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New York, N.Y.). *Proc. Roy. Soc. Med.* **55**, 1000–2(1962). A review, with some new data and interpretations, of factors affecting the production and secretion of thyrotropin (I). To suppress an excessive output of I by the anterior pituitary, triiodothyronine (II) has pharmacol. advantages over thyroxine (III) or thyroid ext. II binds poorly with the α-globulin which *a* binds III so that II does not raise the protein-bound iodine (PBI). The extent of suppression of pituitary I output can be evaluated by the drop in PBI or serum III. 29 references. W. C. Tobie

Control of anticoagulant therapy. The use of new tests. P. A. Owren (Univ. Hosp., Oslo, Norway). *Arch. Internal Med.* **111**, 248–58(1963). Among lab. methods for the control of anticoagulant therapy the thrombotest (*Lancet* II, 754(1959)) closely reflects the concn. of Factor X in stabilized patients and is superior to the prothrombin-proconvertin method and to Quick's method. It also detects severe Factor IX deficiency.

Rachel Brown *b*

See also: Pharmaceuticals, Section **30**. Food additives—antibiotics for growth promotion and feed efficiency—tylosin (Anon) **70**. Antifertility substances (Ecstein) **58**. Inhibition of proteolytic activity by ethyl carbamate (Kaye) **57**. Biochemistry of bone and tooth formation and anticaries factor of oats (Ventura) **65**. Substituted 3-thiomorpholinones (Lehr) **38**. Relative thymolytic activity of synthetic corticoids using a 6-day injection assay in the adrenalectomized rat (Dorfman) **58**. Synthesis of 1,2,4-benzothiadiazine 1,1-dioxides (Klosa) **38**. Synthesis of glycine bis(2-chloroethyl)amide (Bien) **44**. Synthesis of *N,N*-dialkyl-*N'*-aralalkyl-*N'*-4-cinnolinyl (or 9-fluorenyl or 6-methyl-3-pyridazinyl or 1-phthalazinyl or 2-quinoxalinyl) ethylenediamines of potential pharmacol. interest (Chapman) **38**. Compds. with potential antituberculous activity—some derivs. of 5-phenyl-2-oxazolecarboxylic acid (Sycheva) **38**. Co-carbohydrate complexes (Zaidi) **14**. Some regularities in influenza virus control with synthetic drugs (Pershin) **62**. Synthesis and structure of steroidal 4-pregneno[3,2-*c*]pyrazoles—a novel class of potent antiinflammatory steroids (Hirschmann) **42**. Renal rickets of the hyperglycinuric type, resistant to vitamin D (Laberge) **66**. Synthesis of thiazole derivs. of pharmacol. interest—reaction of 2-aryl-4-(2-aminoethyl)thiazoles *d* with HCO_2H and HCHO (Palazzo) **38**. Some analogs of imipramine (Monro) **38**. Hypotensive 1,2,4-benzothiadiazines (Bierbaum) **38**. Synthesis and biol. activity of 7,8-disubstituted isoalloxazines—synthesis of N mustard derivs. (Faulkner) **38**. Cyclopropyl and cyclobutyl analogs of phenyl-substituted medicinal agents (Burger) **38**. New psychotropic agents—derivs. of 5-cyano- and 5-carboxamidodibenzo[*a,d*]cycloheptadiene (Davis) **36**. Constitution of toxol—a toxic constituent of *Aplo-pappus heterophyllus* (Zalkow) **37**. Di-*N*-substituted 2-haloethylamines—*N,N*-dialkyl(or *N*-alkyl)-2-alkyl(or aryl or arylalkyl) derivs.—synthesis, reactivity, and pharmacology (Chapman) **35**. Thio derivs. of 2,3-dihydro-4*H*-1,3-benzoxazin-4-one—synthesis and pharmacol. properties (Teotino) **38**. Sympathetic nervous system blocking agents—derivs. of guanidine and related compds. (Short) **38**. Aldehyde hydrazone derivs. in cancer chemotherapy (Wiley) **37**. Benzodioxans—isopropanolamine derivs. of 1,4-benzodioxan (Rosnati) **38**. Compds. related to carnitine—derivs. of 4-dimethylamino-3-hydroxybutyric acid (Keller) **33**. Spasmolytic 1,2,5-trisubstituted pyrroles (Buu-Hoi) **37**. Comparative study of rates of hydrolysis of cholinolytically active aminoalkyl esters and thio esters (Kuznetsov) **32**. Synthesis and diuretic activity of 3,3-spiro-substituted hydrothiazides (Cragoe) **38**. Sulfonylureas and liver damage in normal rats and rats with CCl_4 steatosis (Cognetti) **66**. 2-Substituted 2*H*-1,4-benzoxazin-3(4*H*)-ones (Wheeler) **38**. Optical isomers of some cholinolytic substances (Kuznetsov) **35**. Syntheses in the polymyxin series—synthesis of the highly active cyclic decapeptide 7α (Studer) **44**. Actein (Panizzi) **56**. Antitumor antibiotic, cervicarcin—isolation and characterization (Okuma) **56**. Physiol. active compds.—aminothiol esters of substituted acetic, chloroacetic, benzilic, and related acids (Buehler) **35**. Apparent viscosity and wall-adherence of blood systems (Copley) **65**. Anticancer glycoside from *Citrullus colocynthis* (El Khadem) **44**. Research of tumor-inhibiting compds. (Ledochowski) **37**. Monosubstituted 1,3,4-oxadiazoles (Vincent) **38**.

