

Pb poisoning and manic-depressive psychosis are discussed and the striking similarities between them noted. It is suggested that Pb may be a toxic determinant in this psychosis. The Davis test (Davis and Andelman, 1967) was used for the detn. of urinary δ -aminolevulinic acid (L) levels in patients and controls. Results showed an increasingly significant rise in L levels between controls and untreated patients and patients treated with Li_2CO_3 . Li may interfere with Lb synthesis in a similar way to Pb. 41 references. S. M. Maxwell

89616a Effects of DTPA [diethylenetriaminepentaacetic acid] aerosol on lung contamination by lanthanum. Pasquier, Christian; Voisin, Dominique; Thieblemont, Pierre; Perrault, Gerard; Bayard, Jean P. (Dir. Prot. Surete Radiol., C.E.N., Fontenay-aux-Roses, Fr.). *Commis. Energ. At. [Fr.]*, *Rapp.* 1969, CEA-R-3735, 19 pp. (Fr.). Avail. CEA. By use of DTPA aerosol in the treatment of pulmonary contamination by La, its effectiveness was detd. as a function of time. Provided that it is administered at an early stage, in the 2 hrs. after exposure, >50% can be eliminated using lower therapeutic doses than those prescribed for other methods of administration. Its assocn. with some enzymes did not enhance the therapeutic effect of the chelator. The const. for the passage of the DTPA-La complex from the lung to the blood is $\sim 0.018/\text{min.}$, corresponding to a period of 44 min. A significant nonchelatable fraction, persisting after prolonged action of the DTPA, of the order of 40-45% is observed. DWJF

89617t Ferric cyanoferrate(II): an effective antidote in thallium poisoning. Heydlauf, Horst (Inst. Strahlenbiol., Kernforschungszentrum, Karlsruhe, Ger.). *Exp. J. Pharmacol.* 1969, 6(3), 340-4 (Eng). The influence of orally administered ferric cyanoferrate(II), (Prussian Blue, PB) on the distribution and excretion of ^{201}Tl was studied in the rat. PB lowered the retention of ^{201}Tl by inhibition of its absorption and reabsorption from the intestinal tract. The toxicity of Tl_2SO_4 was decreased by PB. PB is suggested as an antidote in Tl poisoning. V. N. Gupta

89618u Cycloheximide-induced ultrastructural changes in the adrenal cortex of the rat. Drzinich, Cs.; Szabo, D.; Okros, I. (Inst. Exp. Med., Hung. Acad. Sci., Budapest, Hung.). *Experientia* 1969, 25(8), 825-6 (Eng). Wistar rats of both sexes weighing about 180 g. were used. Conspicuous changes in the ultrastructure of the zona fasciculata cells were observed following decapitation at 60 min. even after the lowest (5 mg.) dose. At low-power magnification, compact masses of irregular shape, medium d. and blurred outlines were seen to have accumulated between organelles. In expts. involving both cycloheximide and ACTH treatment, the changes were similar, although the cells appeared swollen. Similar observations were made in some cells of the zona reticularis, but not in the zona glomerulosa. The findings suggested a correlation between the substance seen to accumulate among organelles and the increased cholesterol content of the adrenal cortex. The ultrastructural changes were the consequence of an impairment of the enzyme system. P. J. Parisek

89619v Effect of acetone on the level of ketone bodies in the blood and urine of experimental animals of different species. Linyucheva, L. A.; Tiunov, L. A.; Kolosova, T. S. (USSR). *Farmakol. Toksikol. (Moscow)* 1969, 32(4), 465-7 (Russ). Rats and mice exposed to 30 mg. $\text{Me}_2\text{CO}/\text{l.}$ and rabbits and guinea pigs exposed to 72 mg./l. for 2 hrs. showed increased levels of Me_2CO , acetoacetic acid, and β -hydroxybutyric acid in their blood and urine immediately after inhalation and 24 hrs. later. In all 4 species the β -hydroxybutyric acid level increased to a greater extent than did the other ketone bodies. The largest increases in the Me_2CO and acetoacetic acid levels in the blood both immediately and 24 hrs. after acute inhalation occurred in rats and the smallest changes appeared in rabbits. BJJR

89620p Nature of the acute action exerted on the organism by monoethanolthylenediamine. Tikhonova, G. P.; Sidorov, K. K. (Inst. Med.-Biol. Probl., Moscow, USSR). *Farmakol. Toksikol. (Moscow)* 1969, 32(4), 473-5 (Russ). Monoethanolthylenediamine (I) injected into the stomach of rats in a max. tolerable dose (2.5 g./kg. in 30% aq. soln.) disrupted the acid-base balance in the blood after 3-5 hrs., increased the pH from 7.18-7.35 (control) to 7.4-7.49, and increased the level of free bases. One day after I injection the Ca level in the serum increased, the time of blood coagulation decreased, the blood pH dropped to 7.11-7.24, and the amt. of free bases was below normal. The level of globulins decreased and the content of albumins increased in the blood; the level of chlorides in the urine decreased. I caused necrosis in the mucous membranes of digestive system organs, probably through its alk. properties. BJJR

89621q Changes in adrenaline-like substances in rabbit blood following chronic exposure to vinyl chloride fumes. Vazin, A. N.; Plokhova, E. I. (Inst. Gig. Tr. Profzabol., Gorki, USSR). *Gig. Tr. Prof. Zabol.* 1969, 13(6), 46-7 (Russ). A group of 8 chinchilla rabbits was exposed for 4 hrs. daily, during 5 months, to the vapors of vinyl chloride (I) in air at 0.02-0.03 mg./l. Samples of blood were taken from the ear veins and analyzed for adrenaline (II) and adrenaline-like (IIa) substances.

Before the exposure to I and also in the control group of rabbits the II and IIa levels varied little and averaged 3.5 $\mu\text{g.}\%$. After 20 days exposure the level of II and IIa rose to 6.15 $\mu\text{g.}\%$, after 40 days it reached 6.0 $\mu\text{g.}\%$ and it remained const. thereafter. The biopotential of the posterior hypothalamus also changed. These effects of I are the direct cause of hypertension. CPJR

89622r ATP and lipid contents in the liver of mice after inhalation of chlorinated hydrocarbons. Ogata, Masana; Tomokuni, Katsumaro; Watanabe, Shunroku (Med. Sch., Okayama Univ., Okayama, Japan). *Ind. Health (Kawasaki, Japan.)* 1968, 6(3), 116-9 (Eng). The hepatic ATP level decrease and the onset of fatty liver as indicated by the increase in the amt. of the total lipids and triglycerides in the mice exposed to 3 kinds of chlorinated hydrocarbons are in the following order: CCl_4 , tetrachloroethylene, and trichloroethylene. The total lipid and triglyceride contents increased proportionately to the fall in the ATP level before and after the exposure to 3 kinds of chlorinated hydrocarbons. It was suggested that there is some close relationship between the decreased hepatic ATP levels and the development of fatty liver in chlorinated hydrocarbon poisonings. B. V. Shetty

89623s Influence of subacute intoxication with magnesium chloride and carbon tetrachloride on the lethal dose of digitoxin, lanatoside C, and strophanthoside in guinea pigs. Lence, P.; Valentincic-Budihna, Metka (Med. Fac., Ljubljana, Yugoslavia). *Jugoslav. Physiol. Pharmacol. Acta* 1968, 4(2), 157-64 (Eng). In guinea pigs the toxicity of the title cardiotonic glucosides is modified in subacute intoxications with MnCl_2 and CCl_4 (when evident morphological changes are restricted to the liver). The following doses were used: 0.01 ml./kg. CCl_4 in 2% oil soln. and 0.003 g./kg. MnCl_2 in 3% aq. soln., i.m., twice a week, or 10 times successively; glucosides were administered 30-39 days after the last dose of CCl_4 or MnCl_2 . In intoxicated guinea pigs the lethal dose of digitoxin did not differ significantly from that of controls. The lethal dose of lanatoside C was significantly smaller only in CCl_4 treated animals and the lethal dose of strophanthoside was significantly smaller in both intoxicated groups. G. Musacvic

89624t Antidotes for phosgene-induced pulmonary edema. Boyd, Eldon M. (Queen's Univ., Kingston, Ont.). *J. Pharm. Pharmacol.* 1969, 21(8), 557 (Eng). Death rates from phosgene were reduced in rabbits, cats, and rats if the animals were allowed to inhale the phosgene through the nose rather than directly in the trachea. David B. Sabins

