14—TOXICOLOGY

T. R. TORKELSON

41109z Toxicology of vinyl chloride. Schottek, Wolfgang (Abt. Arbeitsmedizinol., Holzwerkg, 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.). *Mikrokosmos* 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. Dehnbostel

41111s Development of the hemodynamic, biochemical, and morphologic changes in experimental endotoxin shock. Stengert, Krzysztof (Z Zakl. Anesterjologii, AM, Lodz, Poland). *Postepy 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., Rehoveth, 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 Eiseikenso Gijutsukai Zasshi* 1969, 18(5), 389–91 (Japan). The Pb^{2+} was extd. into iso-BuCOMe soln. from 30% NH_4OH. The recovery rate was 99.9%. 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, Vaclav; Flek, Jan (Ustav Hyg. Prace, Prague, Czech.). *Prac. Lek.* 1969, 21(7), 301–5 (Czech). See *CA* 70: 113446p. VNJZ

41116x Aflatoxin B_1 in the excretion of aflatoxin-poisoned rats. Chou, Ming-Wu; Tung, Ta-Cheng (Coll. Med., Nat. Taiwan Univ., Taipei, Taiwan). *Tai-Wan I Hsueh Hui Tsa Chih* 1969, 68(8), 389–91 (Eng). Aflatoxin B_1 was detected in the rat urine and feces after i.p. injection of the toxin. Most of the aflatoxin B_1 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 conen. of the excretions, and could provide useful information for detecting it in humans. N. M. Wright

41117y Paper chromatography of Taxus baccata toxin. Bubien, Zenon (Wyzsza Szk. Roln., Wroclaw, Poland). *Zesz. Nauk. Wyzsz. Szk. Roln. Wroclawiu, Wet.* 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 Et_2O, 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–H_2O (30:7:2:15), or 75% aq. $(NH_4)_2SO_4$. The R_f values were 0.95 and 0.75, resp. The toxin spots were stained by the *Dragendorf* reagent. Irena Kleczko

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. Calcd. 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.; Scibold, 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 1.2 ml/kg or more of ethylene glycol had Ca oxalate crystals within proximal renal tubules and assocd. tubular degeneration. Despite the absence of crystals in animals receiving <1.5 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.; Streett, C. S.; Ford, D. F.; Herman, L. H.; Helland, D. R. (Edgewood Arsenal, Md.). *U.S. Clearinghouse Fed. Sci. Tech. Inform., AD* 1967, AD-808-732, 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 min/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). *Zacchia* 1968, [3] 43(2), 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, O_2 decreased and 1 hr after death was insignificant; CO_2 was present immediately; N_2 levels were relatively stable, similar to air, for 2 days, then decreased sharply. In He embolic gas, O_2, N_2, and CO_2 were present immediately. Results were essentially the same in rabbits injected before and after death. Av. values for putrefaction gas contents in rabbit and cadaver heart were, resp.: O_2 1.32 and 2.05%, N_2 (usually <50%) 12.13 and 22.06%, CO_2 31.08 and 50.62%; CH_4 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.; Mazer, J. (Hadassah Med. Sch., Hebrew Univ., Jerusalem, Israel). *Biochim. Biophys. Acta* 1969, 187(4), 584–7 (Eng). In rats, i.p. injections of CCl_4 in doses as low as 0.5 μl/100 g reduced the ability of liver microsomes to incorporate choline-^{14}C into total phospholipids and labeled L-leucine-$1^{-14}C$ into protein, discernible 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/100 g) and dimethylnitrosamine (10 mg/100 g) did not affect the incorporation of choline into liver phospholipids, although they inhibited protein synthesis. CCl_4 enhanced the incorporation of ethanolamine-$2^{-14}C$ into liver microsomal phospholipids. The early onset and the long persistence, as well as the specific nature, of the derangement of phospholipid synthesis by CCl_4 suggest a possible role of this phenomenon in the pathogenesis of fatty liver. BKJN

41123x In vitro inhibition of succinate and pyruvate oxidation by ethanolic extracts of grasses, legumes, and dystrophogenic forages. Checke, Peter R.; Oldfield, James E. (Oregon State Univ., Corvallis, Oreg.). *Can. J. Anim. Sci.* 1969, 49(3), 403–4 (Eng). EtOH exts. of title 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 succina

cleaning, hydraulic wash-out) and hygienic (anti-dust respirators, protective postural measures were recommended. Introduction of such measures at 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 [illegible].—C. M. M.

