

1921

OCCUPATION HAZARDS AND DIAGNOSTIC SIGNS

A GUIDE FOR MEDICAL EXAMINERS

**Regarding Impairments to be Looked for in
Hazardous Occupations**

(Revised and Enlarged)

METROPOLITAN LIFE INSURANCE COMPANY

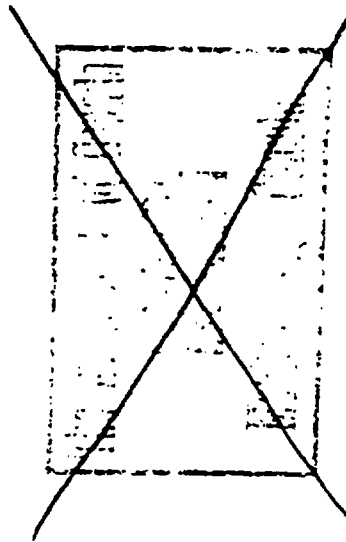
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VF Medical Examiner

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INTRODUCTION

Many occupations have injurious effects on the physical condition of those engaged in them. Those who work with poisons, such as lead, arsenic, mercury, picric acid, etc., or those who have been exposed for a long period to dust, heat or humidity may be impaired seriously as the result of their work. In many cases their condition is not manifest to the doctor. A more careful examination is required to determine whether the occupation has had the anticipated effect. The recognition of the more serious of these effects is important to the Medical Examiner when forming a judgment as to the insurability of the risk.

The Examiner should be careful to see if any of the usual diagnostic signs of poisoning, dust, heat or other hazards are in evidence. In the case of those exposed to lead—such as employees in storage battery plants, white lead workers, paint mixers, etc.—the blue line on the gum, the pale, sallow appearance and the trembling fingers are significant as indications of chronic lead poisoning. Physical symptoms and conditions which ordinarily may be passed by, become important when considered in this way in relation to the particular occupation.

Furthermore, it is often necessary to keep in mind not only the present occupation, but the former one as well. Foremen and supervisors applying for insurance may no longer be exposed to the hazards of their industry, but careful examination may reveal the presence of the effects of the previous occupation from which they have risen. It is hoped that the Examiners will give occupation findings their proper weight in the formation of judgments regarding physical condition.

In this pamphlet we have considered nine hazards of employment, namely: Extreme heat and sudden variations of temperature, compressed air, dampness, dust, extreme light, infections, poor illumination, shock, and the poisons. Long exposure to any of these will usually leave definite physical signs which the Examiner can discover if he will look for them. To aid the Examiner to discover the hazards

ACKNOWLEDGMENTS.

In presenting the second edition of this pamphlet, the Company desires to acknowledge its indebtedness to the members of the medical profession of the United States and Canada who have so courteously received the first effort and who have so enthusiastically cooperated in extending its scope. All works on Industrial Hygiene have been drawn upon in preparing this revision; but special mention should be made of the work and the personal assistance of Drs. R. P. Albaugh, W. I. Clark, Jr., Henry S. Forbes, Alice Hamilton, Emory R. Hayhurst, Yandell Henderson, Clarence H. Kilker, H. R. M. Landis, A. J. Lanza, Carey P. McCord, D. C. Parmenter, Francis D. Patterson, Marvin D. Shie, H. F. Smyth, E. B. Starr, W. Gilman Thompson, and Messrs. Leonard Greenberg and Frederick G. Lange.

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and their effects on the worker, we have prepared two lists below. The first consists of the more common hazardous occupations (pages 4 to 11). The second consists of the hazards together with their effects or symptoms (pages 12 to 30). After each occupation in the first list, we have referred in code to the particular hazard in the second list. The capital letters after each occupation, A, B, C, etc., refer to the general hazard. The Arabic numerals signify the particular hazard, as D 1, Inorganic Dust; D 2, Organic Dust. The following are illustrations:

Guncotton wringers, J 37.

J refers to the general hazard, Poisons; 37 to the particular poison, Nitrous Gases, which cause the following symptoms that can be observed by you: Irritation of air passages, cough, labored respiration, inflammation of the eyes, corrosion of the teeth, erosion and perforation of nasal septum.

Patent leather makers, A 2, J 5, 16, 28, 30, 48, 52.

