ABSTRACTS


Ninety-five per cent. of the risk of silica is eliminated by using prefabricated silica blocks instead of silica brick clipped to the proper size. Greater durability and less time, used in construction, results.


Persons harmed by inhaling the atmosphere of an enclosure in which substances rich in cellulose such as wood, cotton and paper have been burned, usually suffer from the effects of heat, of carbon monoxide, or a deficiency of oxygen. Under certain conditions, however, the atmosphere may contain a high percentage of organic irritants such as acetic acid, formaldehyde, methyl alcohol and furfural. When the smoke is very hot it will destroy tissues by burning, regardless of its composition, but when somewhat cooler the irritants present attack the mucous membrane of the respiratory tract and create conditions favouring the onset of pneumonia. Illustrative cases are cited in which the smoke inhaled caused serious respiratory injuries without thermal burns, e.g. in some of the 485 persons killed in 1942 in the Coconut Grove tragedy, Boston.


Solvents containing methanol (methyl alcohol) are used extensively in industry, and the determination of the methanol in the atmosphere is frequently necessary. The presence of 200 p.p.m. has become widely accepted as the maximum permissible concentration for continuous exposure during a 8-hour day. The method of estimation of methanol used by many investigators is to oxidize it with potassium permanganate, followed by the production of a coloration with Schift's reagent (a solution of basic fuchsin containing sodium bisulphite and sulphuric acid). The efficiency of the various methods used for collecting the samples of contaminated air has not been estimated, and the object of the present investigation was to determine this efficiency, together with the optimum conditions of certain stages of the analysis. A spectrophotometer was used as the colorimeter, the wave-length chosen being 580 millimicrons. A period of 3½ hours was estimated to be the best for the colour-development time, and 1 hour for the oxidation time. The sampling devices studied were (a) the midget impinger, (b) a fritted glass bubbler, and (c) a tower packed with wet glass beads. The dimensions of this apparatus are described in detail. An atmosphere of known methanol content was generated in a continuous flow apparatus, and passed through two absorbers in series. The methanol trapped in the first absorber, with a sampling rate of 1–2 litres per minute and atmospheric concentrations of 200 p.p.m. and 400 p.p.m., was 92 per cent. of the total amount absorbed. The fritted glass bubbler showed an efficiency of 91 per cent. at 200 p.p.m., and 96 per cent. at 400 p.p.m. Efficiencies of 37–87 per cent. were obtained with packed towers, and the performance was variable.


An account of ‘dead fingers’ occurring in a shoe-making factory among workers using a vibrating machine known as a ‘rotative’ is given. The frequency of the vibrations transmitted was in the neighbourhood of 15,000 per minute. During the first days at work on the machine there is tingling of the fingers which persists, and this is followed by whiteness, coldness and loss of sensation. This is worse in the morning, and lasts for a period of 2 hours. After an hour at work the symptoms may disappear. One man who stopped working with the machine in 1934 still develops the symptoms in cold weather or if he puts his hands into cold water. Treatment is ineffective; vascular dilators and sympathetic sedatives are without effect; only radiotherapy to the cervical sympathetic centres produces a slight relief of symptoms.


Owing to the corneae of severe cases of mustard gas keratitis being liable to recurring ulceration, they are usually regarded as inoperable. An account is given of a man aged 56 who had a band-shaped crystalline deposit removed from the left eye by curettagge. Vision improved from R.V. 6/24, L.V. 3/60, to R.V. 6/18, L.V. 6/36.


Alice Hamilton stresses the need of a full occupational history and also points out that toxic substances that are manufactured can be used in the home under trade names. Diagnosis of the unusual is the most difficult. Besides blood changes, dial painters may get osteosarcoma after a considerable interval. Benzene can give rise to all types of blood change. Carbon monoxide anaemia may result in death of those cells which cannot stand the lack of oxygen. Most cells when destroyed can be regenerated, but not those of the grey matter of the central nervous system. Vessel walls may be weakened. Atrophy of the optic nerve has been observed after gassing, and cases of cerebral haemorrhage often follow gassing in a few months. Forms of lead poisoning in which the joints and not the muscles are involved are obscure. In human beings, the first symptoms of carbon tetrachloride poisoning can be attributed to the kidneys, and death in uraemia is common. Lead is a germ-cell poison, and Japanese workers have shown that paternal lead poisoning can be conveyed to the offspring. Lead has been found in the blood of the foetus. There is a greater degree of sterility in the wives of lead workers than in the wives of non-lead workers.


A young woman aged 23 swallowed rat paste which contained 130 mg. of phosphorus. She developed nausea, headache, severe abdominal pain and vomiting, and later became jaundiced. There was abdominal tenderness, but the liver was not palpable. B.P. 110/70. Urine: S.G. 1022, no albumin, but reduced Benedict’s Sedimentation rate, 4. Red cells 4,200,000, haemoglobin 86 per cent., white cells 1200 (68 per cent. lymphocytes, 24 per cent. polymorphs). Non-protein nitrogen, 47-7 mg. per 100 ml.; icteric index, 37; bilirubin, 9 mg.
per 100 ml. Prothrombin time, 20 seconds. Brom-sulphthalein test normal. She was treated with high-carbohydrate low-fat diet. Daily intravenous infusions of 10 per cent. glucose in saline; 20 units of regular insulin, were given. Calcium gluconate 1 gm. was given orally three times a day. The patient also received pentnucleotide, ascorbic acid and thiamine. She recovered completely.


In animals a large single dose of DDT produces signs of intoxication in 12-24 hours. The animal is cold, its fur ruffled, and diarrhoea may be present. It is nervous and sensitive to stimuli. Muscular weakness and coarse tremors develop. Movement becomes restricted, staggering, and often spastic, though the fore limbs are rarely affected. Anorexia leads to rapid loss of body weight. Death may occur within 48 hours. With repeated administration of DDT there is loss of body weight, anorexia and diarrhoea: tremors and weakness come later with big doses. The liver is severely damaged: there are numerous areas of focal necrosis, or large areas of centrolubular necrosis are uniformly distributed throughout the organ. Leucocytosis is an intimation that the toxic level is being reached. In rabbits one large skin dose of DDT produces necrosis, which has been obtained of a rise in blood calcium values. DDT is tolerated in fairly large amounts, and toxic levels are not easily reached when dilute solutions suitable for medicinal purposes are employed. Trials on 52 soldiers wearing undergarments impregnated with 1 per cent. DDT suggest that there is little risk of skin irritation and general systemic effects attributable to DDT even with prolonged exposure in ideal conditions for absorption from hot sweaty skin. Danger to health is likely to arise only from careless use of concentrates.


