ABSTRACTS OF PAPERS PUBLISHED IN OTHER JOURNALS

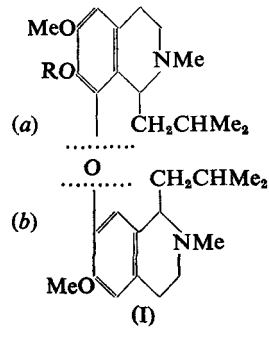
CHEMISTRY

ALKALOIDS

Colchicum Alkaloids in *Littonia modesta* Hook. F. Šantavy. (*Coll. Czech. Chem. Comm.*, 1957, **22**, 652.) A study of the possible evolution of the Liliaceae suggested that the genus *Littonia* was closely related to the genus *Gloriosa* which has already been shown to contain colchicine alkaloids. Accordingly the author investigated a small quantity of the bulbs and seeds of *Littonia modesta* and showed, by paper chromatographic methods, by the Oberlin-Zeisel reaction and by toxicity effects, that colchicine or related substances were present.

J. W. F.

Pilocereine, Structure of. C. Djerassi, S. K. Figdor, J. M. Bobbitt and F. X. Markley. (*J. Amer. chem. Soc.*, 1957, **79**, 2203.) The structure of pilocereine, an alkaloid found in various giant cacti, has been shown to be (I, R = H) in which two substituted tetrahydro-*iso*quinoline nuclei are fused by an ether linkage. The structure was established by cleavage of the diaryl ether linkage of pilocereine methyl ether (I, R = OMe) with potassium in liquid ammonia. This reaction yields different products according to the temperature, but separation was effected in all cases into phenolic and non-phenolic products. The principal phenolic product irrespective of reaction temperature, an oil, $C_{16}H_{25}NO_3$ containing two methoxyl and one *N*-methyl group, and one hydroxyl group, and was identified by degradation as the fragment I(*a*). The second and major base-insoluble component, $C_{15}H_{23}NO_2$ possessed only one methoxyl group, and although alkali-insoluble showed evidence of a hydroxyl group in the infra-red, which could be methylated by prolonged treatment with diazomethane. Degradation of this fragment led to its identification as I(*b*). The structure of pilocereine is unusual in that hitherto known cactus alkaloids are based on a β-phenylethylamine or tetrahydro*iso*quinoline skeleton. The presence of the 1-*iso*butyl substituent in pilocereine appears to be unique in alkaloid chemistry.



(I)

J. B. S.

***Retama raetam*, Webb and Berth, Alkaloids of.** F. Sandberg. (*Svensk. farm. tidsk.*, 1957, **13**, 345.) This Egyptian plant was investigated for alkaloids as it is closely related to the brooms. Two well-known lupine alkaloids were isolated; (+)-sparteine, 0·70 to 0·81 per cent in the tops, and retamine (hydroxy sparteine) 0·21 to 0·25 per cent. These were identified by elementary analysis, melting points, optical activity, paper chromatography and infra-red spectra. Five minor alkaloids were also separated by paper chromatography. The R_F values and melting points of their picrates are given. Stems and leaves collected in March and August showed the same qualitative and quantitative picture; the fruits contained the same alkaloids but in less amounts. J. W. F.

ANALYTICAL

Aconitine and Related Alkaloids, Separation of. C. Mathis and P. Duquénois. (*Ann. pharm. franç.*, 1956, **14**, 749.) For the separation of mixtures of aconitine, benzoylaconine and aconine, two stages of paper chromatography are required. In the first, aconitine is separated from the other alkaloids by placing a spot of a chloroform solution of the alkaloids on the paper, and impregnating the spot with a solution of sodium carbonate saturated with butanol. The chromatogram is developed with a solvent consisting of ammonia, ammonium chloride and butanol. Aconitine remains at the point of application of the alkaloidal solution, while aconine and benzoylaconine appear just below the solvent front. Aconine and benzoylaconine can readily be separated by a second stage, using a mixture of water, butanol and hydrochloric acid as the developing solvent. Aconitine, benzoylaconine and aconine can be separated from their derivatives obtained by benzoylation, by paper chromatography using a mixture of solution of ammonia, sodium carbonate and pyridine as developing solvent. The benzoyl derivatives do not move from the point of application, but aconitine and its products of hydrolysis give spots a little below the solvent front. G. B.