89625u Demethylphalloidin. Fuchinger, Herwig; Wieland, Theodor (Univ. Frankfurt, Frankfurt, Ger.). *Justus Liebig Ann. Chem.* 1969, 725, 238-40 (Ger). Demethylphalloidin-H (I) was obtained by redn. of the CO group of ketophalloidin with ^3H -labeled NaBH_4 . I had almost the same toxicity as phalloidin. During storage I gave a degradation product whose uv spectrum indicated a sulfoxide structure. BTJG

89626v Histochemical study of cytochrome oxidase and succinic dehydrogenase activity in encephalon of rabbit poisoned by alcohol. Lo Menzo, G.; Chiara, A. (Univ. Catania, Catania, Italy). *Med. Leg. Assicurazioni* 1968, 16(3-4), 163-72 (Eng). An increase in both cytochrome oxidase and succinic dehydrogenase was observed in the cells of the cerebellar cortex of rabbits which had undergone either chronic or acute alc. poisoning, as compared to the nonpoisoned control animals. No change was evident in other encephalic regions. The increase of these enzymes at cerebellar level agrees with the symptomatological data indicative of functional damage of the area during alc. poisoning. Murrie W. Burgess

89627w Nicotine degradation in hamsters and rats and its modification by foreign substances. II. Effect of carbon monoxide treatment of the animals on their nicotine metabolism. Harke, Hans P.; Frahm, B.; Schultz, Ch.; Dostenzwill, W. (Inst. Wiss. Forschungstelle Verband, Cigarettenind., Hamburg, Ger.). *Naturwissenschaften* 1969, 56(8), 418 (Ger). Degradation of nicotine to cotinine in rat and hamster liver homogenates was not affected by prior exposure to CO. GKJO

89628x Toxic effects of calcium, titanium, and niobium borides in rats. Kasparov, A. A.; Zhilova, N. A. (USSR). *Nov. Dannye Toksikol. Redk. Metal. Ikh Soedin.* 1967, 152-50 (Russ). From *Ref. Zh., Farmakol., Khimioter. Sredstva, Toksikol.* 1968, Abstr. No. 7.54.779. LD₅₀ of CaB_2 (I), during i.p. administration to rats, was 1.045 mg./kg. Intoxication with I is expressed by depression and disorder in movement coordination. Chronic oral administration of I to rabbits (100 mg./kg./day for 4 months) caused leukocytosis, lymphocytosis, increase in concn. of α -globulins and activity of aldolase, and decrease in albumin in blood. Prothrombin in blood at beginning decreased and then increased to the end of expt. In lungs there was polyemia of tissues and thickening of interalveolar septa. In intestines there was sclerosis of all vessels in submucosal layer, decreased glycogen in liver, and accumulation of acid mucopolysaccharides in the region of hepatic triad. Moderate intensification of lung pattern was observed by x-ray studies in animals 6-9 months after single intratracheal administration to rats of Ti boride (II), Nb boride (III), and esp. of I (50 mg.).

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ences in the fatty acid compn. of the brain between HCN-treated and untreated rats. N. Constantzas.

113452a Curative antagonization of liver damage caused by phalloidin with silymarin as a model of antihepatotoxin therapy. Vogel, Guenther; Temme, Inge (Biol. Inst. Malhaus, Cologne, Ger.). *Arzneim.-Forsch.* 1969, 19(4), 613-15 (Ger.). Silymarin, the antihepatotoxin agent in the seeds of *Silybum marianum*, prevented the toxic effects of phalloidin in mice. Silymarin was also effective in reversing the toxic effects of phalloidin in mice intoxicated first with this compd. and then treated with silymarin. The antiphalloidin effect of silymarin depended on the time interval between intoxication and treatment, and on the degree of liver damage. BQJG

113453p Evidence for the bioactivation of slaframine. Aust, Steven D. (Michigan State Univ., East Lansing, Mich.). *Biochem. Pharmacol.* 1969, 18(4), 929-32 (Eng.). Max. salivary activity in pentobarbital-anesthetized rats occurred ~1 hr. after i.v. administration of slaframine (0.3 mg./kg.); the duration of salivation was extremely long, usually lasting for 6 hrs. after a single dose. In addn. to salivation, most of the exocrine glands were specifically stimulated by slaframine. Upon administration of slaframine to cows, sheep, and goats with pancreatic cannulas there was also a substantial delay before an increase in pancreatic flow was observed. In mice, a longer delay occurred after i.v. injection of 2 mg./kg. than with i.p. administration at the same dose; this delay was decreased by injection directly into the portal vein. Delay of the effect of the drug at 4 mg./kg. was significantly extended by briefly isolating (with clamps) the liver of rats; the effect was completely eliminated by the permanent isolation of the liver. Common inducers of liver drug-metabolizing enzymes consistently reduced the delay in the induction of salivation in mice, while inhibitors of the enzymes consistently lengthened the delay. Thus, slaframine seems to require activation by the liver before stimulating exocrine glands. The enzymes involved in this activation are probably those responsible for the metabolism of most xenobiotics. BYJN

113454q Metabolism of phospholipids in the brain and liver of rats during intoxication with organophosphorus compounds. Dvorkin, V. Ya.; Tofilo, A. P. (Pavlov Inst. Physiol., Leningrad, USSR). *Byull. Eksp. Biol. Med.* 1969, 67(3), 50-2 (Russ.). Organophosphorus compds. LG-63 (5 mg./kg.) and GA-81 (0.4 mg./kg.) administered i.m. to rats did not affect the level of phospholipids in the brain and liver or the rate of restoration of phospholipids in the brain. The metabolism of phospholipids in the liver was increased 24.8% by organophosphorus compd. LG-63 and 32.4% by GA-81. The increased intensity of phospholipid metabolism may be connected in some way to increased activity of the hepatic cells during detoxication of the cholinesterase inhibitors. BJJR

113455r Toxicity studies in mice treated with 1- β -D-arabinofuranosylcytosine (ara-C). Leach, William B.; Laster, W. Russell, Jr.; Mayo, Joseph G.; Griswold, Daniel P., Jr.; Schabel, Frank M., Jr. (Med. Center, Univ. of Alabama, Birmingham, Ala.). *Cancer Res.* 1969, 29(3), 529-35 (Eng.). Optimum therapeutic dosage schedules of 1- β -D-arabinofuranosylcytosine (ara-C) administered i.p. in mice (15 mg./kg., every 3 hrs. for 24 hrs.) result in karyorrhectic damage to the crypt epithelial cells of the intestinal mucosa. This damage is most severe at 4 hrs. (earliest observations made) after the end of the 24-hr. course, after which there is a rapid recovery to completion in 72 hrs. The damage is thus transitory and resembles that of hydroxyurea. This cycle of transitory intestinal damage followed by recovery occurs after each therapeutic dosage schedule of ara-C as long as the schedule is not repeated more often than every 4th day. Progressive damage to the intestinal mucosa accompanied by changes in the hematopoietic tissues occurs only if this optimum therapeutic dose (15 mg./kg., every 3 hrs.) is continued uninterrupted to the LD₅₀ dose (360 mg./kg. in 72 hrs.) and beyond. Irreversible changes are seen in the intestinal mucosa, and a progressive depopulation of the bone marrow with ultimate aplasia ensues as the LD₅₀ dose is reached and surpassed. RCTT

113456a Effect of butylated hydroxytoluene (BHT) on rat liver cytochrome oxidase activity. Pascal, Gerard; Terroine, Therese (Centre Rech. Nutr., C.N.R.S., Bellevue, Fr.). *C. R. Acad. Sci., Paris, Ser. D* 1969, 268(11), 1529-31 (Fr.). The oral administration of BHT (0.05% in the food, a concn. 50-fold greater than that authorized for human food) for 8 weeks caused a 13.4-22.4% decrease in hepatic cytochrome oxidase activity in rats of both sexes. The addn. of BHT to rat liver homogenates at the level of 10 mg./g. liver caused a 12% decrease in cytochrome oxidase activity. Thus, BHT appears to exert an antioxidant effect on in vivo metabolism. DFJF

113457t Activity of guanine deaminase in rat kidney, liver, and blood during experimental uranyl nitrate intoxication. Bastide, Janine; Bastide, Pierre (Fac. Mixte Med. Pharm., Clermont-Ferrand, Fr.). *C. R. Soc. Biol.* 1968, 102(5-6), 1169-71 (Fr.). Guanine deaminase activity (I) was studied in the liver, kidney, and blood of rats during exptl. intoxication

with uranyl nitrate (1 ml. i.p. of a soln. contg. 2 g./l. per 100 g. body wt.). As early as 24 hrs. later a progressive elevation of I was noted in all organs, but there was a definite lowering of I in the kidney for the first 12 hrs. after the start of intoxication.