Patents: 7-Alkyl ethers of chrysin (Laboratoires Laroche Navarron) **37**. 1-Phenyl-4-butyl-3,5-pyrazolidinedione (Dechamps) **38**. Cysteamine orotate ("Farnova" Instituto Biochimico S.p.A.) **38**. Phenylethanolamine derivs. (Oesterreichische Stick-stoffwerke A.-G.) **35**. 1-(3,4-Dihydroxyphenyl)-2-aralkylaminoethanols (N. V. Philips' Gloeilampenfabrieken) **35**. Dihydrodeoxystreptomycins (Ikeda) **43**. Antilipemic agents (Gollin) **43**.

Reducing exogenous cholesterol levels in animal organisms. Nicholas R. Di Luzio (to U.S. Atomic Energy Commission). U.S. 3,081,226 (Cl. 167–55), Mar. 12, 1963; Ital. Appl. Jan. 7, 1961; 4 pp. A method of reducing cholesterol in the plasma and liver by the administration of a saccharide contg. at least two glucopyranose units joined by a 1-3β glycosidic unit, such as glucan, laminarin, laminaribiose, or laminaritriose is claimed. Rats on an elevated cholesterol diet which were injected 5 mg. daily of zymosan (total 30 mg. dose) showed a redn. in liver ester cholesterol and an increase in liver and spleen wt.

James M. Gillingham

69—TOXICOLOGY, AIR POLLUTION, AND INDUSTRIAL HYGIENE

RALPH G. SMITH

Protein synthesis in poisoning. II. Incorporation of glycine-2-C^{14} into albumin and other protein fractions by liver slices from normal guinea pig and those injected with CCl_4. Masana Ogata (Univ. Med. School, Okayama, Japan). *Acta Med. Okayama* **16**, No. 1, 1–8(1962)(in English); cf. *CA* **57**, 8841*e*. Normal liver slices incorporated glycine-C^{14}(I) into albumin and liberated the newly synthesized albumin into the medium rapidly, as detd. immunologically and by paper electrophoresis. Kidney, spleen, *f* and immunized lymph nodes do not show this incorporation into albumin. The administration of CCl_4 to animals decreased the incorporation into albumin and markedly reduced incorporation into microsomes and nuclear fractions while O consumption was only slightly reduced. Since dinitrophenol (DNP) which uncouples oxidative phosphorylation also suppresses I incorporation, it is suggested that CCl_4 interferes with ATP formation and thereby causes suppression of protein synthesis. III. **Labeling of pH 5 enzyme with glycine-C^{14} and inhibition by *p*-chloromercuribenzoate.** *Ibid.* 9–14. Labeling of pH 5 enzyme with glycine-C^{14} was inhibited 32% by 10^{-4} mole of *p*-chloromercuribenzoate (PCMB) and this inhibition was reduced to 25% by addition of 2×10^{-3} *g* mole cysteine. The pyrophosphate-adenosine triphosphate (PP^{32}–ATP) exchange reaction was also reduced by PCMB, the inhibition being reduced by cysteine. The results are interpreted to show that org. Hg compds. inhibit protein synthesis by inhibiting a SH enzyme which catalyzes amino acid activation. A paper-electrophoretic pattern of pH 5 enzyme showed numerous peaks.