In 1942 a barking was made alongside some petrol tanks from which there was a leak. A man at the bottom of the barking was reeling drunkenly, and when his mate reached him he was unconscious. His mate managed to get him out but, being dazed, he fell in himself from the top. He managed to reach the top again, but lost consciousness and was pulled out by his mates. Both recovered and were well 2 years later. Mild poisoning from petrol causes excitement, euphoria and a catatonic condition. In animal and in human cases the irritability and prone to quarrel. Higher concentrations produce irritation of respiratory mucosa, cough and tickling in the throat, and later ataxia, drowsiness, headache, vertigo, nausea, weakness and irritation of the skin. Vision is blurred, and burning pain is felt in chest and abdomen. There may be tonic contraction of the flexors of the hands and twitching of the muscles of trunk and limbs. With large concentrations hallucinations, delirium and coma develop. Death is from respiratory failure. Mild neurasthenic symptoms, such as headache, sleeplessness and anorexia, are common sequelae of petrol poisoning. Evidence of organic change in the nervous system is not infrequent, especially epilepsy; also lesions of the pyramidal, cerebellar and sensory tract, simulating disseminated sclerosis.


A boy aged 11 years inhaled a single inspiration of freshly prepared chlorine. Painful persistent coughing ensued for 2 hours; this was followed by laboured rapid breathing, exhaustion, vomiting, and rapid thin pulse. Five hours after the accident he was put in a tent with an atmosphere of 40 per cent. oxygen. Fifteen hours later he was bubbly, with a respiratory rate of 44 and cyanosed. The meter mask was applied with 4 ml. of water pressure and 50 per cent. oxygen. Half an hour after positive pressure was applied the cyanosis and headache disappeared and the boy was cheerful and comfortable. The favourable clinical response demonstrated that positive-pressure respiration was the specific therapeutic agent in the recovery of this patient.


Some oils produce oil acne, others do not. The author considers that it is due to chemical irritation. Non-soluble cutting oils thinned with a grafting-proof of severe oil acne and severer eczematoid rashes. It seems possible that the follicle-irritating (acne-producing) and eczematizing tendencies of oil run parallel.


Guinea-pigs, mice, rats and rabbits were killed by a few exposures of 7 hours to a vapour of 1,2-dichloroethane as low as 400 parts per million. Dogs remained in good condition after nearly 200 exposures at that concentration, but some animals died after exposure to 1000 parts per million. A single exposure of 7 hours to 1000 parts per million led to symmetrical turidity of the cornea in 8 out of 10 dogs. The clearing process sometimes took 3 weeks for partial regression. The clearing was from the periphery inwards. The development of the turbidity was always equal on the two sides, but the clearing process was sometimes limited to one cornea. No turbidity occurred in cats, monkeys, chickens or in other rodents. When the dogs were given repeated daily exposures of 1000 parts per million in series of 5 exposures separated by 2 days, they gradually became tolerant of the vapour. Eventually no cloudiness developed after the exposures.


A man aged 39 attempted suicide by ingestion of sodium fluoride. He had muscle spasms in the feet and hands similar to those occurring in tetany. His stomach was washed out and 15 gm. of calcium lactate was left in. He lost consciousness and died of respiratory failure 3 hours after taking the poison. A few minutes before death his blood calcium was 2·6 mg./100 ml. Sodium fluoride is a corrosive and general protoplasmic poison, and combines with calcium in the toxic state to form insoluble calcium fluoride: it thus lowers blood calcium and produces low calcium tetany. It is also anticoagulant, and affects thrombin formation and injures the liver. It is only slowly excreted, and tends to be deposited in bone, making it white, hard and brittle.


Cresylic acid is a toxic substance which may be absorbed through the skin. A man aged 41 cleaned some torpedo gear trains for 6 hours with a solvent containing cresylic acid. His hands were unprotected. He developed dryness and stiffness of the skin of both hands; also watering of the eyes. Later the skin became yellow and cracked, and then peeled. He also had difficulty in expectorating, and there was drooping of the right lower eyelid and retraction of the left corner of the mouth. Finally he developed a right facial paralysis with ptosis.

Nitrobenzene is readily absorbed through the skin and mucous membrane of the intestinal tract. An account is given of a fatal case of poisoning through the ingestion of commercial spot-remover containing nitrobenzene in a male aged 20. He had respirations of 10, a thready pulse of 110 and blood pressure 112/40. There was cyanosis of the entire body, with twitches of both arms and muscles of the face probably due to cerebral anoxia. He was treated with gastric lavage, nikethamide and blood transfusion. Necropsy was distinguished by post-mortem lividity of a dark purplish colour and marked congestion. The kidneys were of a chocolate-brown colour. Chemical examination of the stomach contents, liver, brain, urine and kidneys showed the presence of nitrobenzene. The patient died with respiratory paralysis.


In a hot humid atmosphere with low wind velocity the incidence of heat-stroke is high. The initial effects are mild but often insidious. First come heat cramps, then heat prostration, with weakness, slight fever, anorexia, headache, abdominal distress, nausea, vomiting and visual disturbances; heat exhaustion, with circulatory failure; and heat-stroke, representing a failure of the heat-regulating mechanisms. The last stages may be abrupt and carry a high mortality rate. When the temperature rises above 86°F, vaporization of water becomes increasingly the predominant means of heat loss, until at 95°F it is practically the sole means. The wet-bulb temperature seems a more sensitive indication of the probable incidence of heat disease than the relative humidity per se, and physical activity should be on a reduced scale at a wet-bulb temperature of 75°F and should stop at 79°F. In the treatment of severe cases intravenous administration of plasma is advised rather than saline, owing to its ready diffusibility in the tissues. One hundred per cent. oxygen by mask combats both the reduced oxygen-carrying capacity of the blood and the tissue-oxygen deficit.


A report of the case of a youth of 19 who, until the last year, had been a shoe-maker. For 1 year he had worked with a benzene-containing paste and had complained of increasing lassitude and shortness of breath upon exertion. Blood counts showed a marked leukocytosis, at first entirely due to lymphocytes, but later giving a picture similar to monocytic anemia. There was a mild anaemia with some normoblasts. The tubules were lined by newly flattened epithelium, whereas in the normal subject the tubules were lined by newly flattened epithelium and suprarenals resulted; though with continued injection of cobalt chloride there is evidence of marrow hypoplasia, disappearance of extramedullary erythroplastic foci, and a lowered phagocytic activity of the reticulo-endothelial elements of the spleen and liver.


A specialized manufacturing industry is responsible for the supply of much of the tungsten, molybdenum and tungsten-molybdenum wire and rod used in the electrical and radio industries. The process of heat-treating these metal products involves the use of the metal mercury and introduces the occupational hazard of mercurialism. Three cases occurring in this industry are reported. The patients complained of tremor of the hands, pain and numbness of the upper extremities, painful gums and in one instance gingivitis. One had been employed in contact with the mercury for 8 years, the other two for 6 months respectively. The urine of one of the men showed a trace of mercury by the dithizone method. Engineering attempts to prevent the disease actually raised its incidence; forced circulation of air through the department increased the vaporization of mercury, subjecting the workmen to greater exposure than before air-conditioning the room. Prevention and collection of spillage, ventilation to ensure a minimum concentration in the atmosphere, and housing of apparatus within forcibly exhausted hoods, together with supervised personal hygiene, are the most important preventive measures. In treatment, removal from exposure is the first essential. Dental care is important in all showing gingivits and stomatitis. The prognosis of the nervous symptoms is unfavourable.