Dorothy J. Buchanan-Davidson

113458u Excretion of tetraethylgermanium in the rat. Ostrin, J.; Clavel, M. J.; Pitet, G. (Centre Rech. Toxics, C.N.R.S., Toulouse, Fr.). *C. R. Soc. Biol.* 1968, 102(5-6), 1226-9 (Fr.); cf. G. Pitet (1967). EtGe (I), a very reactive compd. in vitro, is degraded very easily in the rat. Although it has a very high b.p., it is eliminated in large amounts during respiration. The metabolites of I found in rat urine are GeO₂ or the germanates. The metabolism of I is different from that of tetraethyllead (II) or tetraethyltin (III). No evidence was found for the formation of triethylgermanium, which explains the weak toxicity of I compared to II and III.

Dorothy J. Buchanan-Davidson

113459v α -Hydroxybutyrate dehydrogenase activity of rat kidney homogenate fractions after experimental uranyl nitrate intoxication. Bastide, Janine; Bastide, Pierre (Fac. Mixte Med. Pharm., Clermont-Ferrand, Fr.). *C. R. Soc. Biol.* 1968, 102(8-9), 1492-3 (Fr.). Most of the α -hydroxybutyrate dehydrogenase activity of the rat kidney is found in the supernatant after centrifugation at 24,000 g for 2 hrs. This activity decreased with time during exptl. uranyl nitrate poisoning, whereas the contents of protein, DNA, and RNA were relatively low and underwent but little variation. C. W. Ackerman

113460p Effect of ethyl bromide on the liver. Karimullina, N. K.; Gizatullina, A. A. (Udm. Nauch.-Issled. Inst. Gig. Profzabol., Ufa, USSR). *Farmakol. Toksikol. (Moscow)* 1969, 32(2), 165-7 (Russ.). EtBr fumes (2.4 mg./l.) inhaled by rats and rabbits for 4 hrs. daily for 6 months disrupted the functional ability of the liver, decreased the hepatic glycogen and fat levels, and prolonged hexenal sleep. Granular dystrophy in the hepatic cells and a decreased RNA level in the cytoplasm were detected. BJJR

113461q Hemopoiesis in chronic heliotrine poisoning of Wistar rats. Levin, G. S.; Novachenko, Z. I. (Uzb. Nauch.-Issled. Inst. Gematol. Pereliv. Krovi, USSR). *Farmakol. Toksikol. (Moscow)* 1969, 32(2), 170-1 (Russ.). Heliotrine administered s.c. at 3-10 mg./100 g. once a week for 1-8 months to Wistar rats caused hepatic lesions, hypochromic anemia, severe reticulocytosis, normoblastosis, and leukopenia. Erythroblastic sprout hyperplasia, an increased no. of mitoses, and an increased no. of reticular and esp. plasmatic cells were observed. The observed changes in the blood and bone marrow suggest development of an autoimmune form of hemolytic anemia in response to chronic heliotrine poisoning. BJJR

113462r Benzene metabolism in the liver of experimental animals and man. Tiunov, L. A.; Sokolova, T. I.; Ban, A. L. (USSR). *Farmakol. Toksikol. (Moscow)* 1969, 32(2), 185-8 (Russ.). The rate of C₆H₆ metabolism during 24 hr. incubation was similar in liver homogenates from humans and rats, more rapid in homogenates from guinea pigs, and slower in rabbit liver homogenates. Species-specific differences seemed to be involved in C₆H₆ conversion, since the activities of aryl-4-hydroxylase and glucuronyltransferase increased while the sulfonating system activity did not change in C₆H₆-treated rats. In C₆H₆-treated rabbits the sulfate adenylyltransferase and aryl sulfotransferase activities decreased during disruption of the sulfonating system. The high rate of C₆H₆ conversion in guinea pigs may be connected with the relatively high liver catalase activity. BJJR

113463s Effect of the sodium salt of adenosine triphosphate on experimental cyanide poisoning of rats (mechanism of the antidotal action). Mosketi, K. V.; Ganzhara, P. S. (Odessa Med. Inst., Odessa, USSR). *Farmakol. Toksikol. (Moscow)* 1969, 32(2), 214-15 (Russ.). Na ATP (0.5 ml. of a 1% soln.) given s.c. or i.m. to rats 1 hr. prior to administration of the min. lethal dose of NaCN prolonged survival. When given s.c. immediately after lethal cyanide poisoning it substantially extended the life span of 50% and prevented death in the other 50% of the rats. The antidotal effect of ATP may result from its ability to restore respiration by bypassing cyanide-sensitive enzymes. BKJR

113464t Changes in the cardiac activity of rats chronically exposed to vinyl chloride vapors. Vazira, A. K.; Plokhova, E. I. (Gor'k. Nauch.-Issled. Inst. Gig. Tr. Prof. Zabol., Gorki, USSR). *Farmakol. Toksikol. (Moscow)* 1969, 32(2), 220-3 (Russ.). Chronic (5 months) exposure of rats to vinyl chloride vapors at 0.03-0.04 mg./l. disrupted cardiac work rhythm, induced bradycardia and arrhythmia, and reduced the relative duration of I-II and T-II sound intervals. The relative duration of the Q-T complex did not change significantly. Within 15 days after termination of poisoning, the rat cardiac activity rhythm returned to normal, but the duration of the I-II and T-II sound intervals remained below the initial level for another 15 days. The maximal permissible concn. of vinyl chloride apparently is significantly less than the 0.03 mg./l. level previously estd. BJJR

T. R. TORRELLSON

41109z Toxicology of vinyl chloride. Schottek, Wolfgang (Abt. Arbeitstoxikol., Holzweissig, Ger.). *Chem. Tech. (Leipzig)* 1969, 21(11), 708-11 (Ger.). A review with 24 refs. The toxicity of vinyl chloride in animals and humans, and the relation of the chem. structure of the compd. to its toxicity were discussed.

CCJG

41110r Microscopically contrasted heavy metal intoxication. Silver sulfide process, a method for localized histochemical detection of heavy metals in tissues. Haider, Gerhard (Ger.). *Mikroskopos* 1969, 58(9), 272-5 (Ger.). A review of work is presented which illustrates the value of the combination of light microscopy with histochem. techniques for the detection, localization, and identification of Hg, Pb, Bi, Fe, Zn, and Cu in cells and tissues. Highlights of the silver sulfide histochem. procedure are presented along with representative photomicrographs. 6 refs.

Nellie G. Dehnboestel

41111s Development of the hemodynamic, biochemical, and morphologic changes in experimental endotoxin shock. Stengert, Krzysztof (Z Zakl. Anestezjologii, AM, Lodz, Poland). *Postępy Hig. Med. Dosw.* 1969, 23(5), 601-59 (Pol.). A review is given of methods for detg. hemodynamic, biochem., and morphol. changes, the course of changes in dogs, clin. evaluation and patterns, and damage to tissues and organisms during exptl. endotoxin shock. 146 refs.

Y. Pomeranz

41112t Saponins. Birk, Yehudith (Hebrew Univ., Rehovoth, Israel). *Toxic Const. Plant Foodst.* 1969, 169-210 (Eng.). Edited by Liener, Irvin E. Acad. Press: New York, N.Y. Dietary source, metabolism, and effects of various saponins are given with methods for qual. and quant. analyses. 167 refs.

E. A. Hodgdon

41113u Chromatographic identification of psychotropic drugs. Phillips, Geoffrey F.; Gardiner, Jane (Lab. Govt. Chem., London, Engl.). *J. Pharm. Pharmacol.* 1969, 21(12), 793-807 (Eng.). The thin-layer chromatog. of 3 classes of psychotropic drugs, phenethylamines, tryptamines, and erganes, has been investigated. Published methods are reviewed and R_f data, normalized by a graphical technique, are reported for extensions and modifications of some of these systems. Optimum forensic sorting procedures are recommended.