A and J refer to the general hazards, Abnormalities of Temperature and Poisons respectively; and the Arabic numerals refer to the particular hazard under each. Thus, A 2 refers to Sudden Variations of Temperature; J 5, Amyl Acetate; J 16, Carbon Monoxide; J 28, Lead and Its Compounds; J 30, Methyl Alcohol; J 48, Sulphuric Acid; J 52, Turpentine. The symptoms for each of these hazards are listed in the second column.

The following procedure is therefore recommended. The Medical Examiner, on obtaining the occupation of the applicant, should look for it in the Alphabetical List of Hazardous Occupations below. If found there, he should make special effort to discover the symptoms or signs referred to in the second list.

ALPHABETICAL LIST OF HAZARDOUS OCCUPATIONS

Acetylene makers, D 1, J 4, 16, 43.
 Acid dippers, C, J 10, 22, 26, 37, 48.
 Acid bladders (glass), J 26, 28, 48.
 Acid makers, see particular acid.
 Acid makers, J 26, 37, 48.
 Acid receivers, J 26, 37, 48.
 Airplane wing manufacturers, see also varnishers, J 50.
 Alcohol distillery workers, J 5, 6.

Aldehyde pumpmen, J 1, 30.
 Alkali salt makers, C, J 14, 15, 26, 46, 47.
 Alkali workers, J 26.
 Ammonium salt makers, A 1, J 4, 15, 22, 26, 48.
 Anaphthalene sulphate makers, J 48.
 Aniline dye makers, see dye makers.
 Aniline makers, J 7, 10, 12, 26, 34, 37.
 Animal hair dressers, see hair workers.
 Animal handlers, F 1, 2.
 Anesthetics, A 1.
 Antimony extractors (refiners), A 1, J 8.
 Antimony fluoride extractors, J 27.
 Antipyrin makers, J 31, 49.
 Aqueous makers, A 1, J 9.
 Art glass workers, J 5, 11, 27, 28, 30, 52, 29, 30.
 Artificial flower makers, H, J 9, 21, 28, 29, 30.
 Artificial ice makers, A 2, C, J 4.
 Artificial leather makers, J 7, 9, 12, 37, 48.
 Artificial saws makers, see fertilizer makers.
 Artificial silk makers, C, J 4, 5, 15, 30, 47, 50.
 Asphalt workers, D 1.
 Asphalt loaders, J 16.
 Auto painters, see also painters, C.
 Babbitts, J 28.
 Balcite makers, J 39.
 Balers, A 2, D 2, J 16.
 Balloons (toy) fillers, J 10.
 Barbers, H.
 Bar mill workers (iron and steel), A 1.
 Batching (artificial manure) workers, D 1.
 Batch makers (glass works), see glass makers.
 Batch makers (rubber works), see compounders (rubber).
 Batens (tannery), C, F 1.
 Batters (dry) makers, D 1, J 5, 10, 12, 21, 25, 28, 38, 48.
 Battery (storage) makers, see storage battery makers.
 Battery (vehicle), D 2.
 Beanoil workers (tannery), C, F 1.
 Beaters (paper and pulp), C, J 16.
 Bed rubbers (marble and stone), D 1.
 Bench makers (furniture), D 1, J 12, 28.
 Bessemer stilles, A 1, J 12.
 Bessemer converter workers (iron and steel), A 1.
 Brie silk operators (silk reeling), A 1, J 48.
 Brevellers, D 1.
 Bricksellers, H.
 Brick mill workers (iron and steel), A 1.
 Bricks kiln workers, A 1, D 1, J 16.
 Bricksellers, A 1, E, H, J 14, 16, 22, 28.
 Brass furnace workers, A 1, J 22, 48, 49.
 Brassers, A 2, C, J 17, 18, 21, 27, 37, 46.
 Brassery cloth, A 2, C.
 Brassery dryers, A 2, C.
 Bricks (felt hats), C, J 16.
 Bricks (tannery), J 28.