Aloin, Assay for. R. Paris and M. Durand. (*Ann. pharm. franç.*, 1956, **14**, 755.) Commercial aloin, when subjected to chromatography on Arches no. 302 paper by the descending technique at 20° for 12 to 14 hours using butanol and acetic acid as solvent, gives a spot of R_F 0·78 having a reddish fluorescence in ultra-violet radiation, due to aloin. Specimens of aloes, examined in the same way, give also a spot of R_F 0·66, corresponding to *p*-coumaric acid. After treatment with sodium carbonate a further spot, R_F value 0·88 may be observed in ultra-violet radiation. A different chromatogram is obtained with Natal aloes. By carrying out the chromatographic procedure under precise conditions, with an accurately-measured quantity of aloes and solvent, and using a pure specimen of aloin as a standard, the aloin content of the sample may be determined by measurement of the ultra-violet absorption of the aloin spot, using a photoelectric photometer with a suitable filter ("365"). The instrument is set to read zero for the absorption due to the paper base. Using this method, Curaçao aloes was found to contain about 22 per cent of aloin, Cape aloes about 12, and Socotrine less than 1 per cent. Crystalline samples of aloin contained 97 to 99 per cent, but amorphous aloin of German origin contained only about 40 per cent of aloin. It was shown chromatographically that alcoholic solutions of aloin slowly hydrolyse, the sugar liberated being arabinose. G. B.

Aqueous Alkaloidal Solutions for Injection, Assay of, using Oxycellulose. D. A. Elvidge, K. A. Proctor and C. B. Baines. (*Analyst*, 1957, **82**, 367.) The use of oxycellulose as a carboxylic acid cation exchange medium for separating an alkaloid from a bacteriostatic agent such as phenol or chlorocresol so that each may be determined spectrophotometrically is described. The method is simple and rapid and has been applied to 17 different solutions of alkaloids containing phenol or chlorocresol. The method thus overcomes possible interference of these bacteriostats in the spectrophotometric determination of alkaloids. Although oxycellulose is expensive, only 1 g. of it is required for a column which can be used twenty times. The bacteriostat passes through the column which retains the alkaloid which is then eluted with N sulphuric acid. Results could be reproduced to within about $\pm$ 1 per cent, and recovery was generally over 98 per cent. D. B. C.

Poppy Capsules, Ion Exchange in. T. A. McGuire, C. H. Van Etten, F. R. Earle and F. R. Senti. (*J. Amer. pharm. Ass., Sci., Ed.*, 1957, **46**, 247.) Poppy straw was crushed and sifted to remove stems and the capsular material ground and extracted with hot water in a commercial extractor. The extract contained 1 mg. of morphine per ml. Morphine was removed from the extract by passing through a column of cation exchange resin (Duolite C-10). Using 65 ml. of extract per g. of resin, about 94 per cent of the morphine was recovered using the resin in the sodium form, and 89 per cent using the resin in the ammonium form. The alkaloid was eluted from the column with N sodium hydroxide or N ammonium hydroxide, the column being prepared for further use by backwashing with water. The resin showed no loss in capacity after 21 cycles. The eluate from the ammonium resin column was further purified by passing through a column of anion exchange resin (Dowex 1X1) in the hydroxide form. Codeine passed through the column, while morphine and other amphoteric substances were retained. The morphine in a relatively pure form was eluted with N hydrochloric acid followed by water, the final solid product containing 85 per cent of morphine. G. B.