Twenty dogs were given intravenous injections of uranyl nitrate (0.5 mg./kg.), and following this received daily intravenous injections of triosidium citrate (0.33 ml./ kg.) saturated solution—five dogs each for 10 days, five starting simultaneously and five after 17 hours—all survived. Of five starting after 17 hours and continuing for 5 days, four survived; and of five starting after 67 hours, continuing for 5 days, all survived. The average rise in plasma N.P. after 7 days was to 180 mg./100 ml., whereas the urine was less than 2 mg./100 ml. The same time to 5 per cent. eliminated after 2 hours. The clinical condition of the dogs was good throughout. The kidneys of the dog that died on the twelfth day showed considerable evidence of regeneration. Blood revealed that by the third week two-thirds of the damaged tubules were lined by newly formed flattened epithelium, and 9 months after the injection normal broad columnar epithelium was present in the majority of the tubules. It is suggested that sodium citrate supplies ions or molecules that keep the vital 'citric acid cycle' of carbohydrate metabolism going while recovery takes place.
Studies on Heavy Metal Poisoning. I. The Use of Natural Radio-activity for Tracer Studies on Uranium. 


The alpha particle activity of standard dilutions of uranium in blood plasma and in urine—blood plasma was determined, and the uranium content of the unknown samples was calculated from these calibration curves. Two adult dogs fed on regular kennel diet received an intravenous injection of uranyl nitrate (5 mg./kg.) as well as daily intravenous injections of a saturated solution of sodium citrate (0·33 ml./kg.) for 5 days before and 5 days after the injection; and two similar dogs were given uranium but no sodium citrate. At the end of 4 hours radio-activity in the blood stream was minimal, and by the end of 24 hours the count had returned to background level in all four dogs. The average amount of uranium passed in the urine in 24 hours was 65 per cent. The two dogs which did not receive citrate wash before and 9th day test, while the two dogs which did not receive citrate injections were both alive 12 months after the uranium injections. No satisfactory data were obtained to explain the manner in which sodium citrate protects against a lethal dose of uranium nitrate.

Hygiene of Workshops handling Glass Fibre. 
CHAPHEX, J. (1945). 
Arch. Mal. profess., 6, 91.

During the last 10 years glass fibre has been used in France as an insulating material because of its heat-resistance, to a large extent replaced asbestos. Symptoms such as skin irritation and erythema, blepharitis and irritation of the nose and throat have been produced mechanically; but, so far, in a group of workers observed for a period of 6 months, no pulmonary changes have occurred. X-ray changes, however, could hardly be expected until many years had elapsed. Catching the glass dust at the level of the workshop without protective clothing in the workshop will complete change of clothing before and after work, and the wearing of tightly woven clothing to stop the penetration of the glass fibre are the preventive measures recommended. Shower-baths should be provided so that the workers can wash before and after work. Soothing ointments should be applied before and after work to the exposed parts of the body. Eating in the workshop should be prohibited.

What is wrong with Workmen's Compensation. 
SIMON, R. S. (1945). 

Modern accident insurance should provide centralized treatment for rehabilitation and re-education for industrial injuries. Adequate compensation for accidents should be automatically related to the injured man’s earnings; loss of earning capacity expressed in percentage should constitute the basis of all compensation. Lump-sum payments should be made for minor accidents. Men rendered helpless should have additional compensation. A medical board should be the final authority for the assessment of loss of working capacity; and one expert judge supported by a medical referee should be in charge of the workmen’s compensation cases.

Roentgenology of the Massive Conglomerate Lesions of Silicosis. 
Amer. Rev. Tuberc., 51, 527.

The author claims that it is possible to recognize a massive shadow caused by silicosis in the absence of the occupational history and typical nodulation. The lesions are subapical or subclavicular, and almost invariably bilateral with a tendency to symmetry. There is a clear zone of emphysema separating them from the hilar or clavicular area, and they are invariably present in the rest of the lung fields. The position of the lesions is usually longitudinal and may lie at right angles to the ribs. The lesion in the separate lung fields tend to similar density, and often fibrous strands radiate outwards from the lesions. Diaphragmatic deformities are frequent, and limitation of diaphragmatic motion is common. The trachea is usually in the midline.

Methyl Alcohol Poisoning. 
KAPLAN, A., and LEVRAULT, G. V. (1945). 

Forty-two cases of poisoning are reported. Methyl alcohol was found in Japanese fuel drums and was drunk in fruit juices. Thirteen of the victims died. Most of them consumed between 4 and 8 oz. Nineteen patients had mild symptoms consisting of blurring of vision, moderate headache, nausea, and vomiting. Thirteen patients with moderate symptoms complained of blurring and failing vision, epigastric distress, vomiting, hiccup, dyspnoea and drowsiness. Memory defects and mental confusion were present in all. Eight with severe symptoms showed coma, cyanosis of the upper portion of the chest, face and finger-tips, cold moist clammy skin, dilated fixed pupils, slow laboured respiration and rapid thready pulse. All died. It is suggested that the toxic effect is produced by oxidation through formaldehyde to formic acid, which has a specific affinity for the central nervous system, particularly the optic nerves and respiratory centre.

Alkali Treatment of Methyl Alcohol Poisoning. 
J. Amer. med. Ass., 130, 61.

For 60 years methyl alcohol has been recognized as a poison causing either death or blindness in a large percentage of cases. Two groups of patients, totalling 31, partook of mixtures containing methyl alcohol and showed clinical evidence of poisoning. Poisoning occurred within 3 hours of admission to hospital, and the rest recovered and were returned to duty. Methyl alcohol is not fully oxidized in the body, but is broken down into formic acid and formaldehyde resulting in a profound acidosis. The diagnosis is usually made on the presence of a toxic state following ingestion of an alcoholic beverage, or other exposure to methyl alcohol, in which impairment of vision exists with dilatation of the pupils. Methyl alcohol and its derivatives can be found in the urine or gastric contents in abnormal amounts. Individual susceptibility to methyl alcohol varies considerably and its action is slow. Post-mortem examination of five fatal cases revealed cerebral oedema, hypostatic pulmonary congestion, fatty infiltration of the liver and passive congestion of all organs. Excellent results were obtained from treatment of 26 cases. Shock and imminent respiratory failure are treated by the administration of nikethamide intravenously and oxygen. Prompt elimination of the acidosis is the essential part of treatment. Sodium lactate molar solution of three chlorides was given intravenously and sodium bicarbonate by mouth. The plasma carbon dioxide combining power determines when the course of alkali will have to be repeated. It is important to keep the eyes covered until all visual and retinal changes have disappeared.