[illegible]19. PAVLOVA, L. P. (M. M. Efendi-zade Inst. Ind. Hyg. Occup. Dis., Sumgait, USSR.) Materialy k obosnovaniyu predel'no dopustimoi kontsentratsii diizopropilbenzolov v vozdukhe proizvodstvennykh pomeshchenii. [Materials for establishing the maximum permissible concentration of diisopropyl benzenes in the air of industrial premises.] GIG TR PROF ZABOL 14(2): 41-43. Illus. 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 cumulative capability. Chronic action of their fumes at a concentration of 1 mg l produced CNS inhibition, disturbances of the antitoxic-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-carpeting industry. MED J AUST 57-1(23): 1151-1152. 1970.—Six cotton-carpeting plants were examined and cotton-dust concentrations of 6 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 (FEV_1) of 0.12 l. In more dusty areas, an average fall in FEV_1 of 0.28 l was recorded. At dust concentrations in the vicinity of 6 mg cu m, little change in FEV_1 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 R. A. YAMPOL'SKAYA. (Cent. Inst. Postgrad. Med., Moscow, USSR.) K klinike khronicheskoi intoksikatsii okis'yu ugleroda. [Clinical picture in chronic carbon monoxide poisoning.] GIG TR PROF ZABOL 14(8): 23-26. 1970. [Engl. sum.]—Results of an examination of 286 wor[illegible] engaged in servicing taxi-fleet garages of the city of M[illegible], 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 local 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., L. A. GOLOVA, N. K. BLAGODATKINA, E. P. RUMYANTSEVA, L. A. GORYACHEVA, N. K. ALIEVA, and E. Sh. GRONSBERG. (Inst. Ind. Hyg. Occup. Dis., Gorki, USSR.) Voprosy gigieny truda i profpatologii 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. GLIKSHTEIN, M. D. [illegible] arterial'nogo tonusa u rabotayushchikh s [illegible] [Length-wise [illegible] features of the arterial tonus in persons working with [illegible]] [illegible] AZERB NAUCH-ISSLED INST GIG TR PROF ZABOL 3: 69-74. 1969. From: REF ZH OTD VYP FARMAKOL KHIMIOTER SREDSTVA TOKSIKOL, 1970, No. 1.54.1318.

46324. KHLEBNIKOVA, M. L., E. V. GLADKOVA, L. T. KUKENKO, A. V. PSHENITSYN, and B. M. SHALIN. (Inst. Ind. Hyg. Occup. Dis., Gorki, USSR.) Voprosy gigieny truda i sostoyanie 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-nitrotoluene. Som[illegible] [illegible] demonstrated dysuric manifestations, initial pathologic [illegible] 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 toluidine 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 temperature vydykhaemogo vozdukha i konditsioniruyushchei funktsii dykhatel'nogo apparata zdorovykh i bol'nykh pnevmokoniozom shakhterov. [Temperature of exhaled air 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 964 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-fiziologicheskaya kharakteristika 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): 26-31. 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 (MVIR) were determined. When measured, these indices were contrasted against the due values. A distinct rise of RA and an appreciably fall of the VLC, MVER and MVIR 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. KHENOKH, E. A. Gigienicheskaya otsenka uslovii truda rabotayushchikh pri mokrykh protsessakh mekhanicheskoi obrabotki izdelii iz stekla i khrystalya. [Hygienic evaluation of the working conditions in wet machining processes of glass and crystal ware.] GIG TR PROF ZABOL 14(1): 45-46. 1970. —Wet processes of machining glass, crystal and quartz ware (grinding, polishing and faceting) 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 otdalennykh posledstviyakh professional'nykh ostrykh otravlenii nekotorymi uglevodorodami i ikh proizvodnymi. [Long-term side effects of acute occupational poisoning by certain hydrocarbons and their derivatives.] GIG TR PROF ZABOL 14(3): 50-51. 1970.—A study of the side effects of occupational poisoning in 35 persons (olefins, 6; benzyl, 5; methylene chloride, 3; vinyl chloride, 2, trichloroethylene, 8; dichloroethane, 6; tetrachloroethane, 1; chlorobenzene, 3; polychloroethane, 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 12(2): 34-37. Illus. 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