James D. Jones

Relative effects of feeding hay, atmospherically contaminated by fluoride residue, normal hay plus calcium fluoride, and normal hay plus sodium fluoride to dairy heifers. James L. Shupe, M. L. Miner, Lorin E. Harris, and Delbert A. Greenwood (Utah *h* State Univ., Logan). *Am. J. Vet. Res.* **23**, 777–87(1962). The following feeds were allotted to 4 groups. of 4 heifers: (1) low F^- hay (10 p.p.m. of F^-), (2) contaminated high F^- hay (62 p.p.m. of F^-), (3) low F^- hay + CaF_2 (69 p.p.m. of F^-), and (4) low F^- hay + NaF (68 p.p.m. of F^-). In addn., each animal was fed 2 lb. of grain daily for 588 days. The high F hay was as toxic as NaF. CaF_2 proved less toxic than either the F residue on the contaminated hay or the NaF. Dental fluorosis was related to the amt. and type of F compd. ingested.

Rudolph Seiden

Absorption of piperazine. G. L. Corona (Univ. Pavia, Italy). *Boll. Soc. Ital. Biol. Sper.* **36**, 1073–6(1960). The toxicity of piperazine derivs. is correlated with the rate of absorption from the intestine.

Felix Saunders

Effect of diphtheria toxin on the hemoglobin of the rat. Electrophoretic and chromatographic studies. L. Raimondi and L. Basso Ricci (Univ. Pavia, Italy). *Boll. Soc. Ital. Biol. Sper.* **38**, 1184–6(1962). Rats were inoculated with 3000 units of diphtheria toxin and sacrificed 1,2,3,5, and 10 days later. Blood was collected from the aorta. In the electrophoregram of the hemoglobin 2 fractions can be distinguished. The slow fraction starts to disappear after 24 hrs. and disappearance is complete after 48 hrs. This change is still evident after 10 days; then the electrophoregram tends to revert to normal. Changes in the chromatogram of the hemoglobin of rats treated with sublethal doses of diphtheria toxin are also described and illustrated.

S. K. Fleischmann

Asbestosis in experimental animals. J. C. Wagner (Council Sci. Ind. Res., Johannesburg, S. Africa). *Brit. J. Ind. Med.* **20**, 1–12(1963). Inhalation of a fine chrysotile dust contg. Si(as SiO_2) 44% (no quartz by x-ray diffraction), FeO + Fe_2O_3 3%, and MgO 37%, caused severe pulmonary lesions in guinea pigs, slight fibrosis (with scanty production of segmented asbestos bodies) in vervet monkeys, and no effect in rabbits. Amosite dust contg. Si (as SiO_2) 51.2% (free SiO_2 7%) and Fe 24.8% caused marked asbestosis in all 3 species in much shorter time (4 *vs.* 22 months in monkeys) with plentiful production of (mostly nonsegmented) asbestos bodies. An impure crocidolite dust contg. Si (as SiO_2) 46% (quartz 50 ± 10%, and crocidolite ~10%) and Fe 35%, caused severe disease in guinea pigs and monkeys, with marked increase of respiratory infection (probably

due to its high quartz content). Dust concns. ranged 30–37.6 × 10^3 particles/ml., with 52–58.5% <0.3 μ, 29–31.8% 0.3–1.0 μ, 6–11% 1.0–2.2 μ, and 1.5–9.4% >2.2 μ diam.
Andrew L. Reeves

