poisonous. The glycine compounds are much more resistant to oxidation than the acids. W. D. H.

Behaviour of Atoxyl in the Organism. J. Igersheimer and A. Rothmann (*Zeitsch. physiol. Chem.*, 1909, **59**, 256—280. Compare Abstr., 1908, ii, 1061).—The undecomposed atoxyl in the circulating blood appears to have a strong action on cells (trypanosomes or tissue

cells), with the formation of toxic products; this is not certain, but what is regarded as certain is that the toxic action of atoxyl is determined by two factors: (1) the formation of a reduction product, and (2) the liberation of arsenic in inorganic combination.

W. D. H.

Chemo-therapeutic Experiments with Some New Atoxyl Preparations in Spirochaete Diseases, with Special Reference to Experimental Syphilis. PAUL UHLENHUTH and MANTEUFEL (*Chem. Zentr.*, 1909, i, 782; from *Zeitsch. Immunitätsforsch. exp. Therap.*, 1908, 1, 108—132. Compare also following abstract).—The acid mercuric salt of *p*-aminophenylarsinic acid (of which atoxyl is the sodium salt) works better than atoxyl derivatives containing iodine, which are more toxic than atoxyl. Mercuric iodophenylarsinate is less toxic than the corresponding sodium salt. The action of arsenophenylglycine has also been examined. G. B.

Constitution and Toxicity of Various Substances of the Atoxyl Group. FERDINAND BLUMENTHAL (*Chem. Zentr.*, 1909, i, 782; from *Med. Klin.*, 1908, Heft 44, 2 pp.).—Although acetylatoxyl is much less poisonous than atoxyl, the same does not hold for the corresponding mercury salts. *p*-Iodophenylarsinic acid is more toxic than atoxyl, but the mercury salt of the former acid is less toxic than the mercury salt corresponding with atoxyl (compare preceding abstract). The cause of this change in toxicity is not due to greater difficulty of absorption, for most of the iodine appears in the urine within twenty-four hours. G. B.

The Detection and the Course of Excretion of Atoxyl in Urine. Observations on the Paper by Lockemann and Paucke. FERDINAND BLUMENTHAL (*Chem. Zentr.*, 1909, i, 949; from *Deutsch. med. Woch.*, 1908, **34**, No. 52).—Polemical against Lockemann and Paucke (this vol., ii, 167). The precipitate obtained by these authors with β-naphthylamine in the diazotised urine of patients after treatment with atoxyl consisted only to a small extent of an atoxyl-dye; over 80% was impurity. The author does not agree with Lockemann and Paucke's conclusion, that arsenious oxide is set free, and maintains his position as regards the duration of arsenic excretion after the administration of atoxyl. G. B.

The Excretion of Atoxyl through the Urine. Reply to the Observation of F. Blumenthal. GEORG LOCKEMANN (*Chem. Zentr.*, 1909, i, 949; from *Deutsch. med. Woch.*, 1909, **35**, No. 5).—Reply to Blumenthal (compare preceding abstract), and criticism of his gravimetric arsenic estimation. G. B.

Acapnia and Shock. III. YANDELL HENDERSON (*Amer. J. Physiol.*, 1909, **24**, 66—85).—A further development of the author's views with special reference to abdominal operations. Local acapnia, due to direct exhalation of carbon dioxide, is a factor in the loss of tonus of exposed viscera. Carbon dioxide tension in the nerve centres and in the tissues and fluids of the body is a factor in the maintenance of tonus. Restoration of the body's store of carbon dioxide is effective as a method of relief. W. D. H.

Protein Metabolism in Carbon Monoxide Poisoning. CHARLES G. L. WOLF and EMIL OSTERBERG (*Biochem. Zeitsch.*, 1909, **16**, 476—485).—Experiments on dogs are recorded with very complete urinary analyses, especially in relation to nitrogen and sulphur. The most remarkable feature in some cases as the result of poisoning by carbon monoxide is the excretion of creatine in amounts exceeding that found in inanition. This was not, however, always found.

W. D. H.

Effect of Hydrogen Peroxide on Gonionemus. O. P. TERRY (*Amer. J. Physiol.*, 1909, **24**, 117—123).—The rhythmical contractions of the bell of the jelly-fish gonionemus cease when the margin of the bell containing the nerves is removed. Hydrogen peroxide will initiate pulsations in the marginless bell in normal sea-water by increase of oxidation processes.

W. D. H.

Mineral Constituents of Bone in Osteomalacia. CÆSARE CAPPEZZUOLI (*Biochem. Zeitsch.*, 1909, **16**, 355—356).—In this disease, the percentage quantity of ash is lessened; the diminution of calcium is greater than that of magnesium. The alterations are more marked in flat than in long bones.

W. D. H.

The Diastatic Enzyme of Paramœcium in Relation to the Killing Concentration of Copper Sulphate. AMOS W. PETERS and OPAL BURRES (*J. Biol. Chem*, 1909, **6**, 65—73).—The data given show a uniform correlation between the concentration of copper sulphate required to kill *Paramœcia* instantly and that which markedly inhibits the action of their diastase. This suggests the more general conclusion that the injurious action of certain poisons which act in low concentrations may be due to the inactivation of protoplasmic enzymes.

W. D. H.