Clinical Investigations of Methyl Alcohol Poisoning, with Special Reference to the Pathogenesis and Treatment of Amblyopia. 
RéE, O. (1943). 
Acta med. scand., 113, 558.

Work on 16 cases of methyl alcohol poisoning is reported. The action of the poison is attributed to the inhibition of oxidation processes by formic acid, which forms a complex compound with iron. The process is followed by an acidosis which is mainly due to lactic acid. Amblyopia does not occur until the acidosis is well established, except in the presence of strong light. Increase of methyl alcohol may provoke or aggravate amblyopia since it increases the acidosis. The oxidation of methyl alcohol is checked by the consumption of
ethyl alcohol, and all signs of poisoning may be averted if it is drunk before or repeatedly after the consumption of methyl alcohol. Treatment consists, first, in counteracting the acidosis by the intravenous injection of isotonic sodium bicarbonate. Copious fluid by mouth combats dehydration and promotes diuresis, and loss of chloride may be counteracted by 5 per cent. glucose in saline. Gastric lavage should not be undertaken until the respiratory depression is stanched. Ethyl alcohol helps to prevent recurrence of acidosis. The eyes require protection against light during the acute stage of the poisoning and if amylobya persists.


A report of 18 cases of poisoning with six deaths from mixing methyl alcohol (intended for use in testing for leaks of Freon gas in refrigerators) with water and fruit juices. The six who died had more than 750 ml. and 12 who lived 90-500 ml. The symptoms were alcoholic intoxication, drowsiness, headache, photophobia, blurring of vision, dyspnoea, nausea, and vomiting within 24 hours. In most patients blurred vision and dyspnoea persisted up to 72 hours. One patient died within 12 hours and five within 48 hours. Ocular abnormalities consisted of various degrees of loss of colour vision, initially green colour sense, and loss of central vision. Most urines were acid and contained albumin, acetone, hyaline and granular casts. The blood contained 1-5 mg. alcohol per 5 ml. Post-mortem findings included cyanosis; intensified post-mortem rigidity; marked emphysema of lungs; subpleural and sub-epicardial haemorrhages; small areas of necrosis of liver; oedema and mucosal congestion of stomach and duodenum; marked swelling of kidneys; oedema, swelling and congestion of brain and pia-arachnoid. The patients were treated with gastric lavage, enemata, magnesium sulphate and repeated intravenous 5 per cent. dextrose in saline and large amounts of sodium bicarbonate, both orally and intravenously. It is suggested that acidosis plays an important part in producing symptoms.


An outbreak of poisoning affecting 62 airmen who had drunk a mixture of 6 oz. of dehydrated lemon powder and 46 oz. of canned grapefruit juice in 8 gallons of water and ice is described. The mixture was made in a metal urn with an internal galvanizing inlining Deniges' reaction for cadmium positive, and the Spacu reaction for cadmium estimated by extinction dilution showed 20 mg. per 100 ml.; 2.4 ml. N/10 NaOH was required to neutralize 5 of the mixture; the high acidity of the mixture was responsible for solution of the cadmium from the galvanized vessel. Symptoms developed 15 minutes to 1 hour after taking the drink. They consisted of severe vomiting, acute colicky abdominal pain, and diarrhoea. Syncope occurred, many lying on the ground helpless, pale and sweating. Diarrhoea and vomiting lasted up to 3 hours, and sometimes the chloride depletion caused cramps in the gastrocnemius. Of the 62 men, 42 had fully recovered within 48 hours. The actual amount of metal imbibed by each man was 56 mg. Morphine to combat shock and a generous fluid intake combined with sodium chloride tablets was the successful treatment.


A statistical inquiry into the frequency of absences lasting less than 4 days and its relation to the total frequency. The absences of male workers in a public utility over a period of 10 years were investigated. The high total frequency which always occurs in the first quarter of each year (52 per cent.) is associated with relatively few absences of less than 4 days; whereas there is a relatively high proportion (62 per cent.) of such absences in the low total frequency of the third quarter. The corresponding figures for the respiratory diseases were 51 per cent. and 64 per cent.; the elimination of the non-respiratory respiratory disease, and Staphylococcus, shows that the proportions for all sickness. The effect of the winter months on absence frequency is well known; but it is shown that the periodic increase in frequency is not evenly distributed, but is less evident among the short-term absences.


An account of three cases of poisoning occurring in a plant. The extinguishers later being filled. The fire extinguishers were either pure methyl bromide or a mixture of 20 per cent. carbon tetrachloride and 80 per cent. methyl bromide. There were two exhaust hoods where the filling was being done. The atmospheric concentrations at breathing level in front of hood No. 1 were 0.79 and 0.63 p.p.m. and 0.45 p.p.m. in the general atmosphere of the room. These were considered to be low; tests were repeated, and concentrations in front of No. 1 hood were found to be 385 p.p.m., 390 p.p.m. and 297 p.p.m., in front of No. 2 191 p.p.m., and in the general atmosphere 0.2 p.p.m. and 114 p.p.m. The patients had the usual symptoms of methyl poisoning, the blood bromides being 211 mg. and 55 mg. per 100 ml. Improvements in the ventilation, periodical air sampling to verify the efficiency of the new system, and frequent medical examinations of the workers employed in the filling-room prevented further cases.


The first recorded case of drowning in gasoline with a detailed autopsy report. The worker is presumed to have been overcome by fumes and fallen into the bilge of a tanker. Ten to 16 hours later the skin showed no necrosis; the epidermis would desquamate to the touch; this constituted a chemical burn. The lungs were heavy and congested and the larger air passages were denuded of epithelium. Little gasoline had been swallowed.


A questionnaire sent to 398 firms employing 1,000,000 workers revealed that one-eyed workers are to be found in all types of industry, even those requiring close work; their efficiency and accident records are satisfactory. Those who lost an eye in childhood are not handicapped even when doing clerical work, precision engineering, or working on scaffolding. Present statutory examination and eyesight tests in juveniles will cause difficulties for the one-eyed in selecting a trade.

A study of those who lose an eye as adults shows that most did so whilst in mining or heavy industries while hammering, chipping, etc. Adjustment to monocular vision, especially depth and distance judging, is quickest in the intelligent and experienced, e.g. engine drivers, and in the young; women are very slow to become adjusted. Loss of the dominant eye, which in 72 per cent. of people is the right, causes the greater disability.

The time needed before returning to work should be 2-3 months. Many men, however, stay away 6-10 months, owing to lack of confidence and fear of losing the other eye, to compensation and litigation difficulties or to the unwillingness of firms to employ the one-eyed. But welfare and safety departments report that, after the initial stages, they are as efficient.
as two-eyed people and no more prone to accidents. The under-confident need simple exercises and training. Subsequent choice of employment should depend on the vision of the remaining eye, and the job should not involve the risk to this eye. Close work is possible for those with 6/6 or 6/9 vision, but undesirable at 6/12 or below. It is reasonably safe for the one-eyed to drive vehicles.