Urinary δ-aminolevulinic acid and porphobilinogen in lead-exposed workers. A. J. de Kretser and H. A. Waldron (Vauxhall Motors Ltd., Luton, Engl.). *Brit. J. Ind. Med.* 20, 35–40 (1963). In 100 workers exposed to Pb, the correlations between urinary Pb (I), urinary δ-aminolevulinic acid (II), and urinary coproporphyrin (III) were poor. A raised I was always assocd. with raised II and III, but levels of up to 2.25 mg. II and 0.11 mg. III/100 ml. were assocd. with I levels below the acceptable limit of 200 γ/l. The latter cases may represent a manifestation of abnormal susceptibility to plumbism, where otherwise harmless amts. of Pb cause altered metabolism of heme precursors. The identification of such individuals may have prophylactic significance. 22 references. Andrew L. Reeves

Evaluation of exposure to nitrobenzene. J. Salmowa, J. Piotrowski, and U. Neuhorn (Inst. Ind. Med., Lodz, Poland). *Brit. J. Ind. Med.* 20, 41–6(1963). Atm. concns. of $PhNO_2$ (I) ranging from 5 to 30 γ/l. were achieved in a chamber by heating I at const. surface area to 25–75°, and 7 volunteers were exposed by inhalation without skin contact. The amts. of absorbed I were 8.4–67.6 mg. (with lung retention decreasing linearly from 87% during the 1st hr. to 73% during the 6th hr.). Urinary p-$O_2NC_6H_4OH$ (II) increased rapidly during exposure, and reached max. during 0–2 post-exposure hrs.; later excretion was irregular, with traces of II persisting until after 100 hrs. Conversion efficiency of I into II was, independently of the dose, 6–22 (av. 13)% in 6 subjects, and 24–37% in 3 tests of the 7th subject. The max. allowable dose of I corresponding to the threshold limit concn. is 35 mg./day. Algebraic equations are given for the calcn. of total excretion from any single urine specimen, and of total I absorption from the II-excretion rate (2 specimens). Urinary p-$H_2NC_6H_4OH$ was not detected. Andrew L. Reeves

Fatal addiction to trichloroethylene. W. R. L. James (Natl. School Med., Cardiff, Wales). *Brit. J. Ind. Med.* 20, 47–9 (1963). A case report of a worker of an electroplating plant, who showed evidence of addiction to $CHCl:CCl_2$ (I) vapors at work. Paresis of the olfactory nerves with intermittent gastric disturbances developed in the course of 9 years, and sudden death not preceded by severe physical exertion occurred 17 hrs. after the last known exposure. Fatty degeneration of the liver and old and recent lung hemorrhages were found. I content in blood was 2.25 mg./100 ml., in liver 7.1 mg., in stomach and contents 19.9 mg., and in small intestine and contents 14.9 mg. The urine contained 55.5 mg. CCl_3CO_2H/100 ml. 22 references. Andrew L. Reeves