RCHQ

41114v Estimation of lead in urine by atomic absorption analysis. Taira, Yoshiko. *Nippon Eisensho Gishihai Zasshi* 1969, 18(5), 389-91 (Japan). The Pb^{2+} was extd. into iso-Bu-COMe soln. from 30% NH_4OH . The recovery rate was 99.8%. The reproducibility of at. absorption measurement was 1.4%. No interference from other ions was noticed.

T. L. Chang

41115w Determination of toxic substances and their metabolites in biological fluids by gas chromatography. I. Trichloroethanol in urine. Sedivec, Václav; Flek, Jan (Ústav Hyg. Prace, Prague, Czech.). *Proc. Lek.* 1969, 21(7), 301-5 (Czech). See CA 70: 113446p.

VNJZ

41116z Aflatoxin E₁ in the excretion of aflatoxin-poisoned rats. Chou, Ming-Wu; Tung, Ta-Cung (Coll. Med., Nat. Taiwan Univ., Taipei, Taiwan). *Tai-Wan I Hsueh Hui Tso Chih* 1969, 68(8), 389-91 (Eng.). Aflatoxin B₁ was detected in the rat urine and feces after i.p. injection of the toxin. Most of the aflatoxin B₁ was excreted in the first 24 hr. The percentage recovery was about 1.5%. A thin-layer chromatographic method was a simple way for detg. the aflatoxin concn. of the excretions, and could provide useful information for detecting it in humans.

N. M. Wright

41117y Paper chromatography of *Taxus baccata* toxin. Buben, Zdeněk (Wyzsza Szk. Roln., Wrocław, Poland). *Zest. Nauk. Wyzs. Szk. Roln. Wrocławsk.* 1968, No. 23, 215-21 (Pol.). The presence of toxin in *T. baccata* (English yew) needles, in fodder, and in the alimentary tract content was detected by paper chromatog. The alkaloid was extd. from the biol. material by Et₂O, purified with active C, and chromatographed in the form of aq. HCl soln. The chromatograms were developed at 18° by the ascending technique, using as solvent either BuOH-80% AcOH-anhyd. EtOH-H₂O (50:7:2:15), or 75% aq. (NH₄)₂SO₄. The R_f values were 0.95 and 0.75, resp. The toxin spots were stained by the Dragendorff reagent.

Irena Kloczko

41118z Errors of converting a urine alcohol value into a blood alcohol level. Kaye, Sidney; Cardona, Eduardo (Sch. Med., Univ. Puerto Rico, Rio Piedras, P.R.). *Amer. J. Clin. Pathol.* 1969, 52(5), 577-84 (Eng.). Evidence is presented for the inadvisability of calcg. blood EtOH levels on the basis of urine EtOH content. EtOH content was detd. in the blood and urine of 148 patients and the ratio of urine/blood was calcd. The range of ratios was 0.21-2.66 with a mean ratio of 1.28. Blood levels were calcd. from urine levels using a conversion factor of 1.28 and compared with measured values. Calc'd. values exceeded actual values by at least 0.02 g/ml in 21.5% of the cases and were lower by the same amt. in 34.5% of the cases.

J. R. Macnab

41119a Ethylene glycol toxicity in the monkey. Roberts,

James A.; Seibold, H. R. (Tulane Univ., Covington, La.). *Toxicol. Appl. Pharmacol.* 1969, 15(3), 624-31 (Eng.). The toxic effects of ethylene glycol in several macaque species are reported. The compd. was administered in the drinking water at concns. of 0.25-10%, and histol. studies were made after acute and chronic administration. With the exception of a few animals (which had Ca oxalate crystals in the brain), significant pathol. alterations were limited to the kidneys. Animals receiving 15 ml/kg or more of ethylene glycol had Ca oxalate crystals within proximal renal tubules and assoc. tubular degeneration. Despite the absence of crystals in animals receiving <15 ml/kg, mild glomerular damage was found, and azotemia occurred in some animals, suggesting a toxic effect of ethylene glycol apart from its conversion to oxalic acid.

RCZB

41120u A clinicopathologic study of the effects of riot control agents on monkeys. IV. o-Chlorobenzylidene malononitrile (CS) grenade. Striker, G. E.; Street, C. S.; Ford, D. F.; Herman, L. H.; Holland, D. R. (Edgewood Arsenal, Md.). *U.S. Clearinghouse Fed. Sci. Tech. Inform., AD* 1967, AD-838-732, 39 pp. (Eng.). Avail. CFSTI. From *U.S. Govt. Res. Develop. Rep.* 1969, 69(19), 123. A study was made of the order, severity, and resolution of pathol. changes in monkeys exposed to CS. Monkeys were exposed to CS (2700, 8500, 28,500, or 80,000 mg/m³). The most prominent lesions seen after the 2 lower doses were mild pulmonary congestion, bronchorrhea, emphysema, and atelectasis. These lesions cleared by 72 hr but recurred at 1 week and 30 days. Oral and nasal discharges and dyspnea appeared early after a level of 28,500. They were most severe between 12 and 24 hr and were resolved by 72 hr. Pneumonia, emphysema, and atelectasis were present 1 week and 30 days after exposure. Significant lesions were seen radiographically only in those monkeys exposed to a level of 80,000. These lesions paralleled those seen on necropsy. At this level edema appeared by 12 hr, peaked between 24 and 48 hr, and cleared by 1 week. Emphysema and bronchiolitis were present 1 week and 30 days after exposure.

TCVL

41121v Experimental study on gas embolism with particular reference to the differentiation between embolic gas and gas from putrefaction. Pierucci, Giovanni; Gherson, Gemma (Inst. Med. Legale, Univ. Pavia, Pavia, Italy). *Zaccaria* 1968, [3] 4(3), 347-73 (Ital.). Embolism was induced by injecting air or He i.v. into living (followed by instant death), and i.v. or intracardially into sacrificed, rabbits, and gas was aspirated from the heart at intervals. Putrefaction gas was aspirated from the heart and abdominal cavity of rabbits and human cadavers 1-13 days, and 15-236 days, after death, resp. In samples of air embolic gas, O₂ decreased and 1 hr after death was insignificant; CO₂ was present immediately; N₂ levels were relatively stable, similar to air, for 2 days, then decreased sharply. In He embolic gas, O₂, N₂, and CO₂ were present immediately. Results were essentially the same in rabbits injected before and after death. Ar. values for putrefaction gas contents in rabbit and cadaver heart were, resp.: O₂ 1.32 and 2.05%, N₂ (usually <50%) 12.13 and 22.06%, CO₂ 31.08 and 50.62%; CH₄ appeared early and almost constantly in the rabbit.

F. Farnam

41122w Early effects of carbon tetrachloride on the synthesis of phospholipids in the rat liver and their possible pathogenetic role in fatty liver induction. Halbreich, A.; Mager, J. (Hadassah Med. Sch., Hebrew Univ., Jerusalem, Israel). *Biochim. Biophys. Acta* 1969, 187(4), 884-7 (Eng.). In rats, i.p. injections of CCl₄ in doses as low as 0.5 ml/100 g reduced the ability of liver microsomes to incorporate choline-³H into total phospholipids and labeled L-leucine-¹⁴C into protein, discernable as early as 10-15 min postinjection and lasting for ≥20 hr. Incorporation patterns of choline were identical whether the radioactive choline was labeled in the Me groups or in the 1,2-carbon atoms. The magnitude of choline inhibition was not altered by varying the dose of labeled choline over a 1000-fold range, attesting to the independence of this phenomenon of the attendant variations in the internal pool size of free choline. Ethionine (1 mg/g) and dimethylnitrosamine (10 mg/100 g) did not affect the incorporation of choline into liver phospholipids, although they inhibited protein synthesis. CCl₄ enhanced the incorporation of ethanolamine-³H into liver microsomal phospholipids. The early onset and the long persistence, as well as the specific nature, of the arrangement of phospholipid synthesis by CCl₄, suggest a possible role of this phenomenon in the pathogenesis in fatty liver.