Blasting mill workers (iron and steel), A 1.
 Blowers (felt hat), D 2, J 29.
 Blowers (glass manufacturing), see glass blowers.
 Blowers-out (silk reeling), A 1, J 12.
 Blowers (refiners), A 1.
 Boiler room workers, A 1, J 11, 16.
 Boiler washers, C.
 Bone-black makers, J 4, 42.
 Bone roasters, J 2.
 Bone workers, D 1.
 Boneblenders, J 9, 29, 30.
 Bottle cap makers, J 28.
 Brass workers, A 1, J 5, 9, 13, 11, 16, 28, 42, 48.
 Brass polishers, J 28.
 Brassers, A 1, J 12, 38.
 Brayers, A 2, C, J 14.
 Brick burners, A 1, J 14, 28.
 Brickmakers, A 1, C, D 1, F 2, J 28, 46.
 Briquet makers, J 49.
 Broilers, D 1, J 4, 5, 9, 10, 11, 12, 12, 25, 28, 30, 47.
 Brown makers, D 2, J 19, 46.
 Browners (sea barrels), J 27, 28, 29, 38.
 Brushers (felt hat), D 2, J 28.
 Brush makers, D 2, F 1, J 28, 30, 49.
 Buffers, D 1, 2, C.
 Buffers (rubber), J 5, 11, 28.
 Burners (enameling), A 1, J 28.
 Burnishers (iron and steel), C, J 8, 48.
 Burnishers (silk barrels), J 8.
 Burners (sealing), D 1.
 Butyl gloves, D 1.
 Butchers, A 2, F 1, 2.
 Button makers, D 1, 2.
 Cable makers, J 28.
 Chain spinners, C, J 16, 28, 47, 52.
 Chain workers, A 2, H, C, J 14.
 Calenderers (rubber), A 2, D 1.
 Call printers, A 2, C, J 7, 9, 10, 16, 31, 22, 26, 38, 30, 36, 40, 52.
 Camphor makers, J 26, 52.
 Candy (colored) makers, J 9, 21.
 Candy makers, A 2, C.
 Caspers, A 2, C, F 2, J 28.
 Cap loaders, J 20.
 Caspers (window glass), A 1.
 Cast-iron makers, A 1, D 1, J 10.
 Cast-iron brush makers, J 12, 26, 48, 48.
 Carbon brush makers, D 1.
 Carbon dioxide makers, J 14.
 Carbon dioxide makers, J 15.
 Carbonizers (shoddy), D 2, J 16, 26, 48.
 Carbons (textile), D 2.
 Card printers (textile), D 1, 2.
 Carpeters, H.
 Carpet makers, D 2, F 1, J 9.
 Carriers (felt hats), J 9, 20, 37.
 Cartridge cup washers, C.
 Cartridge dippers, J 28, 37, 48.
 Cartridge felt and wool makers, C.

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1. *ner* makers, A 1, D 1, J 13, 10.
 2. *ux* workers, D 2.
 3. *ation* mill workers, C D 2.
 4. *ation* workers, D 2, 11.
 5. *transoms* (glass industry), A 1.
 6. *transoms* (iron and steel), A 1.
 7. *transoms* (plaid workers), C.
 8. *trouble* makers, D 1.
 9. *trouble* silk department employees, A 1.
 10. *trouble* makers (clay and stone), D 1.
 11. *trouble* men (foundation), A 1.
 12. *trouble* makers (rubber), see *vacuumers*.
 13. *trouble* makers, D 1, J 9, 11.
 14. *trouble* makers, D 1, J 9, 23.
 15. *trouble* makers, D 1, J 5, 23.
 16. *trouble* makers, A 1, D 1.
 17. *trouble* makers, H.
 18. *trouble* makers (pottery), J 9, 11, 12, 23, 52.
 19. *trouble* makers (fertilizer, leather), J 11, 12, 23.
 20. *trouble* makers, J 29.
 21. *trouble* makers, J 29.
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 23. *trouble* makers (oil bath), D 2, J 29.
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 100. *trouble* makers, J 23.

8

Wood workers, A 2, C
Wood workers, A 2, F 1
Wood workers, are also particular occu-
tation, D 2, F 1
Wing (gunshot), J 37.
X-ray workers, E
Yard makers, J 11.
Zinc chloride makers, J 10, 18, 26.
Zinc electrode makers, J 20.
Zinc miners, are also miners, J 9.
Zinc smelters, A 1, J 12, 16, 28, 46.