The toxicity of tetramethyllead solutions to mice and rabbits. N. Castellino, A. Rossi, and R. Mole (Univ. Naples). *Brit. J. Ind. Med.* 20, 63–5(1963). Mice and rabbits were given subcutaneous injections of a Me_4Pb soln. used as a gasoline additive (contg. 66.3% other ingredients, including $(CH_2Cl)_2$, $(CH_2Br)_2$, and toluene dyes) (in EtOH–H_2O) in doses ranging 20–1200 mg./kg., administered in 0.01 ml. vol./g. body wt. The following L.D.$_{50}$'s were observed in mice at various times after injection: 6 hrs., 1117–1230 (mean 1173); 3 days, 221.5–226.9 (224.1); and 10 days, 19.94–43.52 (31.11) mg./kg. At 2 weeks, the mortality of controls (receiving EtOH–H_2O only) was 33–60%. The mixt. was lethal to 4 rabbits in 3–6 days at 400 mg./kg. and in 18–24 hrs. at 800 mg./kg. Mice exposed to the inhalation of the mixt. (30 min., concn. 1.2–40 g./cu. m., at air flow rate of 740 l./hr.) showed L.D.$_{50}$'s (in g./cu. m.) of 36.4–45.8 (mean 40.8) during the 1st, and 4.14–13.36 (8.51) during the 10th day after single exposure. Hyperexcitability was the leading symptom in mice receiving >300 mg./kg.; there were no symptoms in mice receiving smaller injection doses, or inhalation doses <2 g./cu. m. It is concluded that Me_4Pb has a low toxicity.
Andrew L. Reeves

Fixation and elimination of selenium in the course of intoxication in the rabbit. J. Roquebert and G. Vitte (Lab. Pharm. Chim. Pharmacodyn., Bordeaux, France). *Bull. Soc. Pharm. Bordeaux* 101, No. 4, 237–42(1962). In acute intoxication of selenium (I) 1.5 mg./kg. in 3 rabbits and 2 mg. I/kg. in 3 other rabbits in the form of subcutaneous injection of sodium selenite (II), I is found principally in the liver, kidneys, and lungs. In chronic intoxication in 5 rabbits receiving I, 0.200 mg./kg. daily in the form of aq. soln. of II administered through the esophagus, I is found mainly in the liver, kidneys, and spleen, but much less in the lungs than in acute cases. In prolonged intoxication, I is detectable in hair of the rabbit. On the av., 50% of the dose is eliminated in the urine. Fecal elimination is 18–22% of the administration, higher when given orally than when injected. On 3 rabbits after oral administration I of 0.20 mg. I/kg. during 1 month in the form of II, the elimination was significant during the first 8 days, but decreased progressively till it became negligible after 30–35 days. H. Uchikawa

Functional testing for behavioral toxicity: a missing dimension in experimental environmental toxicology. Joseph B. Ruffin (*Univ. of Oklahoma, Norman*). *J. Occupational Med.* 5, 117–21 (1963). A discussion of psychotoxicology and conditioned reflex evaluation. Andrew L. Reeves

Thyroid influences on the toxicity of the respiratory irritant gases, ozone and nitrogen dioxide. Edward J. Fairchild, II, and Stuart L. Graham (U.S. Public Health Service Labs., Cincinnati, Ohio). *J. Pharmacol. Exptl. Therap.* 139, 177–84(1963). Chem. or surgical thyroidectomy significantly enhanced the survival of mice or rats exposed to otherwise lethal concns. of the oxidizing respiratory irritants O_3 and NO_2. Conversely, increased thyroid activity (administration of thyroid hormones) made mice highly susceptible to the action of these gases. Thyroid blocking agents given simultaneously with thyroid hormones gave no protection and augmented the toxic influence of the thyroid hormones. Use of 2,4-dinitrophenol in dosages known to elevate metabolism to supernormal levels did not significantly alter the toxic response to inhalation of O_3; evidence is given that hypermetabolic rate is not the crucial determinant of augmented toxicity shown by thyroid-treated animals, and that other factors are more likely accountable. L. E. Gilson

Lipid mobilization following carbon tetrachloride administration. Arlene J. Maximchuk and David Rubinstein (McGill Univ., Montreal). *Can. J. Biochem. Physiol.* 41, 525–8(1963). As early as 8 hrs. after intraduodenal injection (1 ml./kg. body wt.) of CCl_4 to rats, there is a mobilization of fatty acids, as indicated by elevated serum free fatty acids, and much of the mobilized free fatty acids is found in the liver as triglycerides. It is suggested that this increase in lipid mobilization and accretion in the liver is at least partly responsible for the pathol. findings of hepatic fat infiltration. A. E. Teeri