BKJN

41123z In vitro inhibition of succinate and pyruvate oxidation by ethanolic extracts of grasses, legumes, and dystrophogenic forages. Cheeke, Peter R.; Oldfield, James E. (Oregon State Univ., Corvallis, Oreg.). *Can. J. Anim. Sci.* 1969, 49(2), 403-4 (Eng.). EtOH exts. of tile plants inhibited in vitro oxidn. of both succinate and pyruvate by rat liver homogenates. Exts. of 2 dystrophogenic forages did not inhibit succinate oxidn. more than those of two nondystrophogenic samples. The succinate

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cleaning, hydraulic wash-out) and hygienic (anti-dust respirators, protective pastes) measures were recommended. Introduction of such measures as a number of electric power stations helped to drastically reduce the concentration of fuel and cinder dust in the atmosphere of work premises and to do away with acute and chronic occupational diseases. --C. M. M.

46320. PAVLOVA, L. P. (M. M. Elendiyevskiy Inst. Ind. Hyg. Occup. Dis., Sumgait, USSR.) Materialy k oboznaneniyu predel'no dopustimoy koncentracii dizypropilbenzola v vozdukh pri proizvodstvennykh ponosakh. [Materials for establishing the maximum permissible concentration of diisopropylbenzene in the air of industrial premises.] GIG TR PROF ZABOL 14(2): 41-43. Titus. 1970. [Engl. sum.]--The comparative toxicity of m- and p-DIPB [diisopropylbenzenes] was studied at lethal, toxic and threshold concentrations and dosages. DIPB are virtually devoid of cumulated capability. Chronic action of their fumes at a concentration of 1 mg/l produced CNS inhibition, disturbances of the anti-toxic-synthetic and protein-forming function of the liver and sharply pronounced primary leukocytosis with subsequent tendency towards leukopenia. Concentration of 0.2 mg/l was the threshold value in a chronic test. DIPB (0.05 mg/l) was the recommended maximum permissible concentration for the atmosphere around work places. --C. M. M.

46320. SIMPSON, G. R. (Div. Occup. Health, Lidcombe, N. S. W., Aust.) Exposure to dust in the cotton-ginning industry. MED J AUST 57-1(23): 1151-1152. 1970. Six cotton-ginning plants were examined and cotton-dust concentrations of 8 to 21 mg/cu m were recorded in the in-plant atmospheric breathing-zone. Tests of lung function of the operators showed an over-all average fall of forced expiratory volume (FEV₁) of 0.12 l. In more dusty areas, an average fall in FEV₁ of 0.24 l was recorded. At dust concentrations in the vicinity of 6 mg/cu m, little change in FEV₁ occurred. As the air-borne dust was not entirely raw cotton, a figure of 5 mg/cu m of cotton dust in air is suggested as a tentative threshold value for this type of work. The use of exhaust ventilation is recommended to reduce the concentration of cotton dust in air. --C. M. M.

46321. MEL'NIKOVA, M. M., I. S. IVANOVA, and B. A. YAMPOL'SKAYA. (Cent. Inst. Postgrad. Med., Moscow, USSR.) Klinika khronicheskoi imokskatsii oksiyu ugleroda. [Clinical picture in chronic carbon monoxide poisoning.] GIG TR PROF ZABOL 14(6): 23-26. 1970. [Engl. sum.]--Results of an examination of 288 workers engaged in servicing taxi-fleet garages of the city of Moscow, whose occupational activities involved their being exposed to the effect of elevated concentrations of CO exhaust gas are presented. A high incidence of functional disorders implicating the CNS, appearing in conjunction with vegetative-vascular dysfunction, hypertensive reactions and ECG signs of focal and diffuse myocardial changes, was noted. A high carboxy Hb level in these persons confirmed the etiological role played by CO in the development of these changes. --C. M. M.

46322. BLAGODATIN, V. M., I. A. COLOVA, N. K. BLAGODATKINA, E. P. RUMYANTSEVA, L. A. GORYACHEVA, N. K. ALIEVA, and E. Sh. GRONBERG. (Inst. Ind. Hyg. Occup. Dis., Gorki, USSR.) Voprosy gigeny truda i profilaktiki v proizvodstve organicheskogo stekla. [Issues of industrial hygiene and occupational pathology in the manufacture of organic glass.] GIG TR PROF ZABOL 14(8): 11-14. 1970. [Engl. sum.]--Four factories manufacturing organic glass (polymethylacrylate) destined for different purposes were reviewed. A feature common to all of them was air pollution in work premises with methylmethacrylate (MMA) fumes. Its concentration varied within a wide range. MMA produced an adverse effect on the health of the workers, manifesting itself in the development of chronic occupational poisoning. --C. M. M.

46323. GLIKSITSEIN, M. D. Sazheniya nachennosti arterial'nogo totna u radevatnikov s mahovymy arkhivami. [Length-of-service related features of the arterial tension in persons working with low-voltage petroleum.] TR AZERI NAUCH-INSLED INST GIG TR PROF ZABOL 3: 65-74. 1969. From: REF ZH OTD VYP FARMAKOL KHIMOTER SREDSTVA TOKSIKOL. 1970, No. 1.54.1918.

46324. KHELEBNIKOVA, M. I., E. V. GLADKOVA, L. T. KURENKO, A. V. PSHEMITSYN, and B. M. SHALIN. (Inst. Ind. Hyg. Occup. Dis., Gorki, USSR.) Voprosy gigeny truda i sostoyaniye zdorov'ya rabochikh v proizvodstve o-toluidina. [Problems of industrial hygiene and health status of workers engaged in the production of o-toluidine.] GIG TR PROF ZABOL 14(8): 7-10. 1970. [Engl. sum.]--Work conditions and health status of workers engaged in the production of o-toluidine were studied. The air of work premises contained increased concentrations of o-toluidine and o-a-toluidene. Some workers demonstrated dysuric manifestations, initial pathologic alterations of the urinary bladder mucosa and, in individual instances, bladder papillomas. These changes and disorders were of an occupational nature. Special experimental investigations are

needed to determine the extent of the hazard caused by each isomeric isomer in regard to the development of urinary bladder tumors. --C. M. M.

46325. AGARKOV, F. T., and S. V. AGARKOVA. (A. M. Gorkii Med. Inst., Donetsk, USSR.) O temperaturnykh kharakteristikakh konditsionirovaniya funktsii dkhatelynogo apparata zdorov'ya i bol'nykh pnevmokoniozom shakhterov. [Temperature of exhalation and conditioning function of the respiratory apparatus in healthy and pneumoconiosis-affected miners.] GIG TR PROF ZABOL 14(2): 31-34. 1970. [Engl. sum.]--The expired air temperature was registered in 864 practically healthy and pneumoconiosis-affected miners by an electrothermometer provided with a highly sensitive and low-inertia thermistor sensor. This was paralleled by the measurement of vital capacity of the lungs. The data obtained formed a basis for determining reserve conditioning potentialities of the respiratory system. The expired air temperature in practically healthy miners is approximately the same as in normal subjects not engaged in mining, averaging 34.37 ± 0.03°C. In pneumoconiosis and its progressive development, the temperature of expired air goes down. This is accompanied by a distinct decrease of reserve conditioning possibilities of the respiratory system. The intensity with which the conditioning function declines augments as the process of pneumoconiosis progresses in its development. --C. M. M.

46326. MARIN, A. M., and A. O. NAVAKATIKYAN. (Inst. Ind. Hyg. Occup. Dis., Donetsk, USSR.) Kliniko-fiziologicheskiye kharakteristiki pylevogo bronkhita u podzemnykh rabochikh ugol'nykh shakht. [Clinical-physiological characteristics of dust-induced bronchitis in underground coal miners.] GIG TR PROF ZABOL 14(2): 28-31. 1970. [Engl. sum.]--Patients [70] with chronic dust-induced bronchitis of long standing were reported. Transformation into [17.1%] and suspected pneumoconiosis (8.6% of cases) were noted after a lapse of 2-5 yr. In patients with bronchitis exhibiting no signs of pulmonary fibrosis, non-diseased miners and practically healthy individuals with no service record in an atmospheric environment of high dustiness the vital capacity of the lungs (VCL), residual air (RA), total lung capacity (TLC), maximum volumetric expiration rate (MVER) and maximum volumetric inspiration rate (MVER) were determined. When measured, these indices were contrasted against the due values. A distinct rise of RA and an appreciable fall of the VCL, MVER and MVER were recorded in patients suffering from chronic bronchitis. Increased RA figures were registered also in non-diseased miners with long service-record, proving early development of manifestations typical of emphysema and deranged pulmonary ventilation. --C. M. M.