Based on the expenditure in one year (1942-3) of a hospital Personnel Health Service covering 850 employees. Estimated operating costs are under various headings. Firstly, salaries for two nurses, secretary, three part-time medical officers, and fees for consultants totalled approximately $10,000. Secondly, laboratory and x-ray facilities consumed $4,103 this included $48 x-ray examinations at $4 each, 714 being of the chest. Thirdly, an estimate of 10 per cent. on the original cost of buildings and equipment is $150, while expenditure supply cost $180 and drugs $284. The total of $13,455 constitutes a cost of $16 per capita, or $2.50 much more than for plant health services in industry, though the service is far more comprehensive. Further, the loss to the hospital in maintaining sick employees in was $37,000, after various contributory schemes had operated. Sickness absence, which implies lost working days and the engaging of outside help, was estimated to cost a further $800 covering $300 lost days. The overall cost of the service was therefore about $23,000, or $27 per head, which justifies it economically.


Methyl bromide boils at 4-5° C, and forms a gas 3-5 times heavier than air. It is effective for extinguishing petroleum and electrical fires, and is used as a refrigerant, as a delousing agent and as an insecticide fumigant. Forty minutes exposure to the vapour in a closed room has caused deaths in 12 deaths. The symptoms of contact with methyl bromide are vesication of the skin, reddening of the eyes, coroidal symptoms and cough following inhalation, and ocular and dyspeptic symptoms with a perceptible smell, and smell as of burnt rubber. Protracted exposure leads to weakness and ataxia of the arms and legs, drowsiness and twitching movements, at which stage the danger point has been reached. The next sequel is paraesthesia, convulsion and death in coma. Patients who recover may be mentally slow and subject to muscular twitches. Two cases were described. One man was a fire extinguisher who died in coma and who had a high serum bromide level (211 mg. per 100 ml.) and whose brain showed multiple haemorrhages; the other survived after exhibiting ataxia, slow cerebration and convulsions, and with a serum bromide of 55 mg. per 100 ml.


In order to find the site of loss of protein from the blood capillaries, serum albumin was tagged with the d Dixonium hydroxide of a dye of the trypan blue type. About half the loss was shown to occur at the site of the lesion and the rest widely throughout the body, but particularly in the skeletal muscles and viscera. Search was made for a non-toxic drug able to reach the whole vascular system; capable of preventing arsenicals penetrating from the blood stream into cells, and able to remove them if they have penetrated; and capable of being readily excreted when it has reacted with the arsenical. A detoxicated thiol was therefore sought. The detoxication can be achieved by introducing protein groups such as OH or COOH into the molecule. The most satisfactory compound was the O-glucoside of dihydroxyadenine and was named BAL-intrav. With a lweide dosage, which would normally kill 95 per cent., for rabbits in between 10-45 hours, BAL-intrav would save 50 per cent. if treatment was delayed 60 hours, the loss of 50 per cent. being due to tardy removal of arsenic from intracellular sites. However, a dose of 4 mg. per kilo of BAL, when given with a high dosage (1-15 gm. per kilo) of BAL-intrav reduced the mortality to 25 per cent. A dose of 4 mg. per kilo of BAL produces only transient signs of toxicity and when given without BAL-intrav did not reduce mortality at all. A dose of 100 mg. per kilo given as a single intravenous dose produced no ill-effects in a number of men.
infiltration and appearance of discrete large or small conglomerate nodules scattered throughout both lung fields, and finally by clearing of the lung fields after 1-2 months. Necropsies showed atypical pneumonitis. Striking features in lung tissue sections were large numbers of plasma cells, relative absence of polymorphonuclear infiltration, diffuse pulmonary oedema and haemorrhagic extravasation; fibroblasts with evidence of organization were present. Beryllium present in the lung varied between 6.20 and 1.89 mg per 10 gm of dry tissue. Elimination of fumes and dusts at all stations is necessary to control the disease.


The outlook in generalized tetanus is always grave and it is disappointing to see the failure of large doses of penicillin therapy once the eruption has developed. The potential value of penicillin in the management of 16 cases of established tetanus was explored. All patients received antitetanic serum intravenously or intramuscularly as soon as the diagnosis was possible, and would have received a million or more units of penicillin if they had lived long enough. There were 10 deaths and 6 recoveries, giving a mortality rate of 62.5 per cent. Nine of the 13 patients treated with penicillin died. Analysis of the deaths re-emphasizes the relationship of high mortality rate and short incubation period. Clinical study of the 16 cases failed to show evidence of any benefit from penicillin on the course of the disease. There was no obvious fall in the temperature or pulse rate, no decrease in mortality or morbidity, nor any definite decrease in the severity, duration and frequency of the convulsive seizures. Improvement may occur if tetanus is complicated by pneumonia or other infections susceptible to penicillin.

The failure of penicillin to alter appreciably the course of established tetanus re-emphasizes several very important concepts: (1) that the length of the incubation period is the most important single prognostic sign; (2) that the essential primary cause of the disease is a bacterial toxin; (3) that successful management depends not on early diagnosis during the prodromal period, immediate neutralization by specific serotherapy of all existing free toxin in the body, removal of the source of toxin, control of the convulsive seizures, control of the attacks of respiratory arrest and the administration of general supportive measures.


Diseases of the skin comprise 65 per cent. of all occupational disease. There is, however, surprisingly little material indicating the actual amount of disability that occurs in these cases, the expense in terms of compensation paid or the medical costs involved. A large number of workers with occupational dermatitis have no disability, or disability for an extremely short period, but there also occur long-drawn-out disabilities that are extremely costly. Figures are given on duration of disability, wages lost, medical expenses and compensation paid which, though incomplete, are impressive enough to warrant more attention. It is not generally realized in what a high percentage of the cutaneous cases seen by the average physician a causal occupational factor arises, and if all persons, including housewives, were considered, an occupational factor would need to be considered in 15-20 per cent of cases. Criteria for diagnosis are given and difficulties discussed. The type of disability that results from cutaneous disease is varied and its duration has many contributory factors such as cumulative features in lung tissue sections were large numbers of plasma cells, relative absence of polymorphonuclear infiltration, diffuse pulmonary oedema and haemorrhagic extravasation; fibroblasts with evidence of organization were present. Beryllium present in the lung varied between 6.20 and 1.89 mg per 10 gm. Elimination of fumes and dusts at all stations is necessary to control the disease. A further study should be made to ascertain the actual amount of loss incurred from occupational dermatoses.


Tradesmen working with sprays of varnish, lacquer and shellac may inhale finely divided particles of these diminishing substances. An accident occurred aged 59 who had been exposed to these and wood dust for many years in a furniture factory. He complained of a chronic non-productive cough, tiredness and weakness for several years, dyspnoea for 9 months, and loss of weight. The necropsy demonstrated chronic diffuse exudate and indurative pneumonia in both lungs, while the characters of the solid lung and a small deposit of fibrin on the visceral pleura suggested a lipid pneumonia. Ethyl alcohol and ether extraction of the lungs yielded large amounts of a viscid material like shellac dissolved in an oil medium. This material injected into the trachea of rabbits caused necrosis and marked exudative and fibroplastic inflammation of the lungs.