Propyl, Octyl and Dodecyl Gallate, Determination of, in Oils and Fats. H. J. Vos, H. Wessels and C. W. Th. Six. (*Analyst*, 1957, **82**, 362.) From a solution in light petroleum of 50 g. of oil, or fat containing antoxidant, or 25 g. of a fat containing antoxidant together with 25 ml. of gallate-free arachis oil if the fat is coconut, palm-kernel, beef or lard, propyl gallate is extracted with water and the higher gallates with absolute methanol and the extracts analysed spectrophotometrically using ferrous tartrate in a sodium acetate buffer, which is specific for gallates. When absolute methanol is used, the extract still contains some fat and light petroleum which gives a cloudy solution on adding the ferrous tartrate and sodium acetate solution. The resulting coloured complex is therefore extracted with a mixture of equal parts of *iso*amyl alcohol and light petroleum. With the extraction methods described, 95 to 97 per cent recovery of 5 to 10 mg. of the gallates from oils and fats is possible. A modification is described for determining propyl and dodecyl gallates in the presence of each other. D. B. C.

***Rauwolfia serpentina*, Estimation of Alkaloids in.** S. Ljungberg. (*Svensk Farm. Tidsk.*, 1957, **12**, 305.) For determination of total alkaloids, about 2 g. of powdered root or equivalent amount of extract or tablets is damped with sufficient (1 to 3 ml.) of 0·M sodium carbonate solution and then rubbed down with small portions of kieselguhr until the mixture is almost dry and homogeneous, packed in a 10 mm. column and percolated with chloroform until the eluate gives no reaction with Meyers reagent; 250 ml. usually suffices. After evaporation to about 20 ml. on a water bath, and the removal of the rest of the chloroform in a vacuum the dry residue is dissolved in 10 ml. of anhydrous chloroform, two drops of a solution of 0·1 per cent crystal violet in anhydrous acetic acid are added, and the mixture titrated with 0·1N acetous perchloric acid until the colour turns blue. The calculation of the alkaloidal content is based on a mean molecular weight of 380. The determination should be carried out in subdued light. Further purification of the residue did not significantly alter the results. Reserpine was determined spectrophotometrically after separation from the other alkaloids. Three processes of separation are described, viz., chromatography on aluminium hydroxide, paper chromatography, and paper electrophoresis, and the results of these were compared and applied to 16 samples which include admixtures with other drugs and various dosage forms. D. B. C.

BIOCHEMISTRY

GENERAL BIOCHEMISTRY

Cell Constituents, Synthesis of, from C_2-units by a Modified Tricarboxylic Acid Cycle. H. L. Kornberg and H. A. Krebs. (*Nature Lond.*, 1957, **179**, 988.) A major gap in the knowledge of intermediary metabolism is the process by which 2-carbon compounds, such as acetate and ethanol, can be converted to cell constituents in those organisms, such as bacteria of the genus *Pseudomonas* and many strains of *Escherichia coli* and moulds, which can meet all their carbon requirements from these compounds. The occurrence of a cyclic process, representing a modification of the tricarboxylic acid cycle, has now been established. The stages between *iso*citrate and malate are replaced by reactions in which the main metabolite is glyoxylate. The cycle is thus known as the glyoxylate cycle. The main discoveries in the elaboration of the cycle were as follows: (1) the finding that *iso*citrate, apart from undergoing dehydrogenation, is split enzymatically to form succinate and glyoxalate; (2) the recognition of an enzyme system bringing about the synthesis of malate from glyoxalate and acetyl coenzyme A; (3) the demonstration of the ready occurrence of the combined action of the two enzyme systems in cell-free extracts. The overall effect of one turn of the glyoxalate cycle is the formation, from two molecules of acetate, of one molecule of C_4-dicarboxylic acid. This, together with acetate, can serve as a precursor of many cell constituents. The cycle is therefore a stage in the synthesis of cell material from acetate. It can also account for the net formation from acetate of citric, fumaric and other organic acids in moulds. The key reactions of the glyoxalate cycle have further been demonstrated in *Ricinus* seedlings. In the seedlings it can account for the conversion of fat to carbohydrate. M. M.