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1971.--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 230 days. Total cholesterol, its fractions and phospholipid content increased with time in the lungs of silicotic animals. Histochemically sudanophilic lipids 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. MUELLER, W., and G. HOLZAPFEL. (Inst. Arbeitshyg., Univ., Jena, E. Ger.) Ueber die Beziehung zwischen Delta-Aminolaevulinsaeure-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 [gamma-aminolevulinic 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 pektinosoderzhashchikh pishchevykh 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 REF ZH OTD VYP FARMAKOL KHIMIOTER SREDSTVA TOKSIKOL, 1970, No. 10.54.569.--For 4 mo. lead acetate at 50 mg/kg was fed intragastrically to 2-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 (65% of that taken into the body) rats of group 1, 60 mg (40%). 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. SHUSTVAL'. Izmenenie elektrokardiogrammy pod vliyaniem krotononitrila i izokrotono-nitrila. [Changes in the electrocardiogram under the action of crotononitrile and isocrotononitrile.] TR KHAR'KOV MED INST 81. 135-139. 1969. Translated from REF ZH OTD VYP FARMAKOL KHIMIOTER 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 T_{2-3} wave to 7-8 mm, a reduction in the QRS voltage, an increase in the PQ interval, and, in some of the animals, sinoauricular 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, Khar'kov, USSR.--S. T.

122291. BASALAEV, A. V. (Gorki Inst. Ind. Hyg. Occup. Dis., Gorki, USSR.) Opyt primeneniya krupnokadrovoi flyuorografii pri issledovanii skeleta u rabotayushchikh v kontakte s nepredel'nymi uglevodorodami etilenovogo ryada (olefinami) i ikh khlorproizvodnymi (khlorvinil, trikhloretilen). [Experience with the use of large-frame photofluorography in examining the 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.]--Bone examinations revealed a definite reconstruction in the bones: osteosclerosis, osteoporosis, osteolysis and cystic changes. Traumatization 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 neurotrophic nature. Large-frame photofluorography may be recommended for roentgenological examinations of the skeleton in occupational groups with potential bone pathology.--C. M. M.

122292. AMIROV, R. O., I. I. ALEKPEROV, and V. D. PIVOVAROV. K sanitarno-gigienicheskoi kharakteristike uslovii truda rabotayushchikh pri poluchenii katapina (IKIKAP-2). [A sanitary-hygienic characterization of the working conditions of persons producing katapin (IKIKAP-2; 1-(p-dodecylbenzyl)-pyridinium).] TR AZERB NAUCH-ISSLED INST GIG TR PROF ZABOL 3. 133-143. 1969. From: REF ZH OTD VYP FARMAKOL KHIMIOTER SREDSTVA TOKSIKOL, 1970, No. 1.54.1319

122293. BRAKHNOVA, I. T., and G. V. SAMSONOV. Sravnitel'naya otsenka vliyaniya na organizm nitridov perekhodnykh metallov i nemetallov. [Comparative study of the effect of transitional metal and nonmetallic nitrides on the body.] GIG TR PROF ZABOL 14(12): 46-50. 1970[recd. 1971].--In experiments with white rats nitrides of nonmetals including BN, Si_3N_4, and BNC had weakly pronounced fibrogenic activity and caused pneumoconiotic changes. Metal-like nitrides 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 nitrides of non-metals and NbN is 10 mg/m^3, for AlN is 4 mg/m^3 and for ZrN is 5 mg/m^3. The toxic effects of nitrides corresponded to their electron structure. Their biological activity decreased with the increased possibility of forming s^2p^6-electron configurations during interaction with N of non-metals and semi-metals and also d^5-configurations with the formation of nitrides of transitional metals.--N. L. G.

