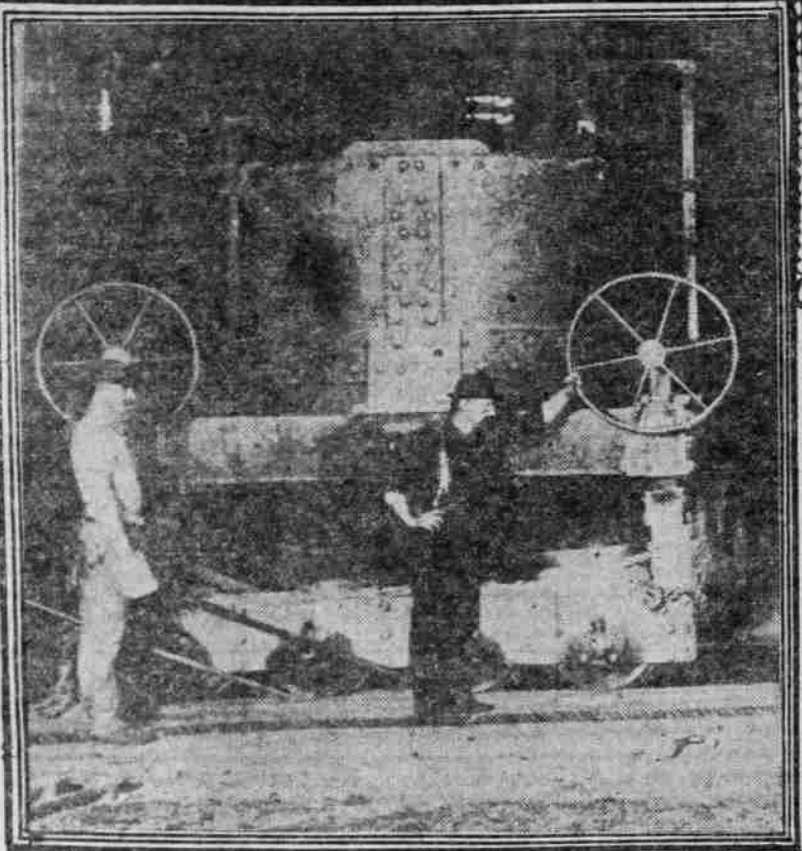


ODD DISEASES CAUSED BY TRADEWORKERS

UNITED STATES BUREAU OF LABOR INVESTIGATING THE RELATION OF OCCUPATION TO HEALTH.



FOUNDERS HAVE ODD TRADE DISEASES.

BY JOHN ELFRETH WATKINS.

Many odd "trade diseases" are being discovered by Dr. George M. Kober, who, for the United States Bureau of Labor, is investigating the relation of occupation to health.

"Brass founders' ague," one of the most interesting of these, is found to attack about three-fourths of the new employees of brass foundries, and of those who resume work after an absence of a month or even a fortnight.

The cause of this malady appears to be the inhalation of metallic dust or vapor of zinc and copper, and its symptoms are severe pains in the back and general lassitude, which send the patient at once to bed, immediately after which he usually suffers a severe chill, lasting 15 minutes or longer. In an hour or less his pulse increases, sometimes to 120, and this is accompanied by a tormenting cough, bad headache and soreness in the chest. But after the lapse of a few hours the victim suddenly breaks out in a free perspiration, indicating the disappearance of the fever and the advent of a deep sleep, from which he awakens nearly recovered. English brass founders in trade to drink freely of milk and thus promote nausea, esteemed as the swiftest means of relief from their ailments.

Quinine Makers Get Eczema.

"Pollishers' itch," an eczema of the hands, arms and face, found to be common among furniture polishers, is supposed to be irritation due to some of the impure alcohols. A similar dry eczema is found to attack the hands and faces of quite a large percentage of those employed in the manufacture of quinine, and is believed to be due to emanations from the boiling solutions of this drug. This peculiar disease of quinine manufacturers disappears as soon as their work is given up. Smelters, especially in copper works, frequently suffer from jaundice, stiffness of the joints and anaemia as the result of inhaling arsenic fumes given off in the process, while it is noticed that mercury workers not only suffer from salivation, but frequently are attacked with nervous trembling. Safety equipment has practically eliminated these dangers from the mirror industry, but they are still pronounced in the manufacture of felt, thermometers, barometers, dry electric batteries and bronzing.

Match factory workers commonly suffer from rapid decay of the teeth, followed by swelling of the neck glands and inflammation of the jaw bones. When white phosphorus was used from 11 to 12 per cent of the employees were thus attacked, but since the red has come into vogue for match manufacture only about 2 per cent are attacked. Those who work long in aniline vapors not infrequently suffer from a chronic poisoning affecting the central nervous system and causing lassitude, headache, roaring in the ears and sometimes eczema, while those attacked by the strong vapors sometimes fall suddenly to the ground, their skin becoming cold and pale, their faces

turning bluish, death following in a state of profound stupor.