BIOCHEMICAL ANALYSIS

Blood Oxygen Saturation, Rapid Estimation of. I. C. Roddie, J. T. Shepherd and R. F. Whelan. (*J. clin. Path.*, 1957, **10**, 115.) This paper describes a simple and rapid spectrophotometric method, using haemolysed blood, for the estimation not only of blood oxygen saturation but also of oxygen content and capacity. The use of a cuvette of small capacity and good wash-out characteristics enables blood samples to be passed in quick succession through the cuvette without removing it from the instrument. A standard spectrophotometer is used and requires no modification other than the fitting of the cuvette into the holder supplied. This technique does not involve the use of isobestic points for oxygenated and reduced haemoglobin in the measurement of capacity, readings being made at the same wavelength, 660 mμ, for capacity and percentage saturation estimations. The method has been used in the measurement of the oxygen saturation of blood withdrawn during cardiac catheterization and of samples taken during such procedures as reactive hyperaemia, indirect heating and nerve block of the forearm. As many as 150 samples have been analysed in the course of an experiment lasting 2 to 3 hours. The results agree extremely well with those obtained with the Van Slyke method. M. M.

Catechol Amines in Urine, Estimation of. H. Weil-Malherbe and A. D. Bone. (*J. clin. Path.*, 1957, **10**, 138.) In addition to the occurrence of adrenaline and noradrenaline in normal human urine, there is present a third catechol

amine, namely 3-hydroxytyramine. To estimate the three amines quantitatively a combination of two fluorimetric methods is used. The acidified urine is first hydrolysed. The catechol fraction is isolated by adsorption on alumina and the basic catechol fraction is then isolated by adsorption on a cation exchange resin. The sum of the three amines is then estimated fluorimetrically by condensation with ethylenediamine. Adrenaline and noradrenaline are estimated, again fluorimetrically, by oxidation with potassium ferricyanide. The amount of hydroxytyramine is thus obtained by difference. Mean recoveries of added catechol amines were 83, 88 and 91 per cent for adrenaline, noradrenaline and hydroxytyramine respectively. The specificity of the method was investigated by paper chromatography and by bioassay. Paper chromatography showed the presence of the three amines in the urine extracts and the absence of interfering substances. There was no evidence for the presence of 3:4-dihydroxyphenylalanine. Bioassay using the rat colon correlated reasonably well with chemical assays. Those using the rat uterus were less satisfactory, presumably due to some interfering substance. This chemical method has been applied to both normal and hypertensive subjects and to a patient with phaeochromocytoma. Hydroxytyramine excretion was more variable from sample to sample than that of adrenaline and noradrenaline in both the normal and the hypertensive groups. The excretion of hydroxytyramine in a case of phaeochromocytoma showed a relatively greater increase than that of adrenaline or noradrenaline. M. M.

Noradrenaline in Urine, Estimation of. W. J. Griffiths and S. Collinson. (*J. clin. Path.*, 1957, **10**, 120.) A fluorimetric method for the clinical estimation of the total combined adrenaline and noradrenaline in urine is described. The principle of the method is to heat the acidified urine to hydrolyse the conjugated catechol amines and then to adsorb the amines on to aluminium hydroxide. Subsequent to elution with a mixture of acetone and ethanol, each sample is concentrated and subjected to paper chromatography, using *n*-butanol-acetic acid-water as the solvent and eluting with dilute hydrochloric acid. The fluorimetric analysis is then made at pH 6 by the method of Euler and Floding (*Acta physiol. scand.*, Suppl. 118, p. 45). The standard error of a single determination was $\pm$ 1·9 μg./500 ml. of urine on amounts of 15 to 40 μg. Recovery of noradrenaline added to the urine was 92 per cent, S.D. $\pm$ 9. Comparison of the results with those obtained by bioassay, showed no significant difference. There was no difference in the total excretion of adrenaline and noradrenaline in a series of normal and hypertensive subjects; the range of excretion being 30 to 150 μg./day. Values of more than 1 mg./day were found in cases of phaeochromocytoma. M. M.