An outbreak of keratitis occurred among 75 girls in a factory making army raincoats. The operation which caused the trouble consisted in cutting the goods, stitching the buttonholes, and cementing the sleeves, collars and pockets in place. In the cementing process polyvinyl butyral resin paste and butanol were used. The butanol vapor concentration was as high as from 1 to 10 per cent. Twenty-eight workers were observed to have corneal changes, and 19 complained of ocular irritation, foreign body sensation, epiphora, and burning of the eyes; the symptoms were worst on awakening in the morning. Blurring of vision, itching, and swelling of the lids also occurred. Both eyes were affected almost symmetrically. The changes were best seen by slit-lamp microscopy, and consisted of clear vacuoles, of diameter 0.5 mm, studded through the most superficial layers of the cornea. There were often as many as 1000. After removal from work for a week the number might be reduced to 100. They recur within a few days after return to work. Exposure of mice, guinea-pigs, rabbits, and dogs to the vapour of butanol or of mixtures of butanol, diacetone alcohol and denatured alcohol was uniformly unsuccessful in reproducing the condition seen in human beings.


Methyl bromide is extensively used as a fire extinguisher and in agriculture, and in homes as an insecticide. In a factory there have been 13 cases of methyl bromide poisoning, and in one incident 7 cases occurred, of which died at home and one in hospital. In the premonitory stage dysarthria and painful hyperesthesia to sound are characteristic symptoms, while in the chronic stage ataxia of the upper limbs and myoclonic tremors of the first three fingers of the right hand are characteristic. The usual symptoms, such as vertigo, head pains and pseudo-drunkenness also occurred, but it is always several hours after leaving the factory before the symptoms developed. This latent period renders the gas more dangerous since the operator does not realize what has happened. It is, therefore, all the more important that these workshops should have adequate ventilation. Methyl bromide should not be sold to the general public, but only to those specialized in the use of it. This particularly applies to its use in the disinfection of houses, where it is important to ensure that pockets of gas do not remain below the windows.
ABSTRACTS


A review of the recent literature of the subject, without references, stressing that while short exposure results in hyperplasia, prolonged exposure causes hypoplasia of the bone marrow.


The purpose is to control plant working conditions, so that an optimum environment may be provided for the worker; an environment in which he can work with safety, and under conditions that are detrimental to his health. Industrial hygiene includes plant sanitation, illumination, ventilation, safety provisions and control of occupational disease. The health of workers must also be taken care of by general medical supervision and by the prevention of physical defects. Finally the worker must be restored to health and earning capacity as promptly as possible following accident or disease.


Physical conditions such as ventilation, heating, lighting, sanitation, seating and noise are first discussed. Most industrial diseases are caused by dusts, gases, vapours and fumes that have poisonous properties. Silica in coal mines and foundries, limestone as an irritant, lead, arsenic and cadmium, are quoted as examples. Poisonous vapours include carbon monoxide, hydrocyanic acid and mercury vapour. It is stated that 1 mg. of mercury breathed daily over a period of time can cause poisoning. Nitrous fumes, benzene, trichloroethylene, carbon tetrachloride, hydrogen sulphide and arsine are referred to. It is stressed that records are essential. Attention paid to minor illness and complaints can prevent serious outbreaks of occupational sickness.


Bromides act by inhibition in cerebral hemispheres. They are excreted by the kidneys, but are also retained in the body and tend to accumulate. An increased amount of bromide in the blood is essential to a diagnosis of bromide intoxication; some authors put the level at 75 mg. per 100 ml., but it probably is in the order of 150–200 mg. The patient complains of a desire to sleep and has difficulty in concentrating his attention; slurring of speech follows, and later a mild staggering gait develops; finally there is clouding of consciousness and stupor, the patient sometimes being disoriented for a time and incontinent. In bromide psychosis, besides the symptoms above, hallucinations, delusions, excitement, negativism and general disorderly conduct occur. The principal treatment of bromide intoxication is to discontinue the drug.


Organic sulphur compounds give rise to a disagreeable smell and cause irritation of the eyes, and also the upper respiratory tract, and may make work impossible. Tricresyl phosphate is used as a plasticizer in certain varnishes and synthetic rubbers, and if such substances should get into the intestines there is a real risk of toxic manifestations. The author thinks that it is necessary to take all measures to prevent prolonged contact of the hands of workers with tricresyl phosphate.


Experiments with guinea-pigs show that tetly sensitizes by reacting with the recipient's body protein to form an antigen 'picryl protein.' Methods of making 'picryl proteins' in vitro are described, and by means of these it was shown that there is no correlation between these and circulating precipitins. Sensitized animals are shown to exhibit anaphylactic phenomena on intravenous injection of picryl proteins both in vivo and in vitro. Animals were also sensitized by the inhalation of an artificial 'smoke' of tetly, but guinea-pigs could only be weakly sensitized by the injection intradermally of picryl proteins.


Apart from the anaemia noted by most investigators, no changes such as low blood calcium or cholesterol, diminished alkaline reserve, increase of blood potassium or formation of sulphamoglobin have been noted by the above authors in poisoning caused by repeated small doses of carbon disulphide. Examinations were therefore carried out on a dog of 8 kg., which was exposed to 1 mg.–1 cg. of carbon disulphide per litre of air daily. These showed that there was always a fall in red cells, but no marked alteration in number of white cells or in the differential count. Investigations into the blood sulphur and urinary sulphur revealed little variation. Results showed an increase in the total glutathione in the blood—an increase which persists for several days after the end of the exposure.


A study of the comparative sickness records of a group of 100 males who, in a period of 14 years, had at least 10 medical examinations, compared with a non-examined control group. No significant difference existed so far as concerned total incidence and specific causes of illness; but there is evidence that the sickness incidence of the examined group improved materially as compared with the non-examined as the years advanced. Thus for major sicknesses 1975 calendar days for the examined group in the first 7 years compared with 1718 in the non-examined, but 2333 compared with 2799 in the second 7 years. Examination also appeared to reduce the duration of illnesses in a significant amount.


Eight patients developed carbon tetrachloride poisoning; they were employed at an operation where rags saturated with carbon tetrachloride were wired over a hot land-mine. The mine was hot enough to vaporize the carbon tetrachloride, but not hot enough to produce phosgene. The concentration in the atmosphere was probably more than 2000 parts per million. Symptoms included a sense of drunkenness, faintness, dizziness, headache, nausea and vomiting, cough and cramping pain in the abdomen, but all the patients had continued work for 6 hours after exposure. One patient died on the fourth day, sections of her liver showing almost total necrosis, a second patient died on the fourteenth day with a fatal pulmonary haemorrhage, and sections of her liver showed diffuse central necrosis that involved one-third to a half or more of the lobule. The six other patients had an icterus index between 2–7 and 344; and...
two of them showed the typical picture of liver and kidney involvement. The patients were negroes who lived on a protein-deficient diet. All six patients were given metronomic paralysing intravenous injections of the toxin, and of these one of the patients would have died without this treatment, and that the results in this small group of cases are at least suggestive of the clinical value of methionine in certain types of liver damage.