46327. KRENOKH, E. A. Gigenicheskiye otsenki uslovii truda rabotayushchikh pri mokrykh protsessakh mekhanicheskoi obrabotki izdelii iz stekla i khrystalya. [Hygienic evaluation of working conditions in wet machining processes of glass and crystal ware.] GIG TR PROF ZABOL 14(1): 45-48. 1970. --Wet processes of machining glass, crystal and quartz ware (grinding, polishing and face ag) are accompanied by considerable release of quartz-containing dust into the air of the work rooms. Grinding and polishing are done mostly by hand and require appreciable physical exertion on the part of the workers. The considerable release of dust makes it necessary to equip the grinding and polishing equipment with exhaust fans. The occupations of grinders and polishers should be included among those that are deleterious. These workers must undergo mandatory preliminary and periodic medical examinations. --J. S.

46328. SMIRNOVA, N. A., and N. P. GRANIK. (Gorki Inst. Ind. Hyg. Occup. Dis., Gorki, USSR.) Ob otkladnykh posledstviyakh professional'nykh ostryykh otravlenii sekutoryimi aglyevodородami i ikh proizvodnyimi. [Long-term side effects of acute occupational poisoning by certain hydrocarbons and their derivatives.] GIG TR PROF ZABOL 14(5): 50-51. 1970. --A study of the side effects of occupational poisoning in 35 persons (chlorine, 6; bromine, 5; methylchloride, 3; vinyl chloride, 2; trichloroethylene, 8; dichloroethane, 6; tetrachloroethane, 1; chlorobenzene, 3; polychlorobutane, 1) is reported. In all cases residual effects in the form of functional disturbances of the CNS, symptoms of sympathetic-sensory polyneuritis or organic disorder of the brain were observed. The frequency and degree of expression of these side effects depend upon the severity of intoxication suffered, previous CNS diseases and the time of return to work after neurotropic poisoning. --C. P.

46329. ENTERLINE, PHILIP E. (Grad. Sch. Pub. Health, Univ., Pittsburgh, Pa., USA.) Validating thresholds using industrial records. J OCCUP MED 13(1): 34-37. 1970. --Industry has some fairly accessible records which might be useful in establishing Threshold Limit Values for certain substances. These are employment and exposure records on retired populations and records on mortality in these populations. Data available from these records meet all the requirements for good epidemiological investigations. There might even be some advantage in pooling retirement

1911.--In the development of pulmonary silicosis in rats studies on changes in the total, esterified, free cholesterol and phospholipids were made in lungs, liver and blood plasma over a period of 300 days. Total cholesterol, its fractions and phospholipid content increased with time in the lungs of silicotic animals. Histohistochemically sudanophilic changes were observed in the cytoplasm of pulmonary macrophages. Changes similar to those of lungs were not observed in liver and blood plasma: the increased lipid content of lungs during experimental pulmonary silicosis may be due to the localized degenerative action of silica on macrophages.

122288. MÜLLER, W., and G. HOLZAPFEL. (Inst. Arbeitshyg., Univ., Jena, E. Ger.) Ueber die Beziehung zwischen Delta-Aminolävulinat-Ausscheidung im Harn und Blutbleispiegel bei Arbeitern mit unterschiedlicher Bleiexposition. [The relationship between ALA in urine and lead in blood in workers with different lead-exposure.] INT ARCH ARBEITSMED 27(4): 331-337, illus. 1971. [Engl. summ.]--In 3 groups of differently exposed lead-workers the relationship between ALA [delta-aminolävulinic acid] in urine and Pb in blood was investigated. This relationship is not constant and depends on the kind and intensity of exposure. It is difficult to establish an acceptable limit value of the ALA-output in urine. Women seem more sensitive to Pb than men.

122289. LIVSHITS, O. D. O vozmozhnosti ispol'zovaniya mestnykh pektinoderzhavshchikh pishchevnykh produktov v profilaktike saturnizma. [The possibility of using local pectin-containing food products for the prophylaxis of lead poisoning.] TR PERM MED INST 82: 194-199, 1970. Translated from REY ZH OTD VYP FARMAKOL KHMOTER SREDSTVA TOKSIKOL, 1970, No. 10, 54, 589.--For 4 mo. lead acetate at 50 mg/kg was fed intragastrically to 3-mo.-old male rats. Those of group 1 were maintained on the usual ration and those of group 2 were given the usual ration + 50% raw carrots. By the end of the exposure to Pb, the rats of group 1 had developed the symptoms of chronic Pb poisoning: torpor, disturbances of nutrition, loss of hair and a reduction in food consumption. During the entire period of observation all the rats of group 2 remained well, gained weight and had a good appetite. In rats of group 2 the daily diuresis was 9-11 ml. On the 20th-25th day of exposure those of group 1 showed hypouria (3-4 ml). The average weight at the end of the experiment was 154.1 g for group 1 and 192 g for group 2. The kidneys and gastrointestinal tract of the rats of group 2 excreted 97.5 mg Pb (85% of that taken into the body) as compared to 140 mg (40%) for group 1. The prophylactic action of local pectin-containing food products should be studied for use in the therapeutic-prophylactic diet of workers exposed to Pb.--S. T.

122290. LOSKUTOV, N. F., and N. F. SHUSTVALI. Izmeneniye elektrokardiogrammy pod vliyaniem krotokonitrila i izokrotokonitrila. [Changes in the electrocardiogram under the action of crotononitrile and isocrotononitrile.] TR KHAR'KOV MED INST 81: 135-139, 1969. Translated from REY ZH OTD VYP FARMAKOL KHMOTER SREDSTVA TOKSIKOL, 1970, No. 8, 54, 635.--In rats and guinea pigs given a single median lethal dose of crotononitrile (I) or isocrotononitrile (II; used in the production of synthetic rubber), the ECG showed a reduction in the voltage of the QRS complex, an increase in the number of heartbeats to 600/min, an upward shift from the baseline of segment ST, and the appearance of a high, pointed T wave (for 3-4 days). In subacute experiments I was given intragastrically to rats at 100 and 50 mg/kg and II at 17 and 34 mg/kg for 1.5 mo. Guinea pigs were given an aqueous solution of 27 or 55 mg/kg of I to drink for 2.5 mo. The rats showed an increase in the heart rate, upward displacement of the ST segment from the baseline, an increase in the T₂₋₃ wave to 7-8 mm, a reduction in the QRS voltage, an increase in the PQ interval, and, in some of the animals, sinoatrial blockade or blockade of the left branch of the bundle of His. Changes of this type were also found in guinea pigs. Impairment of the principal functions of the myocardium occurs: the conductivity, excitability, automatism, and contractility, this is explained by impairment of the metabolic processes in the myocardium caused by the poisoning. There is a bibliography with 10 references. From the Ukrainian Institute for the Postgraduate Education of Doctors, Kharkov, USSR.--S. T.

122291. BASALAEV, A. V. (Gorki Inst. Ind. Hyg. Occup. Dis., Gorki, USSR.) Opyt primeneniya krupnokadrovoy fluorografi pri issledovanii skeleta u rabotayushchikh v kontakte s nepredel'nymi uglevodnymi etilenogo ryada (olefinami) i ikh khlorproizvodnymi (khlorvinil, trikhloroetilen). [Experience with the use of large-frame photofluorography in examining skeletal bones of persons occupationally dealing with unsaturated hydrocarbons of the ethylene series (olefins) and their chlorine derivatives (vinyl chloride, trichloroethylene).] GIG TR PROF ZABOL 14(11): 34-37, 1970. [Engl. summ.]--Three examinations revealed a definite reconstruction in the bones; osteosclerosis, osteolysis, osteolysis and cystic changes. Truematization of the limbs and prevalence in the clinical poisoning picture of these symptoms

suggested lesions of higher vegetative centers, particularly of the hypothalamic region. These changes may be of a neurotypographic nature. Large-frame photofluorography may be recommended for radiographic examinations of the skeleton in occupational groups with potential bone pathology.--C. M. M.