Sugar in Blood and Biological Fluids, Micro-estimation of. I. St. Lorant. (*J. clin. Path.*, 1957, **10**, 136.) This method is based on the oxidation of sugar by potassium ferricyanide, in solutions deproteinised with aluminium tungstate. 0·1 ml. of blood is used and the amount of potassium ferrocyanide formed is estimated as the yellowish-brown molybdenum ferrocyanide, dissolved in a solution of oxalic acid in the presence of trichloroacetic acid. Quantities greater than 1,200 mg./100 ml. can be estimated. The main advantage of this method, over that of Folin and Wu, is the greater stability of the colour, the intensity remaining constant for several hours. M. M.

PHARMACOLOGY AND THERAPEUTICS

Adrenaline and Noradrenaline in the Cat Adrenal, Resynthesis of. K. R. Butterworth and M. Mann. (*Nature, Lond.*, 1957, **179**, 1079.) A study is made of the adrenaline and noradrenaline content of the cat adrenal gland, subsequent to depletion with doses of acetylcholine given intravenously to the atropinised animal. One gland of each animal was used as a control. It was found that 2 days after depletion there was some replacement of noradrenaline but not of adrenaline. At 7 days the noradrenaline level was very much greater than it was initially, whereas there was only a small amount of replacement of adrenaline. By one month the noradrenaline had decreased and the adrenaline has increased to their initial levels. Although it took a month for the adrenaline and noradrenaline to regain their normal amounts and proportions, the total amine content of the glands had returned to its initial level one week after the depletion. These results suggest that, under the conditions of these experiments, adrenaline is synthesised from noradrenaline and not independently. M. M.

Aminitrozole (Acinitrazole); Oral Treatment of Trichomonas Vaginitis. J. Barnes, A. Boutwood, E. Haines, W. Lewington, E. Lister and B. J. Haram. (*Brit. med. J.*, 1957, **1**, 1160.) Of a total of 44 women suffering from trichomonas vaginitis, 23 were treated with aminitrozole 100 mg. 3 times daily by mouth for 10 days and Aci-jel vaginal jelly inserted night and morning for 3 weeks, while 21 served as a control group and received only Aci-jel night and morning for 3 weeks. (Aci-jel is a buffered vaginal jelly with a pH of 4, containing acetic acid, boric acid, oxyquinoline sulphate, ricinoleic acid and glycerin in a vegetable-gum base). Smears were taken at the first visit and after 2, 4 and 6 weeks. Treated cases negative at 6 weeks were re-examined at 12 and 24 weeks. Control cases which remained positive after 4 weeks were given treatment and thus transferred to the treated group. Treated cases positive after 6 weeks and those which relapsed were given further treatment, some patients receiving 3 courses in all. Of 37 patients (23 treated and 14 treated controls) who received treatment with aminitrozole and Aci-jel, 6 were cured of trichomonas vaginitis. None of the control group treated with Aci-jel alone was cured. Two husbands (out of 8 examined) had positive smears; both were treated with aminitrozole and the smears became negative; the wife of one was treated but relapsed after 18 weeks; the wife of the other was cured after treatment with aminitrozole. The authors conclude that the use of aminitrozole with a buffered acid vaginal jelly cannot be recommended for the treatment of trichomonas vaginitis, and aminitrozole alone is unsuitable for this purpose, though there may be a place for it in conjunction with an effective local trichomonicide in chronic cases. S. L. W.