Rats were exposed to ingestion, corneal instillations, subcutaneous injections and skin applications of commercial chlorinated diphenyl in doses varying from 17 to 1380 mg., sometimes single and sometimes repeated at regular intervals; guinea-pigs were treated by ingestion and skin applications, and rabbits by skin applications. Fatty degeneration and atrophy of the centrolobular cells of the liver were always present in some degree; most liver damage was found in the guinea-pig, less in the rabbit, and least in the rat. Intracellular hyaline bodies were found in the liver of the rat alone, and probably represents further development of the same general type of hyaline degeneration as has been observed with certain azobenzenes. Changes in the skin were essentially those of low-grade irritation, and were histologically similar to those of chlorane in man.


Paper sacks with a rough surface were finished by passing through a wire-stitching machine; this work caused sore finger-tips, and in a period of 6 months 12 women workers reported 192 times to the works surgery. The striking feature about the fingers was the absence of the horny layer of the skin; often drops of blood exuded from the finger-tips. A worker accidentally splashed 20-vol. hydrogen peroxide on her fingers and observed that this prevented the sore. The women now dip their fingers in hydrogen peroxide three times a day, with the result that the same 12 women, in a further period of 6 months, reported only 21 times to the works surgery with sore fingers.


A man and his wife accidentally took trichloresylene instead of medicine. The woman, aged 29, complained of spluttering, irritation in her nose, lacrimation, sneezing and vomiting. There was hammering in her head, her legs got weak and she soon passed into unconsciousness, which persisted for 4 hours. She subsequently had abdominal pain, but no jaundice or albuminuria. The man, aged 47, also complained of headache, nausea, dizziness and vomiting. He did not, at any effects, die for 2 hours, when he became weak in the legs, felt drunk, vomited and passed into unconsciousness. He awoke the next morning feeling 'swimmy' in the head and weak in the legs, and with a dry tongue. He had no other symptoms; no jaundice and no albuminuria.


Parannitrilaine (C6H5N2O2NH2) is used in the preparation of red dyes and extensively in the textile industry. It is a yellow powder derived from acetanilide, and is the most poisonous of the aniline group of dyes. Poisoning results from the inhalation of powder or absorption through the unbroken skin. If the powder is ingested on an empty stomach or after alcohol an acute syndrome may result. Four cases of poisoning are recorded. The symptoms included methaemoglobinemia giving rise to cyanosis and respiratory distress, and a gradually progressive paralysis of the vital bulbar centres which may cause death. Symptoms in the acute condition include progressive weakness, nausea, vomiting and abdominal pain, followed by drowsiness, cold clammy cyanosed skin, and coma. Parannitrilaine by its irritative action causes dermatitis, haematuria, cystitis, and carcinoma of bladder, headache, vertigo, and chronic bronchitis. Treatment consists in combating respiratory embarrassment with oxygen therapy, the intravenous injection of methylene blue, together with the administration of stimulants such as leptazol, nikethamide, strychynine or caffeine sodium benzoate.


Industrial medicine is a project in the prevention of disease, and is the first approach to positive adult health. Whereas the death rate from tuberculosis in Canada is 60-4, in unskilled male workers between 15 and 64 years of age it is 184-9, and in semi-skilled workers 102-1. It is thus readily seen that there is a great reservoir of infection to be uncovered and many unknown cases of tuberculosis to be found and treated by modern methods of case-finding. The stimulus to form an industrial medical service can come from the workpeople themselves, from improved management, and where the industry is big enough a full-time service is best. The next best thing is for smaller industries to operate a joint service; and, finally, where this is impossible a part-time service may be necessary. In the matter of rehabilitation it is now generally conceded that it is to the patient's advantage to go back to his old occupation if this is possible, since most people can do work which they know and for which they are trained with less expenditure of energy than anything which entails a complete change in their life.


With the exception of silicosis and asbestosis, we are only touching the fringes of knowledge of the pneumoconioses. Abnormal X-ray appearances discovered in workers exposed to dust and fumes do not always signify any present or impending disturbance of health. Fibrosis due to free silica is frequently given the convenient name of classical silicosis, and it is found in such occupations as potter, stonemason and metal-grinder. Pneumoconiosis of coal-miners is defined as dust reticulation. It is really an anthraco-silicosis. The collier has become dust-disease-conscious, so that the radiologist in coal-mining areas is being asked to examine an increasing number of chests. Haematite iron ore is a radio-opaque dust, but by itself is innocuous in the lung. Inorganic dust tends to progress from nodulation to coalescent nodulation; whereas organic dust appears frequently to miss the stage of motting of this type and to progress to bronchiectasis of a massive variety, or, if the cause of infection is removed, the appearance of nodulation may disappear. The x-ray reticulation in miners of this ore shows a very dense radiological shadow, but nodulation without massive fibrosis is a rare condition. Large-sized classical nodulations occur only in the presence of established tuberculosis, and are always associated with solid fibrotic masses. Pathologically, at first there is no stimulation of collagenous fibrosis and practically no increase in the amount of reticulation fibres; later there is tight packing of dust in perivascular localisations, with moderate collagen formation.

The facility with which copper combines with active phosphorus to form copper phosphide has been the basis of most methods of first-aid treatment of persons contaminated with phosphorus. Solutions, however, are currently given to carry. Four per cent. copper salts in sapo mollis B.P. Add. III, was, therefore, successfully used. The damage to tissue by burning phosphorus is thought to be due not only to the heat of combustion but also to the intensely hygroscopic action of phosphorus pentoxide which is the intermediate stage of the change. For this reason a high proportion of water was mixed with the compound. It was also felt that water loosely held in depth over the area by such a compound might act as a better conductor of heat than air. G. R. Cameron and F. Burgess carried out experimental burns and showed that the healing time of wounds was substantially reduced as compared with the standard treatment; and that the substance was much superior to the German CuSO\(_4\) paste.


Fourteen out of 283 men (4-9 per cent.) employed in dust-hazardous occupations for 20 years or more showed evidence of disease; and 18 men out of the whole foundry of 842 were affected. Foundry dusts contain 20-60 per cent. free silica, and counts of from 5 to 10 million particles per cubic metre are dangerous. The men affected included one ladleman, one crane-driver, eleven moulders and five fettlers. The symptoms were slight, but consisted of cough and shortness of breath. Average dust counts were reduced from 15 million particles per cubic metre in 1939 to 5-2 million particles per cubic metre in 1944 by means of: (1) hydroblast installations; (2) 'knock-out' outside the foundry; (3) 'knock-out' by means of a pneumatic vibrator; (4) vacuum-cleaning rafters, etc.; by 3 h.p. vacuum cleaner; (5) mechanical sand-mixing; (6) silica and molasses applied by brush instead of spray; and (7) air-supplied abrasive masks complete with heavy duty hoods.