122294. KARIMOV, A. M. Professional'nye zabolevaniya kozhi u khlopkorobov, vyzvannye yadokhimikatami, i meropriyatiya po ikh 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 DDT and hexachlorane. The disturbances were of a seasonal nature. Of 633 cotton growers, the skin was sensitive to the phosphoorganic insecticides methylmercaptophos, octamethyl and butyphos in 42%. 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'YACHENKO, V. I. IVANOV, and A. P. TALIN. Opyt medikamentoznoi profilaktiki porazhenii nervnoi sistemy pri intoksikatsii ognestoikim maslom "Ivviol-3". [Experience in medical prevention of injury to the nervous system in poisoning with the fireproof oil "Ivviol-3".] GIG TR PROF ZABOL 14(12): 51-53. 1970[recd. 1971].--Persons working without gas masks in the remains of a breakdown at an electric power station were intoxicated by the fumes of "Ivviol-3", a compound based on trixylenylphosphate, vitamin E, vitamin B_6 and phytin was effective in preventing damage to the nervous system.--N. L. G.

122296. ELISUISKAYA, R. V. Sostoyanie plodovitosti u zhivotnykh pri khronicheskom vozdeistvii parov metadiizopropilbenzola. [Condition of fecundity in animals subjected to chronic effects of metadiisopropylbenzene fumes.] GIG TR PROF ZABOL 14(12): 44-46. 1970[recd. 1971].--White rats (45) with strictly periodic oestral cycles were exposed to the fumes of metadiisopropylbenzene in concentrations of 0.2 mg/l and 1 mg/l 5 hr daily 5 times a wk for 5 mo. The course of the sexual 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. SAVEL'EVA, and A. I. VOROTNIKOVA. (Novosib. Sanit. Inst., Novosib., USSR.) Opyt primeneniya ε-aminokapronovoi kisloty pri khronicheskoi intoksikatsii benzolom i ego gomologami. [Experience using ε-aminocaproic acid in chronic poisoning with benzene and its homologues.] GIG TR PROF ZABOL 14(12): 39-41. 1970[recd. 1971].--ε-Aminocaproic acid, vitamins B_6 and B_{12}, 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- days in patients with mild symptoms of hemophilia and in 2-3 day 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. MAKPKO, N. N. (Inst. Hyg. Toxicol. Pestic. Polym. Plast. Subst., Kiev, USSR.) Obosnovanie predel'no dopustimoi kontsentratsii Fozalona v vozdukhe rabochei zony. [Substantiation of the maximum permissible concentration of Fozalon in the air of a production area.] GIG TR PROF ZABOL 14(12): 46-48. Illus. 1970[recd. 1971].--The

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73521. KUTNYAVTSEVA, O. F. (Dzerzhinsk Inst. Ind. Hyg. Occup. Dis., Dzerzhinsk, USSR.) K kharakteristike elektrokardiograficheskikh izmeneniĭ u bol'nykh khronicheskim intoksikatsiei khlorvinilom. [Characteristics of electrocardiographic changes in patients with vinyl chloride poisoning.] GIG TR PROF ZABOL 14(4): 54-56. 1970.--ECG studies of 56 male and 43 female workers suffering chronic vinyl chloride poisoning revealed cardiovascular disturbances manifested as changes in rhythm, conductance 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.

73522. PENKKOVICH, A. A., I. S. FAERMAN, and Z. V. GLADKOVA. (Inst. Ind. Hyg. Occup. Dis., Gorki, USSR.) K voprosu ob otsenke i sostoyanii funktsii vneshnego dykhaniya pri pylevykh zabolevaniyakh bronkho-legochnogo 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 coniotic 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 O_2 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.

73523. IL'INA, V. A., and T. A. KOCHETKOVA. (Inst. Ind. Hyg. Occup. Dis., Acad. Med. Sci. USSR, Moscow, USSR.) Eksperimental'nyi pnevmoskleroz pri vdykhanii aerozolei magnievolitievykh splavov. [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.

73524. ZHDANEEVA, G. S. O rentgenologicheskikh izmeneniyakh v legkikh pri intoksikatsii karbonil-nikelem v ostrom i otdalennom periode-th. [X-ray changes in the lungs with nickel carbonyl poisoning in the ute phase and later.] KAZAN MED ZH 1, 47-50. 1970. Translated from REF ZH OTD VYP FARMAKOL KHIMIOTER SREDSTVA TOKSIKOL, 1970, No. 7.54.769.--In 5 men and 2 women (of whom 6 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 feel. 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 2 yr after the poisoning. After 7 yr the patient developed pneumosclerosis, cardiosclerosis and stage 1 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.