Naphtha and Coal Oil Intoxication.

"Naphtha intoxication" is found to disable many employees in the dyeing and cleaning trade and the rubber industry, symptoms resembling those of drunkenness being dizziness, nausea, headache and hysteria. In rubber factories where for vulcanizing naphtha has generally replaced the even more dangerous carbon disulphide, this form of intoxication is suffered especially in rooms where rubber is spread upon cloth. New hands are especially susceptible and even old ones sometimes have to leave their work at times and seek the fresh air for relief. Benzine vapors are quite as dangerous to rubber laborers in a carpet cleaning establishment in which large quantities of benzine were being used were lately found unconscious upon the floor and had to be restored by oxygen inhalation, and the carbon disulphide gas will used sometimes in the rubber industry, but now more especially in the extraction of fats, produce similar symptoms, as well as impaired vision, pain in the limbs and a sensation like the creeping of ants on the skin. Carbonic acid gas, another of these trade dangers, not only occasionally suffocates well sinkers and miners, but is held responsible for a form of anaemia and debility often peculiar to brewers, winemakers, distillers and yeastmakers who inhale it during the processes of fermentation necessary in their trades.

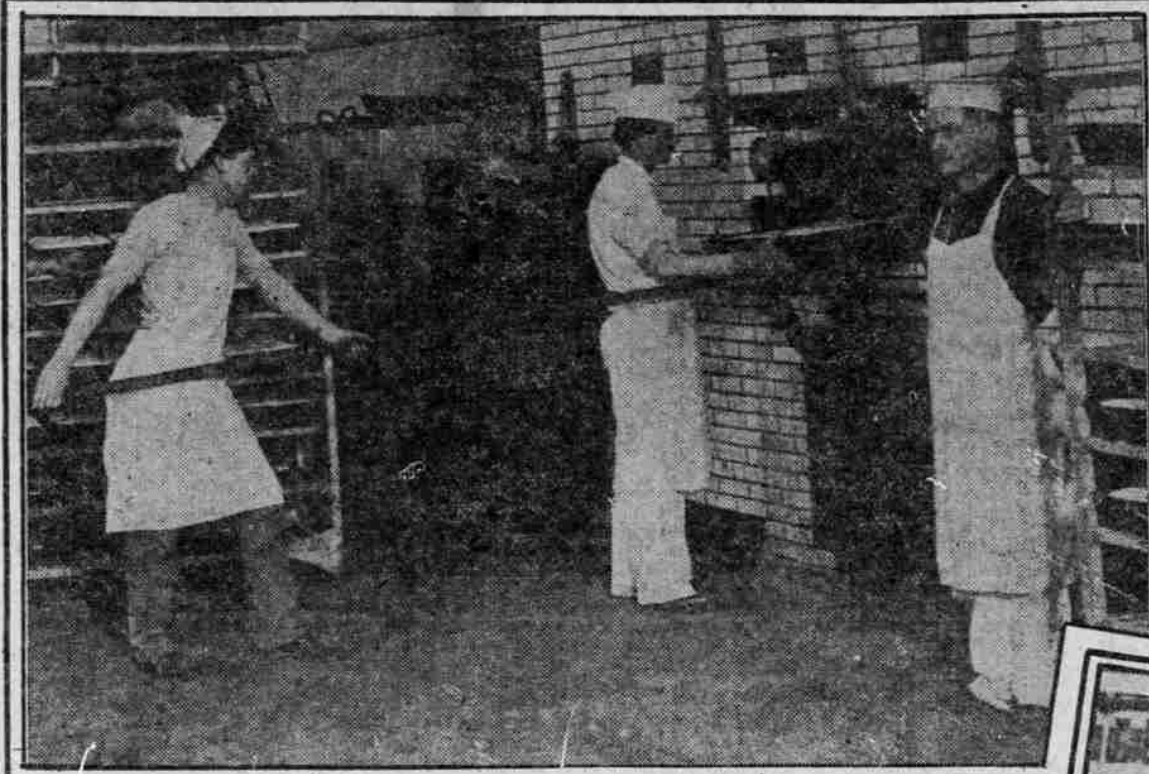
Smelters and employees of gas works or of coke and charcoal furnaces sometimes suffer from chronic coal gas poisoning, whose symptoms are dizziness, slow pulse, anaemia, general debility, etc.