Watermakers, G. H.
Water gliders, 729.
Waterproof cloth makers, J 25.
Waxes, D 2, H.
Weavers, D 2, H.
Whippers, I 1, 2.
Whiskers, A 1, E, J 13, 28.
White lead workers, J 14, 28.
Who draws, J 9, 46.
Wholesalers (see also Retail), J 5.
Wood alcohol distillers, J 30.
Wooden millwrights, J 30.
Woodstain makers (see above), I 2.
Wood preservers, J 9, 30, 49.
Wood sawyers, J 21, 28.
Woodworkers, I 2, J 26, 30.
Woodworkers, I 2, F 1.

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HEALTH HAZARDS

Systemic Compaction
Degrading to Long Life

Chlorinated Polyethylene
(Degrading to Long Life)

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Systemic Compaction
Degrading to Long Life

Chlorinated Polyethylene
(Degrading to Long Life)

OCCUPATIONS EXPOSED TO AZ Continued.

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C. DAMPNES

B. COMPRESSED AIR

Weakness, vertigo, pains in the neck and ears, paralysis of the legs, painful constriction of the chest, cerebral hemorrhage, and aphasia, coma, subarachnoid hemorrhage, impairment of hearing.

Chinese workers, Diverse Tunnel workers.

OCCUPATIONS EXPOSED TO C-Continued.

C. DAMPRESS

Discusses of the respiratory	Acid diptera, Alkali salt
passages, moderate and	makers, Artificial ice mak-
rheumatic affections.	ers, Artificial silk makers.

D. DUST

1. Inorganic Dent.

F. INFECTIONS—

Cont'd.

2. Hookworms.
(Ankylostomiasis)

Anemia, pallor of the face even when the blood count is not very low; a dull, heavy, listless expression; faintness, speech, and pain; increasing muscular weakness, occurrence of petechiae in stool. Visible infestation of guinea-intestinal pinworms and eruptions. In congested areas there are edemas, scabies, progressive reactions, prethoracic abscesses and increasing stupor.

3. Septic Infections.

Skin infections such as boils, carbuncles, blood poisoning, localized lymphangitis or cellulitis.

Animal handlers, Butchers, Cannery, Feather workers, Fertilizer makers, Garbage workers, Glass makers, Hair workers, Propagators (cannery), Rag workers, Shavers (left side for, laundry), Shoddy makers, Silk workers, Soap makers, Tallow makers, Tannery workers, Veterinarians, Handlers of poultry or decomposing animal products.

G. POOR ILLUMINATION

Nystagmus, eyestrain, distant vision due to astigmatism or hyperopia, headache, dizziness. Eyestrain contributes to neuroethesia.

Butchers, Benders (iron and steel), Chiseler workers, Compositors, Embroidery workers, Jewelers, Metal polishers, Miners, Photographers, Steel engravers, Tinsmiths, Watchmakers, any factory worker.

H. REPEATED MOTION, PRESSURE, SHOCK, ETC.

Pain of muscle used, set up by a myositis, bruising, sprain, or other local changes of a chronic inflammatory nature; trembling, gradual emaciation and partial paralysis of parts, atrophy of muscles.

Artificial flower makers, Barbers, Bicycleists, Blacksmiths, Carpenters, Chauffeurs, Clocks, Cobblers, Compositors, Cotton twisters, Diamond cutters, Elevator runners, Enamellers, Engravers.

OCCUPATIONS EXPOSED TO H—Continued.

Gold beaters, Hammermen, Jewelers, Knitters, Lathes, Letter setters, Lithographers, Locksmiths, Machineists, Masons, Microscopists, Millers, Miners, Musicians, Painters, Paper box makers, Pavers, Pressmen, Tool workers, Turners, Wiremen, Riveters, Sappers, Sawyers, Seamstresses, Sewing machine operators, Spinners (textiles), Stone cutters (dry), Stone cutters (wet process), Tailors, Triptographers, Typists, Watchmakers, Weavers.

J. POISONS*

1. Acetabdehyde.

Irritation of the mucous membranes of the nose, throat, larynx, and eyes; excoriation of the heart's action, produce night sweats.

Aldehyde purifiers, Cellulose makers, Dye makers, Explosives workers, Mineral solvents, Varnish makers, Vinegar workers.

2. Acridine.

Irritation and inflammation of skin and mucous membranes, severe burning and itching of the skin, violent sneezing.

Dye makers.