122292. AMIROV, R. O., I. I. ALEKPEROV, and V. D. PITVORACI. K sanitarno-gigienicheskomu karakteru latke uslovii truda rabotayushchikh pri poluchenii katalapina (IKKAP-2). [A sanitary-hygienic characterization of the working conditions of persons producing katalapin (IKKAP-2).] GIG TR PROF ZABOL 14(11): 135-143, 1969. From: REY ZH OTD VYP FARMAKOL KHMOTER SREDSTVA TOKSIKOL, 1970, No. 1, 54, 133.

122293. BRAKHINOVA, I. T., and G. V. SAMSONOV. Sravneniye osnovnykh vliyaniy na organizm stridov perebivnykh metallov i sverkh-talov. [Comparative study of the effect of transitional metal and some metallic nitrides on the body.] GIG TR PROF ZABOL 14(12): 44-55, 1970 (recd. 1971).--In experiments with white rats stridates of semi-metals including Sn, Si₃N₄, and BNC had weakly pronounced toxic activity and caused pneumoconiotic changes. Metal-like stridates including TiN, ZrN and NbN in addition caused dystrophy of the liver and epithelium of the renal convoluted tubules. The recommended maximum permissible dose for stridates of semi-metals and BNC is 100 mg/m³, for TiN is 4 mg/m³ and for ZrN is 5 mg/m³. The toxic effects of nitrides corresponded to their electron structure. Their biological activity decreased with the increased possibility of forming 8p²-electron configurations during interaction with N of semi-metals and semi-metals and also d⁵-configurations with the formation of stridates of transitional metals.--N. L. G.

122294. KARIMOV, A. M. Professionalnye zabolevaniya kuznetsov i khlopokorobov, vyzvannyye yadotoksinami i nepropriyatsiya po im profilaktike. [Occupational skin diseases in cotton growers caused by chemical poisons and measures for their prevention.] GIG TR PROF ZABOL 14(12): 35-37, 1970 (recd. 1971).--Dermatitis and eczema occurred in 30 persons out of 32 in direct contact with DOT and hexachlorane. The disturbances were of a seasonal nature. Of 623 cotton growers, the skin was sensitive to the phosphoric acid insecticides methylmercaptophos, octamethyl and butylphos in 43%. The time of development of sensitization to different chemicals varied and depended on body response, concentration of the chemical, work conditions and the nature of contact.--N. L. G.

122295. AN, A. S., V. A. D'TACHEVSKO, V. I. IVANOV, and A. P. TALIN. Opyt medikamentoznoi profilaktiki porazhenii nervnogo stvora pri ispol'zovanii ognestoikim maslom "TrioI-3". [Experience in medical prevention of injury to the nervous system in poisoning with the fireproof oil "TrioI-3".] GIG TR PROF ZABOL 14(12): 37-38, 1970 (recd. 1971).--Persons working without gas masks in the treatment of a breakdown at an electric power station were intoxicated by the fumes of "TrioI-3", a compound based on triethylphosphite, vitamin E, vitamin B₆ and pyridine was effective in preventing damage to the nervous system.--N. L. G.

122296. ELBUSHKAYA, R. V. Sostoyaniye plodovosti u shchitovatykh pri khronicheskom vozdeystvii parov metadiazopropilbenzola. [Condition of fecundity in animals subjected to chronic effects of metadiazopropylbenzene fumes.] GIG TR PROF ZABOL 14(12): 44-48, 1970 (recd. 1971).--White rats (45) with strictly periodic estral cycles were exposed to the fumes of metadiazopropylbenzene in concentrations of 0.2 mg/l and 1 mg/l 5 hr daily 5 times a wk for 8 mo. The course of the estral cycle was disturbed with characteristic prolonged flow. The capacity for conception was substantially decreased. The average number of offspring decreased as well as their weight. Gonadotropic effects of the compound are indicated. Women's work in the presence of this compound should be regulated.--N. L. G.

122297. SUKHAREVSKAYA, T. M., L. S. SAYELEYA, and A. I. VOROTNIKOVA. (Novosib. Sankt. Inst., Novosib., USSR.) Opyt primeneniya 4-aminokaproonovoi kisloty pri khronicheskom intoksikatsionnom benzolom i ego gomologami. [Experience using 4-aminocaproic acid in chronic poisoning with benzene and its homologues.] GIG TR PROF ZABOL 14(12): 39-41, 1970 (recd. 1971).--4-Aminocaproic acid, vitamins B₆ and B₁₂, glucose and Fe preparations were used to treat 12 patients with chronic poisoning by benzene and its homologues with symptoms of hemorrhagic diathesis. A hemostatic effect was obtained in 12-15 days in patients with mild symptoms of hemophilia and in 2-3 days in those with pronounced manifestations of diathesis. In addition to the hemostatic effect, capillary permeability and the fibrinolytic activity of the blood decreased and blood coagulation time speeded up. The number of mature platelets increased after treatment and the number of old thrombocyte forms increased.--N. L. G.

122298. MAN'KO, N. N. (Inst. Hyg. Toxicol. Pestic. Polym. Plant. Subst., Kiev, USSR.) Otsenivaniye prugivnoy dopustimoi koncentratsii Pomekha v vozdukh rabochey zony. [Evaluation of the maximum permissible concentration of Pomekha in the air of a production zone.] GIG TR PROF ZABOL 14(12): 48-52, 1970 (recd. 1971).--The

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75521. KUDRYAVTSEVA, O. F. (Dzerzhinsk Inst. Ind. Hyg. Occup. Dis., Dzerzhinsk, USSR.) Kharakteristika elektrkardigraficheskikh izmenenii u bolnykh khronicheskoi intoksikatsiei khloristym vinilom. [Characteristics of electrocardiographic changes in patients with vinyl chloride poisoning.] GIG TR PROF ZABOL 14(8): 54-58, 1970. ECG studies of 50 male and 43 female workers suffering chronic vinyl chloride poisoning revealed cardiovascular disturbances manifested as changes in rhythm, conduction and repolarization processes and an increase in systolic index. ECG data should be used to determine the condition of the heart when evaluating the degree of vinyl chloride poisoning in a patient. --C. P.

75522. PENKOVICH, A. A., I. S. FAERMAN, and E. V. GLADKOVA. (Inst. Ind. Hyg. Occup. Dis., Gorki, USSR.) K voprosu ob otsenke i sootnoyeni funktsii vneshnego dykhaniya pri pylevykh zabolevaniyakh bronkholegnochnogo apparata. [The evaluation and state of the external respiration function in dust-induced disorders of the broncho-pulmonary system.] GIG TR PROF ZABOL 14(11): 7-10, 1970. [Engl. sum.]--The nature and extent of changes in a number of ventilation figures were dependent on the degree of respiratory incompetence and the form and stage of the constrictive process in the lungs. The results of 1459 examinations were subjected to electronic data processing. The most specific indices characterizing the disturbed external respiration function were the maximum pulmonary ventilation, maximum expiration rate and the arterial blood O₂ saturation. No conclusive differences of ventilation figures in patients with dissimilar forms and stages of pneumoconiosis could be disclosed. The most serious disorders of the ventilation function were noted in patients with pneumoconiosis accompanied by clinical manifestations of chronic bronchitis. --C. M. M.

75523. IL'INA, V. A., and T. A. KOCHETKOVA. (Inst. Ind. Hyg. Occup. Dis., Acad. Med. Sci. USSR, Moscow, USSR.) Eksperimental'nyi pneumoskleroz pri vdychanii aerorozlei magnievolitievyykh splovov. [Experimental pneumosclerosis from inhalation of magnesium-lithium alloy aerosols.] GIG TR PROF ZABOL 14(2): 17-21, 1970. [Engl. sum.]--When inhaled, Mg-Li alloys have an irritating action on the mucosa of the upper respiratory tract and pulmonary tissue and cause a number of changes in the respiratory organs. These include moderate catarrhal tracheitis, bronchitis, interstitial pneumonia, diffuse sclerosis and emphysema of the lungs. The extent of the pathological process becomes greater as the Li proportion in the alloy increases. --C. M. M.