Even coal oil, in its concentrated vapors, sometimes produces in refinery workmen symptoms like those of drunkenness, as well as chronic bronchial catarrh and even asthma, the latter being found to be common among handlers of paraffin oil, creosote and tar. An obstinate eczema of the hands is common also among boiler makers, who are constantly exposed to the vapors of this oil, crude or refined, sometimes produce catarrhs, roaring of the ears and nervousness. Manufacturers of benzine, notably in the manufacture of photography, are discovered to suffer quite frequently from asthma, dizziness and general weakness, the vapors becoming toxic and sometimes causing spasms of the upper windpipe. Brick glazers and bleachers working in chlorine gas fumes often suffer from asthma, bronchitis, rapid decay of the teeth and pimples on the face, while employees of alkali and galvanizing works using hydrochloric acid suffer from sores in the tongue, ulceration of the nose and the throat and even stupor when the fumes become too concentrated.

The "Black Lung" of Coal Miners.

"Black lung" or "coal miners' consumption," in which the lungs become coated with black dust, is suffered especially by those found in the coal mines, but coal miners, charcoal men, firemen and chimney sweeps, exposed to constant inhalation of coal dust and soot, are also frequently found to have this death rate from true consumption, although subject to chronic bronchial catarrh.

"Grinders' asthma" and "grinders' rot" are terms found to be applied to a form of consumption frequent in grinding and polishing departments of the cutlery and tool industry, where dust is inhaled from the metal as well as the grindstones and emery used. Nearly three-fourths of the deaths among the metal grinders of one large German cutlery center were discovered to be due to consumption, and



BAKERS HAVE KNOCK KNEES AND WEAK LUNGS.

in the great cutlery and tool works of Northampton, Mass., the same proportion of death has been found to be due to "grinders," "polishers" or "cutlery" disease of the lungs. Needle polishers and the cutlery also show a high death rate from consumption.

"Stonecutters' consumption," a form of tuberculosis of the lungs, is discovered to be common among stonecutters, especially those operating pneumatic tools, creating clouds of dry dust, that are breathed into the lungs. In this disease, too, the lungs become discolored, but not so dark as in the case of coal miners' saw sharpener's disease. A recent investigation in Germany showed that 86 per cent of the deaths among stonecutters, stonecutters and quarrymen were due to diseases of the lungs. Millstone and slate cutting also are classed by Dr. Kober among "dangerous occupations," as are glass cutting and polishing, where the employees are not protected by the "wet method" now in vogue in Massachusetts. He finds gem finishers to have a higher consumption and sick rate, and workers in marble dust and in working powder to be predisposed to diseases of the respiratory passages. "Siderosis," a lung disease of the knife and saw sharpener's trade, is due to the lodgment of fine particles of steel dust in the lungs.

Green Sweat of Bronze Workers.

The "green sweat" is a peculiar phenomenon found to be manifested by many bronze workers. In a large lithographing establishment boys who, while running souvenir cards through machines which applied bronze powder, wore handkerchiefs over their noses and mouths to prevent the inhalation of this dust, were found to have such green sweat upon their skins and to be pale and otherwise unhealthy looking.

"Lead colic" and "lead palsy" are phases of the so-called "lead habit," an involuntary enslavement due to the inhaling, swallowing, or absorbing through the skin of particles of lead. These trade diseases are characterized in the milder forms by such temporary disorders as lead colic, better known as "painter's colic." In its chronic phase it assumes a peculiar blue lining along the gums, a sweetish taste and diminished saliva in the mouth, loss of feeling in spots on the skin and a dropping of the hand at the wrist, due to local paralysis. These symptoms sometimes attack roasters of lead ore, workers in lead mines, who acetate storage of lead, china, pottery and artificial flowers are made; also painters, plumbers, varnishers, type foundry, type setters, file cutters, glass and gem cutters, storage battery chargers, enamelers, dyers, printers, paper glazers and workers in rubber goods and weighted silk, both of which contain large quantities of lead. In its chronic phase this one of the most dreaded of trade diseases, is known as "plumbism."

That compositors, printers and pressmen breathe considerable dust of lead, arsenic and antimony may partly account for the fact that they show the second highest death rate from consumption in our states where such statistics are registered.



"FATIGUE" NEUROSIIS "IS THE TELEGRAPHERS' DISEASE."

One gram of dust from a type "santa yerba" is a "protection against infective diseases. But the breathing of lint in cotton and linen mills is reported to be injurious to the lungs, the consumption rate of Irish linen mill operatives being nearly three times higher than normal. Dust from wool is considered less irritating, however, than that of flax or cotton. But among the "animal dusts" investigated that of horn is found most irritating than that of bone.

"Rag Man's" Disease.

"Rag man's disease," also called "rag sorters'" and "wool sorters'" disease, proves to be in reality anthrax, the dread scourge of the horse and of other animals, which is transmitted to man by means of infected wool, hide and hair.