3. Acrolein.

Itching in the throat; irritation of the eyes causing lachrymation; conjunctivitis, irritation of the air passages, bronchial catarrh.

Bottle makers, Fat renderers, Galvanizers, Lead makers, Linoleum makers, Linseed oil makers, Soap makers, Sulfuric acid makers, Tallow refiners, Tinners, Varnish makers.

4. Ammonia.

Acute inflammation of the respiratory organs, cough, redness of the face, chronic bronchial catarrh, redness of the eyes, increased retention of saliva, retention of the urine.

Acetylene makers, Ammonium salts makers, Artificial silk makers, Artificial nitrate makers, Bone-black makers, Broomers, Cuke oven workers, Dye makers, Dyers, Galvanizers, Gas (illuminating) workers, Gas purifiers, Glass workers, Mercantiles, Refrigerating plant workers, Salt extractors (cuke area by-product), Sewer workers, Wheel makers, Wood finishers, Soda makers, Sugar refiners, Tinners, Varnish makers.

5. Amyl Acetate.

Nervous symptoms, headache, fullness of the head, giddiness, numbness, nausea, disturbance of digestion, palpitation of the heart, inflammation of the respiratory organs, fatty degeneration of the liver.

Alcohol distillery workers, Art glass workers, Artificial silk makers, Battery (dry) makers, Broomers, Buffers (rubber), Celluloid makers, Cellulose workers, Explosives workers, Furniture polishers, Glycerine, Isocandace, Lamp makers, Jewelers, Lacquer makers, Linoleum makers, Mothers (leather), Patent leather makers, Polishers, Shellac makers, Shoe factory workers, Shoe finishers, Smokeless powder makers, Toy makers, Wires (insulated kinks).

*For the data presented under this heading, the revised and translated "List of Industries and Occupations Exposed to Poisonous and Noxious Substances" compiled by the International Association for Labor Legislation, London, 1913. The arrangement is similar. (See U. S. Bureau of Labor, Bulletin No. 109, May, 1913.)

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I HEALTH HAZARDS	Symptoms, Conditions or Diseases Due To	Causal Agents With Chemical Names
J. POISONS—Cont'd 30. Methyl Alcohol.	Headache, nausea, abdominal cramping resulting in the loss, muscular prostration, loss of consciousness, difficulty in breathing, inflammation of the throat and mucous membrane of the air passages, conjunctivitis, serious affections of the retina and optic nerve resulting in blindness, fatty degeneration of the liver.	Methylene pumpkins, glass workers, Artificial flowers makers, Bookbinders, brewers, Brush makers, Cello violins, Cellulose makers, (synthetic rubber shoes), Fireworks makers, Dry cleaners, Dyers (all base), Dye makers, Explosives workers, Flower workers, Gel lat makers, Filament makers, Fluorescent lamps), Paints (shoes), Hair mixture polishes, Gibbers, Hardeners (of latex), Insulated heat exchangers, Lacquer makers, Ladders (shoes), Linoleum makers, Mittens (leather makers), Pistol makers, Patent leather makers, Petroleum makers, Photographic plates, Polishes, Shellac makers, Shoe factory operatives, Shoe finishers, Soap makers, Stiffeners (felt hats), Stitches (shoes), Tyrocheers Upholsters, Varnish makers, Vulcanizers, Wood alcohol distiller, Woodworkers.
31. Methyl Bromide.	Vertigo, headache, staring look, pallor of the skin, retarded pulse, constriction of the chest, convulsion, excitability, trembling.	Antipyritin makers, Dye makers.
32. Naphtha.	Headache, vertigo, nausea vomiting, dyspepsia, palpitation, depression, pulmonary emphysema, hysteria.	Bromates, Chauffeurs, Dressmakers, Fertilizer, leather dyers, Furniture polishers, Garage workers, Gilders, Metal polish makers, Painters, Petroleum refineries, Plumbers, Rubber workers, Shoe finishers, Waterproof cloth makers, Woodworkers.
33. Nitrosoline.	See Aniline.	Aniline makers, Dye makers, Explosives workers, Furriers, Gun makers, Gunpowder makers, Soda powder makers.
34. Nitrobenzol and other Nitro Compounds of Benzol and Its Homologues.	Federal acid which irritably becomes cyanic, methemoglobin formation, general debility, anemia, presence of hematuria, pyuria, albumen, and excretion free poison in the urine; also in creptures, visual disturbances, drooping, odor of bitter almonds in breath.	