75524. ZHDANEEVA, G. S. O rentgenologicheskikh izmeneniyakh v legkikh pri intoksikatsii karbonil-nikelem v ostrom i odalennom periodakh. [X-ray changes in the lungs with nickel carbonyl poisoning in the acute phase and later.] KAZAN MED ZH 1: 47-50, 1970. Translated from REF ZH OTD VYP FARMAKOL KHIMOTER SREDSTVA TOKSIKOL, 1970, No. 7, 34-36. --In 5 men and 2 women (of whom 4 were 21-31 yr old and 1, 52) who had undergone acute poisoning from inhaling nickel carbonyl, observations were made of the organs of the thorax for 7-12 yr. On the 2nd or 3rd day after the poisoning, a high position of the diaphragm was noted. The respiratory movements of the diaphragm were not determined or were limited. There was reduced air content of the pulmonary field. Two patients showed intensification and vagueness of the lung picture and of the roots of the lungs and the remainder also showed bilateral foci. Retrograde development of the X-ray changes began on the 7th-12th days. The outcome of the poisoning was favorable in all the young people. Dynamic observations for 10-12 yr showed that they were completely recovered. Regression of the X-ray changes in the older patient was noted until the 29th day. The position and respiratory movements of the diaphragm were restored in 3 mo. The picture of the lungs and roots became as they originally were in 3 yr after the poisoning. After 7 yr the patient developed pneumosclerosis, cardio-sclerosis and stage 2 respiratory insufficiency. Nickel carbonyl poisoning is probably not the determining factor in the growth of the sclerotic process. Its principal toxic effect is a disturbance of the lung capillaries and arterioles. Acute poisoning in healthy persons does not leave after effects. --S. T.

75525. OSETROVA, V. I. Sostoyanie zdorov'ya rabochikh tselkha flotfabriki Berezovskogo kaliinogo kombinata po dannym periodicheskikh meditsinskikh osmotrov. [The health of workers at the flotation compound plant of the Berezovskii Potassium Combine, according to data from periodic physical examinations.] TR PERM MED INST 82: 84-90, 1970. Translated from REF ZH OTD VYP FARMAKOL KHIMOTER SREDSTVA TOKSIKOL, 1970, No. 10, 34-37. --Of 157 workers examined 70% were women, 50 had worked less than 10 yr and 77 more in the flotation compound plant of the potassium combine. The potentially occupationally harmful products there consisted of higher aliphatic amines of fatty acids at concentrations tens of times the maximum allowable with a relative humidity of up to 96% and temperature in the plant of up to 30°C. The patients complained mostly of headache. Of those examined, 50% showed moderate tachycardia, dulling of heart tones, labile blood pressure and functional CNS disorders. Tenderness in the right subcostal area was noted in 18 patients and urobilia was found in the urine of those examined. Equipment operators exposed most to amines showed an increase in the number of reticulocytes and thrombocytopenia. --S. T.

75526. MOZAN, C., A. LACQUANITI, and L. PETTINATI. (Inst. Med. Lav., Turin, Italy.) Evaluation du risque induit par les vapeurs industrielles. [Evaluation of the hazards created by industrial fumes.] ARCH MAL PROF MED TRAV SEC SOC 31(3): 141-146, 1970. --The means of evaluating the atmospheric hazard created by industrial fumes that are currently practiced appear to be unsatisfactory and open to criticism. Results obtained with them are inadmissible. The problem of working systems of sampling and quantitative determination of fumes is pressing and essential. Well-defined norms should be given regarding the speed of air sampling and the point or points where sampling is to be done. In evaluating the risk involved, the phenomenon of fume condensation upon different surfaces of work areas which become secondary sources of pollution must not be forgotten. The only system appearing to show this part of the hazard is that of quantitative determinations in series, even at times when the specific risk is theoretically well, as that characteristic profiles for each work cycle can be obtained. Even in this case, a standard method should be used to obtain comparable and reproducible evaluations. This is the only way to obtain valid parameters of the hazard created by atmospheric fumes. These parameters are essential for a program of organized and systematic prevention. --S. L. R.

75527. FUJII, TAMOTSU. (Osaka Univ. Med. Sch., Osaka, Jap.) Pneumoconiosis caused by "Sendo" dust among rush-mat workers. NIPPON ACTA RADIOL 30(3): 284-288, 1970. [In Jap. with Engl. sum.]--Fancy mat workers are exposed to dense dust of "sendo" (a sort of clay used to dye rush) in the process of rush-mat manufacturing. In order to confirm the possibility of the development of pneumoconiosis due to "sendo", mass survey of workers in domestic rush-mat workshops was performed by direct chest roentgenography. Pneumoconiotic nodules found in the roentgenograms were not uniform in size. These shadows were mainly composed of punctiform opacities from 0.5-1.0 mm in diameter and were distributed evenly throughout the lung fields. Because of the smallness of individual dust foci, sparse opacities in the early stage of pneumoconiosis were difficult to demonstrate in routine X-ray film. More pneumoconiotic nodules were usually evidenced in the direct 2-fold magnification radiograms than in conventional films. These findings were similar to those of some sorts of atypical silicosis and other non-silicotic pneumoconioses, especially pneumoconiosis caused by clay dust inhalation. Fibrous thickening of the pleura due to pneumoconiosis was not remarkable. Hilal shadows showed no enlargement. Pulmonary emphysema was not so conspicuous. As to the complications in the lung, cases with active pulmonary tuberculosis were not seen. Of 47 workers with distinct pneumoconiosis, 17 had slightly impaired lung function and 8 had moderate impairment. Pneumoconiotic workers should be removed from areas of high dust exposure to protect them from the development of the disease. "Akashi Sendos" which are used in Okayama Prefecture, are composed of about 20% quartz and many kinds of minerals. The pneumoconiosis due to "sendo" is a sort of atypical silicosis caused by the dust which contains free silica in low percentage at the same time, may be included in clay pneumoconiosis. --C. M. M.

75528. IL'INA, V. A. (Inst. Ind. Hyg. Occup. Dis., Acad. Med. Sci. USSR, Moscow, USSR.) Voprosy gigeny truda pri poluchении i obrabotke magnievolitievyykh splovov. [Occupational hygiene in obtaining and treating of magnesium-lithium alloys.] GIG SANIT 35(10): 24-27, 1970. [Engl. sum.]--Working conditions at the open-pit mining of Mg-Li alloys are characterized by the almost continuous formation of aerosol and its discharge into the air of the working zone. The aerosol dispersed phase consists mainly of lithium oxide, lithium carbonate, lithium chloride, lithium fluoride and magnesium oxide. The main sign of the harmful effect of Mg-Li alloy aerosols is the development of an inflammatory process in the respiratory tract and the lung tissues: tracheitis, bronchitis and interstitial pneumonia resulting in diffused pneumosclerosis and lung emphysema. --C. M. M.

75529. BATOLSKA, A., and H. MARDOVA. (Inst. Mal. Prof. et Prev. Trav., Sofia, Bulg.) Modifications du glutathion chez les travailleurs d'une entreprise metallurgique miniere. [Glutathione modifications in workers of a mining metallurgical firm.] ARCH MAL PROF MED TRAV SEC SOC 31(3): 117-122, 1970. --A moderate clinical picture indicating preliminary occupational poisoning was noted in workers having contact with Pb, As, Cd and Sb. Almost 1/3 of the workers had lowered Hb. Glutathione [GSH] amounts decreased. GSH inhibition was parallel to the length of time when contact with the substances occurred. The effect of glutathione was favorable with regard to both the clinical picture and laboratory tests. Following administration of glutathione, GSH concentration, the reduced GSH/total GSH ratio and the amount of serum lactic dehydrogenase increased. --S. L. R.

75530. ASHBEL', S. I., R. G. KHIL', I. L. YAKUB, and I. D. VOLKOVA. Ob effektivnosti lecheniya bol'nykh silikozom aeromozolami i elektromagnitnymi volnami. [The effectiveness of treating silicosis patients with aerosols and electromagnetic waves.] 36 TR NAUCH-SLEDOV INST GIG TR PROF ZABOL GRUZ SS4 12: 140-154, 1970. Translated from REF ZH OTD VYP FARMAKOL KHIMOTER SREDSTVA TOKSIKOL, 1970, No. 8, 34-38. --Of 33 silicosis patients studied, 19, of whom 13 had chronic bronchitis, were treated with a 10% solution of sodium bicarbonate (8 ml by inhalation at pH 8 for a course of 2 inhalations a day for 30