A study of the circulatory disturbances in the hands of riveters using compressed-air tools. Four riveters and 6 holders-up, being the men with the most severe symptoms in a group of 150 working in the Gotavarken shipyards, were studied. Their symptoms consisted of a sensation of cold, and stiffness, numbness and blanching of the fingers or terminal phalanges. Cold damp weather was a provoking factor. Measurements of the skin temperature in the finger-tips with a rising body temperature were studied, since this method distinguishes spasmodic and structural disorders in the arteries. In 6 of the men the rise in temperature in the finger-tips was delayed, indicating moderate vascular spasm, but in none was it possible to demonstrate any structural disease. In one other man, however, who had had an accident to his hand followed by suppuration, the temperature did not rise normally, indicating a thrombotic process in the arteries of the two fingers. He was advised to give up all work with tools driven by compressed air.


The incidence of industrial dermatitis is greater than any other form of occupational disease, possibly amounting to 65 per cent. of it. Cutting oils may be the most frequent aetiologist, the workers developing folliculitis and comedones, the hands and hairy portions of the arms and thighs being the areas most commonly involved. Histologically, the process consists of a stimulus to form keratin leading to the formation of a keratogenous plug in the follicular opening from which a folliculitis arises. Paraprol consists of urea, lauryl sulpho acetate and benzyl alcohol in an aromatized demulcent base. Urea is an antiseptic, lauryl sulphoacetate is a detergent having the property of lowering surface tension tension while benzyl alcohol is a local anesthetic. Paraprol therefore produces cleanliness, avoidance of irritants and protection of the exposed parts. It was applied in the morning before lunch to be followed by thorough washing, after lunch, and again in the evening to be followed by washing; adequate washing facilities were thus ensured. Three hundred employees exposed to either oils, grease, paints or lacquers reported that a higher degree of protection was afforded than by any other preparation which they had used. The itching was readily allayed and the rash in most instances disappeared in an average of one week. No reactions to the preparation have been observed or reported.


A radioactive tracer is a small quantity of a particular radioactive isotope which is used to trace and tag a chemical or physiological process. In industry the control of exposure to radioactive materials is of great importance, and radioactive properties in measuring the quantities of contamination on benches, floors and hands, besides measuring the amount deposited in the worker's body by the radioactive content of the expired air. Since the permissible level of radon content in the air under working conditions is 1 x 10\(^{-14}\) curies per c.c., the methods are accurate down to low levels of contamination. Other possible fields of use include the incorporation of a tracer in aniline derivatives; the escape of the tracer from the desired confines in the process of its contamination of working locations or personnel could be measured. At present, 4-5 per cent. of workers with aniline dyes develop papillomata of the bladder by either skin absorption or inhalation. This example could be multiplied in fields such as the manufacture of T.N.T., tetryl, photographic reagents, mercury, lead, arsenic, and the benzols. It must of course be carefully controlled. A radioactive toxin must not be substituted for a non-radioactive one. Once a method is devised for the detection in urine routine urinalysis on workers would become a further check on the efficacy of the protection programme in force. In looking to the future the use of radioactive tracers may revolutionize the attainment of safe working conditions. The concept of industrial hygiene is prevention of exposure.


In the United States the compensatability of hernia is decided by law. In Kentucky compensable hernia must follow an injury. It seems, therefore, the safest industrial policy to prevent those who have a history of hernia in their family, have undescended testicle or other tumour in the inguinal canal, have poor developed musculature, are obese, or have large hydroceles, from doing heavy work or productive jobs with power driven machinery; where two of the conditions are found in the same individual he should only be allowed to do seated work. Apart from compensatability the industrial worker is less effective with a hernia. The grounds for restricting employment of those who, on prospective examination, are found to have a hernia must rest on the individual's ability to do certain kinds of work with this physical impairment.

All too frequently physicians view a particular case only from a standpoint of the specialty they practice, and lose sight of the patient as an individual, while others rely almost exclusively on laboratory tests or mechanical aids in making their diagnoses. Often important factors in the emotional side of the patient's life, which may have an effect on his present complaints, are overlooked. Psychosomatic medicine is an essential part of the practice of industrial medicine. To obtain good human relations in an industrial organization, emotional disturbances must be overcome as early as possible, and the earlier the better. Although the emotionally disturbed person is sick, he rarely attempts to see his family doctor, and even if he does, the income is more likely to be sulking a psychiatrist. He just worries about his disturbance or tells his troubles to a sympathetic listener. If there happens to be an understanding factory doctor at his place of employment, he instinctively goes to him. This is an extremely important function of the factory doctor, and it should be recognized as such. The doctor must be aware of the importance of proper job placement for the maladjusted individual. On the other hand it is important not to go so far into psychiatry that some organic disease is missed.

THE HEALTH OF MERCHANT SEAMEN.

A CORRECTION.

To measure with any pretence to accuracy the mortality of merchant seamen is notoriously a very difficult task (vide the Registrar-General's *Occupational Mortality Supplement* for 1930-32), but in contrasting seamen with males otherwise occupied it is regretted that in a leading article in *Industr. Med.* for April 1945 the relative position of the former was, according to the best and latest available figures, made to appear far too unfavourable. The mortality rate of merchant seamen between the ages of 20 and 64 was stated to be "approximately double the standard rate for the same age group, the death rate from tuberculosis among seamen being four times greater than among the general population. According to the Registrar-General's analysis the recorded deaths of merchant seamen at ages 20-64 in the 3 years 1930-32 were 47 per cent. in excess of the deaths that would have occurred at the age-mortality rates of all males. In other words, their death rate from all causes at these ages was, 15 years ago, approximately one and a half times and not double the standard rate. Their excess from tuberculosis (all forms) was almost identical with their excess from all causes of death—namely, 48 per cent. In 1930-32, 1231 such deaths were recorded at ages 20-64, and at the corresponding age rates of all males there would have been 830. Their rate from this cause was, therefore, also one and a half times the rate of the general population of males, and a serious error occurred in referring to it as four times greater. With regard to this disease it was also stated that '17 per cent. of all deaths occurring within a year of leaving the sea was due to tuberculosis.' Apart from the great difficulty of arriving at any such figure accurately, it must be noted that no contrast is available for men leaving other occupations to show whether the figure is, in fact, unduly high. It may, however, be observed that for all males aged 20-64, occupied or unoccupied, in 1930-32, as many as 13 per cent. of the deaths were attributed to tuberculosis.

This leading article arose out of a study by Dr. Jameson Carr in the same issue of health problems in the Merchant Navy. Dr. Carr's discussion of those problems was mainly non-statistical, but where figures do occur the reader should keep in mind the serious difficulties referred to above of measuring the relative mortality of the seaman and in calculating such indices as the proportion of men for whom medical attention is available on board ship.
Abstracts

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