Effects of type B botulism toxin on pyruvic acid content in guinea pig tissues. Z. P. Pak (N. I. Pirogov 2nd State Med. Inst., Moscow). *Farmakol. i Toksikol.* 25, 614–18(1962). Colorimetric pyruvic acid assays in brain, medulla oblongata, spinal cord, muscles, and blood showed that type B botulism toxin did not change the content in the brain, caused a decrease in medulla oblongata and spinal cord, with an increase in muscles and blood. Probably a vitamin B_2 deficiency is involved.
Julian F. Smith

Maximum permissible concentration of cyanuric acid and of its monosodium salt in water supplies. V. T. Mazaev (I. M. Sechenov 1st Med. Inst., Moscow). *Gigiena i Sanit.* 27, No. 12, 13–19(1962). Cyanuric acid and its Na salt are detected by taste at 6 and 25 mg./l., resp. These limits are suggested as the max. permissible since at these concns. they do not influence the sanitary regimen of water basins, and doses of 3 and 10 mg./kg., resp., did not affect the morphology of the blood, glycogenesis, cholinesterase activity, phagocytic activity, serum protein distribution, or O consumption of rats and guinea pigs during 6 months. John Howe Scott

Acetaldehyde transformations in rabbits. L. M. Tsai. *Gigiena Truda i Prof. Zabolevaniya* 6, No. 12, 33–6(1962). Rabbits were exposed for 3 hrs. to vapors of acetaldehyde (I) in concns. of 1, 5, 10, and 20 mg./l., resp. I in blood was detd. before, 5, 20, 40, 60, 120, and 180 min. after beginning, and 2, 5, and 10 min. after interruption of inhalation. Independently of the concn. of I in the inhaled air, blood I concn. increased successively within the first 40 min., then the level became stabilized. After inhalation was interrupted, I blood concn. decreased very quickly, so that 2 min. later only traces of I could be found. In liver only within the first 5 min. after interruption were measurable amts. of I found; later only traces were present. No increased amt. of AcOH in urine of rabbits exposed for 3–4 hrs. to I vapors at 5–15 mg./l. was found. Thus, it is concluded that I is metabolized very quickly to its end-products, CO_2 and H_2O. J. Jelinek

Acute phosphorus poisoning. J. Malcolm Cameron and Edgar Rentoul (London Hosp. Med. Coll.). *Med. Sci. Law* 3, 71–6(1963). Pathol. and chem. data are presented from postmortem specimens of victims, of acute P poisoning. The incidence of fatal P poisonings in Scotland from 1881–1960 is given. A method of histol. demonstrating P in liver is described. Treat thin slices of liver for 20 min. with the following soln.: ammonium molybdate 3 g., 20 ml. 30% HCl, and 20 ml. H_2O; reduce in 0.02N HCl for 2 min.; rinse quickly in distilled H_2O; wash in 2.5% NH_3 for 5 min.; mount in von Apathy's watery mount. Tissues contg. P are colored blue-green. I. Sunshine

Value of antidotes in thallium poisoning. B. Gancarz. *Med. Wet.* (Poland) 15, 648–9(1959)(in Polish). $Na_2S_2O_3$, KI, Na_2SO_4, and Na citrate were of no value as antidotes to exptl. Tl sulfate poisoning in guinea pigs and a dog. Two guinea pigs which vomited, thereby eliminating pptd. Tl salts from the stomach before absorption took place, survived. From *Vet. Bull.* 30, Abstr. No. 1951(1960). CA

Cholinesterase activity and intraocular tension in tetraethyllead-poisoned rabbits. Z. M. Skripnichenko and L. S. Zholnerovich. *Oftal'mol. Zh.* 17, No. 8, 484–90(1962). Cholinesterase (I) activity in the blood of normal rabbits showed only slight fluctuations during the 30–60 days observation. The same was true of the rabbits' intraocular pressure regulation, which did not exceed 24.0 mm. in either eye over the period of