3-Amino-1:2:4-triazole, Protection against X-irradiation by. R. N. Feinstein and S. Berliner. (*Science*, 1957, **125**, 936.) The value of 3-amino-1:2:4-triazole, as a protective agent against ionizing radiation, has been tested in mice. The intraperitoneal injection of 2000 mg./kg. consistently protected a large percentage of mice against 650r of X-rays, and significantly prolonged the survival time of animals that received 750 or 850r. Administered before a 1700r dose, or after any dose of X-rays the compound is without effect. Given 24 hours before irradiation some prolongation of survival time is conferred. A catalase mechanism may in some way be relevant to the radiation protection although the compound itself has not been found to be a catalase inhibitor.

G. F. S.

Angiotonin, Synthesis and Pharmacology of. F. M. Bumpus, H. Schwarz and I. H. Page. (*Science*, 1957, **125**, 886.) Condensation of cbz-L-val-L-tyr azide with L-isoleu-L-his-Me gave a tetrapeptide, the carboxylic acid of which, when condensed with L-pro-L-phe Me by the amide modification of the diethyl-chlorophosphate method, gave the hexapeptide cbz-L-val-L-tyr-L-isoleu-L-his-L-pro-L-phe Me. Removal of the carbobenzyloxy group, condensation with the anhydride derived from cbz-β-Me-L-asp NO_2-L-arg, hydrolysis and hydrogenolysis, gave a biologically active solution containing the octapeptide L-asp-L-arg-L-val-L-tyr-L-isoleu-L-his-L-pro-L-phe. The solution yielded a white solid containing pressor material (4000 units/mg.) and sodium chloride. On two dimensional paper chromatography the material showed the expected amino acids in approximately equivalent concentrations. The product was very active on isolated rabbit uterus. The form of the curve of arterial pressor rise in dogs, cats and rats was identical with that produced by natural angiotonin. Augmentation of the response following injection of ganglion-blocking agents occurred equally with natural and synthetic substances. The responses in pithed cats show that the CNS is not necessary for the action of angiotonin. Evidence is presented which suggests that the site of action is different from that of the usual pressor amines. J. B. S.

Anticoagulants; Clinical Evaluation in Thrombo-embolic Disease. J. M. Neilson and A. W. Mollison. (*Brit. med. J.*, 1957, **1**, 1214.) The anticoagulant properties of cyclocoumarol were reviewed on the findings obtained in its use in 57 patients, and the results were compared with those obtained in 125 patients given ethyl biscoumacetate and 179 given phenindione. Patients given ethyl biscoumacetate or phenindione received 10,000 to 15,000 units of heparin intravenously every 6 hours for the first 24 hours of anticoagulant therapy; those given cyclocoumarol received the same dosage of heparin 6-hourly for 48 hours. It was shown that a therapeutic degree of prolongation of the prothrombin time was effected more quickly with phenindione than with cyclocoumarol; phenindione was as rapid in action as ethyl biscoumacetate. Patients receiving cyclocoumarol and ethyl biscoumacetate showed greater and more frequent fluctuations in prothrombin times during maintenance therapy than those receiving phenindione. The incidence of haemorrhage was shown to be greatest in the cyclocoumarol series. In the three series the response of the prothrombin time to Vitamin K_1 was the same, but in some patients receiving cyclocoumarol the prothrombin time subsequently lengthened and repeated doses of the vitamin were necessary. The authors conclude that phenindione is a more satisfactory and more easily controlled anticoagulant than either ethyl biscoumacetate or cyclocoumarol. S. L. W.

Benzothiadiazine Dioxides as Diuretics. F. C. Novello and J. M. Sprague. (*J. Amer. chem. Soc.*, 1957, **79**, 2028.) A series of benzothiadiazine dioxides has been prepared from 6-acylamino-4-chlorobenzene-1 : 3-disulphonamides by cyclodehydration between the adjacent acylamino and sulphanyl groups. Ring closure is especially facile in the formyl derivatives. The resulting 6-chloro-(3 alkyl or H)-7-sulphanyl-1 : 2 : 4-benzothiadiazine-1 : 1-dioxide are marked inhibitors of carbonic anhydrase, promote renal excretion of sodium and chloride and cause diuresis. Preliminary results in man with 6-chloro-7-sulphanyl-1 : 2 : 4 benzothiadiazine-1 : 1-dioxide (chlorothiazide) substantiate the pharmacological reports. J. B. S.