HEALTH HAZARD	STARTING CONCENTRATION OR THREAT TO LIFE DOSE	OCCUPATIONS WHERE OTHER SUBS EXIST
J. POISONS Cont'd		
39. Wood.		
40. Phenyl Hydrazine.		
41. Phosgene.		
42. Phosphorus.		
43. Phosphorated Hydrogen.		
44. Picric Acid.		

HEALTH HAZARDS	SYMPTOM, CONDITION OR DISEASE TO WHICH DUE	OCCUPATIONS WHICH OFTEN HAVE EXPOSURE
J. POISONS—Cont'd.		
35. Nitroglycerin.	Severe headache, vertigo, nausea, paralysis of the muscles of the head and eyes as well as of the lower ex- tremities, cyanosis, reddening of the orotomaxillary barrier in the throat and stomach, disturbances of digestion, trembling, neu- ralgia, cold, retarded ir- ritation and heart action, catheter where under nails and on the finger tips, erup- tions on the pharyngeal aspect of the feet and interdigital spaces, with extreme dry- ness.	Ephraïma workers, Nitro- glycerine workers, Shell fillers.
36. Nitrosophthalates.	See Nitrobenzol.	
37. Nitrous Gases and Nitric Acid.	Irritation of air passages, cough, labored respiration, inflammation of the eyes, corrosion of the teeth, necrosis and perforation of nasal septum.	Acid dippers, Acid miners, Acid recoverers, Acid treat- ment, Amine makers, Artificial leather makers, Bismuth carriers (felt bags), Castings dippers (fel- ted), Colloid makers, Dis-ethyl cuprate makers, Dyers (quintessence), Enamellers, Ex- haustors, Explosive workers. Felt hat makers, Fertilizer makers, Fireproofers, Gal- vanizers, Glass workers, Gunpowder dippers, Gun- shot makers, Insulation plant makers, Ironing mill makers, Jewellers, Lithographers, Miners, Mordants, Nitrators, Nitric acid workers, Nitro- cellulose workers, Photo- engravers, Plaster, Porce- lain makers, Explosives (ac- tual), Soda makers, Steel engravers, Sulphuric acid workers, Toner men (sul- phuric acid), Wringers (ex- haustion).
38. Potassium.	Inflammation of the skin, swelling, suppurating abscess, pyoderma, numbness and irritation of the Edmuni- dian membrane, headache and sensory disturbances, affections of the respiratory organs.	Browners (gas barrels), Feather workers, Furniture polishers, Lampblack mak- ers, Oil distillation plant workers, Oil seed workers, Paraffin workers, Petroleum refiners, Temperers.

HEALTH HAZARDS

SYMPTOM, CONDITION OR DISEASE TO LOOK FOR

OCCUPATIONS WHERE OTHERS ARE EXPOSED

J. POISONS—Cont'd

52. Turpentine.

Irritation of the mucous membrane of the eyes, nose, and upper air passages; cough, bronchitis, inflammation; salivation; edema of the lips, face, and throat; irritation of the kidneys, odor of uric acid in urine, severe irritation of the skin, exanthema and hardening of the epidermis.

Art glass workers, Cable splicers, Calico printers, Caulker makers, Cement-ers (rubber shoes), Decorators (soldier), Dry cleaners, Dye makers, Enamellers, Enamel makers, Feather workers, Furniture polish-ers, Japan makers, Lacquer makers, Linoleum makers, Lithographers, Painters, Paint makers, Patent leather makers, Printers, Rubber workers, Sealing wax mak-ers, Shale makers, Tins-fer makers (pottery), Tur-entine extractors, Varnish makers.

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OCCUPATION HAZARDS AND DIAGNOSTIC SIGNS

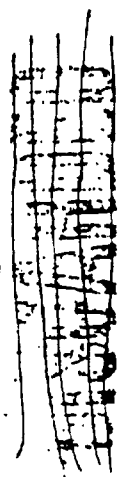
**A GUIDE FOR MEDICAL EXAMINERS
Regarding Impairments to be Looked for in
Hazardous Occupations**

(Revised and Enlarged)

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VF. Medical Examiners

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