73525. OSETROVA, V. I. Sostoyanie zdorov'ya rabochikh tsekha flotofabriki Berezniakovskogo kaliinogo kombinata po dannym periodicheskikh meditsinskikh osmotrov. [The health of workers at the flotation compound plant of the Berezniki Potassium Combine, according to data from periodic physical examinations.] TR PERM MED INST 42: 86-90. 1970. Translated from REF ZH OTD VYP FARMAKOL KHIMIOTER SREDSTVA TOKSIKOL, 1970, No. 10.54.757.--Of 137 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 94% and temperature in the plant of up to 30 C. The patients complained mostly of headache. Of those examined, 30% 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 urobilin was found in the urine test of those examined. Equipment operators exposed most to amines showed an increase in the number of reticulocytes and thrombocytopenia. --S. T.

73526. MOZAN, C., A. LACQUANITI, and L. PETTINATI. (Inst. Med. Lav., Turin, Italy.) Evaluation du risque induit par les transports industriels. [Evaluation of the hazards created by industrial trains.] ARCH MAL PROF MED TRAV SEC SOC 31(3): 141-144. [1970.--The means of evaluating the atmospheric hazard created by industrial trains that are currently practiced appear to be unsatisfactory and open to criticism. Results obtained with them are inadmissible. The problem of normalizing systems of sampling and quantitative determinations of toxins 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 toxin 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 null, so 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 toxins. These parameters are essential for a program of organized and systematic prevention. --S. L. R.

73527. FUJII, TAMOTSU. (Osaka Univ. Med. Sch., Osaka, Jap.) [Pneumoconiosis caused by "Sendo" dust among rush-mat workers.] NIPPON ACTA RADIOL 33(3): 266-296. Illus. 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 nonsilicotic pneumoconioses, especially pneumoconiosis caused by clay dust inhalation. Fibrous thickening of the pleura due to pneumoconiosis was not remarkable. Hilar 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 6 had moderate impairment. Pneumoconiotic workers should be removed from areas of high dust exposure to protect them from the development of the disease. "Akashi Sendo" which are used in Okayama Prefecture, are composed of about 20% quartz and many kinds of clay minerals. The pneumoconiosis due to "sendo" is a sort of atypical silicosis caused by the dust which contains free silica in low percentage and, at the same time, may be included in clay pneumoconiosis.--C. M. M.

73528. IL'INA, V. A. (Inst. Ind. Hyg. Occup. Dis., Acad. Med. Sci. USSR, Moscow, USSR.) Voprosy gigieny truda pri poluchenii i obrabotke magnievolitievykh splavov. [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 inhaled 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.

73529. BATOLSKA, A., and H. MARINOVA. (Inst. Mal. Prof. et. Prot. Trav., Sofia, Bulg.) Modifications du glutathion chez les travailleurs d'une entreprise metallurgique minière. [Glutathione modifications in workers of a mining metallurgical firm.] ARCH MAL PROF MED TRAV SEC SOC 31(3): 117-122. Illus. 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 glutathiol was favorable with regard to both the clinical picture and laboratory tests. Following administration of glutathiol, GSH concentration, the reduced GSH, total GSH ratio and the amount of serum lactic dehydrogenase increased.--S. L. R.

73530. ASHBEL', S. L., R. G. KNIL', I. L. YAKUB, and I. D. VOLKOVA. Ob effektivnosti lecheniya bol'nykh silikozom aerozolyami i elektroaerozolyami shchelochnoi. [The effectiveness of treating silicosis patients with aerosols and electroaerosols of alkalies.] SH TR NAUCH-ISSLED INST GIG TR PROF ZABOL, GRUZ SSR 12: 149-154. 1970. Translated from REF ZH OTD VYP FARMAKOL KHIMIOTER SREDSTVA TOKSIKOL, 1970, No. 9.54.684.--Of 53 silicosis patients studied, 18, of whom 12 had chronic bronchitis, were treated with a 10% solution of sodium bicarbonate (5 ml by inhalation at pH 8 for a course of 3 inhalations a day for 10