Chloramphenicol in Acute Respiratory Infection. A. H. Ioannidis and J. M. Murdoch. (*Brit. med. J.*, 1957, **1**, 1157.) Eighty patients with acute respiratory

infection of mixed bacterial origin were treated with chloramphenicol. Thirty-six of the patients had failed to respond to previous treatment with antibiotics. Pre-treatment sputum cultures showed the predominant organism to be *H. influenzae* in 15 cases, pneumococcus in 24 cases, *Staph. pyogenes* in 19 cases; there was no predominant growth in 22 cases. Of the 19 cultures yielding a predominant growth of *Staph. pyogenes*, 17 were resistant to penicillin, 7 to streptomycin, and 8 to the tetracyclines. All were sensitive to chloramphenicol, and 5 to this antibiotic alone. After treatment with chloramphenicol 2 g. daily for 5 days clinical improvement resulted in 77 of the patients, and 3 were unaffected. The infection was controlled in 73 patients for periods of from 1 to 8 months after treatment. In 75 of the patients there were no side-effects; dry mouth occurred in 3, a mild skin rash in 1, and slight transient diarrhoea in 1. No blood dyscrasias were detected. The authors consider that the potential toxicity of chloramphenicol has been overstressed, and that it has a definite place in the treatment of acute and severe respiratory infections, provided it is given in short courses of 10 g. over 5 days; it should not be employed in trivial infections. S. L. W.

Digitalis, Quantitative Tolerance Test. R. M. Nalbandian, S. Gordon, R. Campbell and J. Kaufman. (*Amer. J. med. Sci.*, 1957, **233**, 503.) A quantitative digitalis tolerance test has been developed based on the synergism between calcium and digitalis. It is possible to determine to what level a patient is digitalised. The subject is titrated to an electrocardiographic end point by increasing increments of intravenously administered calcium gluconate. At a critical level of serum calcium the synergism between calcium and the previously administered digitalis produces a transient end point in the electrocardiogram. The electrocardiographic changes can be terminated by the intravenous administration of disodium ethylenediaminetetra-acetic acid, an effective calcium chelating compound. The level of digitalisation is indicated by the amount of calcium required to produce the end point in the electrocardiogram, because of the inverse quantitative relationship between the calcium and digitalis. A rapidly acting, calculated, therapeutic dose of digitalis can be administered safely after termination of the test without jeopardy of digitalis toxicity and its attendant hazards. The test has been used sixteen times on patients in congestive heart failure with no complications. G. F. S.

Himandrine, an Alkaloid from *Himantandra baccata*, Pharmacology of. L. B. Cobbin and R. H. Thorp. (*Austral. J. exp. Biol.*, 1957, **35**, 15.) Himandrine is an alkaloid obtained from the bark of *Himantandra baccata*. Its empirical formula is $C_{36}H_{37}O_6N.HCl$ and it is slightly soluble in water. The structural formula is at present unknown. The LD50 of himandrine, given intravenously to male mice, is 34 mg./kg., death being preceded by convulsions. It causes no alteration in the threshold to leptazol-induced convulsions in mice. It possesses spasmolytic properties of a comparable degree to papaverine against acetylcholine, carbamyl choline, histamine and barium chloride. Given intravenously to cats it causes a depressor response accompanied by bradycardia, neither of which is abolished by atropine or vagotomy. It does not block the actions of adrenaline or sympathetic ganglia nor does it block the cardio-accelerator response to a constant intravenous infusion of adrenaline. It is tentatively suggested that himandrine exerts its cardiovascular effects by suppressing the activity of sympathetic centres in the hypothalamus. M. M.