Engravers are found to have a low average duration of life, and to be liable to eye defects due to the strained attitudes in which they work and the straining of their eyes over minute objects. Constrained attitudes, interfering with proper breathing and distribution of blood and causing internal congestion, are held responsible also for "weavers' dyspepsia," and various shoemakers', watchmakers', tailors' and lithographers' diseases.

"Bakers' knock knees" and "flat foot" and "varicose veins" are due to their breadmakers' necessary habit of standing too long, but the fact that bakers have a low duration of life is attributed more especially to the fact that, like

among tobacco workers that the dust of "santa yerba" is a "protection against infective diseases. But the breathing of lint in cotton and linen mills is reported to be injurious to the lungs, the consumption rate of Irish linen mill operatives being nearly three times higher than normal. Dust from wool is considered less irritating, however, than that of flax or cotton. But among the "animal dusts" investigated that of horn is found most irritating than that of bone.

Then there is found a horn-blowers' disease, dignified by the name of "emphysema," meaning abnormal collection of air in the lungs. During the Fall campaign there will doubtless be an epidemic of this dread malady, also of paralysis of the vocal chords, the pet ailment of public speakers. Footing Dr. Kober's catalogue of these trade diseases, as compiled thus far are finally "boilermakers' deafness" and "chronic their intoxication," the latter attacking tea tasters, who, while in his throes, suffer from distressing muscular tremblings.

This investigation was desired by Dr. C. P. Nell, the Commissioner of Labor, not as an excuse for uttering an official warning, but as a means of arousing the awakening of popular interest in the need of state legislation affording better protection to workers in the dangerous trades. Considerable progress has already been made by employers, notably Uncle Sam himself, who in his new Government printing office, the largest in the world, has devised a model system of industrial hygiene. This, organized by Dr.



A STONE FINISHER PROTECTED AGAINST BREATHING DUST.



TOO MUCH OF THIS CAUSES EMPHYSEMA.

William J. Manning, includes an excellent emergency hospital for prompt attention to accidents to employees.

The general health of the 4550 printers, compositors and other employees benefit also from the complete changing of the air in each room every ten minutes, and by improved arrangements for the diffusion of poisonous fumes, such as those from the electrotype and stereotype foundries. Private industrial plants are beginning to give their employees greater air space, light and ventilation, but laws are needed to make these reforms everywhere compulsory.

Engineers are also reducing the dangers of the dread "calisson disease" by the more gradual increases and decreases of air pressure in their tunnels, caissons, deep mines and diving bells, while grinders, polishers and other workers in mineral dust are having their lungs better protected by introduction of the "wet process," wherein the article ground or polished is constantly sprayed by jets of water or some arrangement of the kind. In the steel foundries of Massachusetts, which state has taken the lead in these remedial measures, operatives are provided with helmets protecting the eyes, nose and mouth from dust, while in some of the lead works operatives working under spraying apparatus are now required to wear rubber gloves and "respirators" protecting their mouths and noses from harmful dust and fumes. But in many cases where these are supplied, employees refuse to wear them, vanity being often the deterrent, the men wearers being sensitive to the jibes of their more reckless fellow-workers, and the women being, of course, unable to wear anything, even a life preserver, if unbecoming.

Washington, D. C., July 18.

Agriculture Our Unfailing National Resource

By James Withcombe, Director of the National Experiment Station.

OUR Nation is great, not for its size, not altogether for the achievements of its people, but largely for the immensity of its natural wealth. It is our purpose at this time to discuss briefly agriculture, our unfailing national resource. Practically all wealth originates in the soil and the maintenance of soil fertility is the rightful heritage of posterity. While the wealth-producing power of the soil of our country has reached stupendous proportions, yet it falls short of what it is destined to reach. Last year the farms of our Nation yielded crops representing in value \$7,250,000,000. Thirty-six per cent, or \$2,600,000,000, of our people are engaged in agricultural pursuits, and the farm unit of production was \$127.60. The farms of our own state produced last year \$25,000,000. There is 35 per cent of our population engaged in farming for a livelihood, and the unit of production in this state was \$148, much larger than the national average, due evidently to a greater potentiality of the soil and to large holdings of land.

Despite the magnitude of our present agricultural wealth there are great problems confronting the welfare of our Nation, foremost among which is the maintenance of soil fertility so as to support a large population. It is the duty of every American citizen to conserve so far as practicable our natural wealth for the use of generations to follow. The inadequacy of our present production is apparent when we estimate that at the present rate of growth this country will have a population of 130,000,000 less than 20 years hence, and that within 40 years we shall

very probably have to meet the wants of more than 200,000,000 people. This will mean that science must become the handmaid of toil on the farm. Soil robbing must cease and systems of husbandry inaugurated which will rejuvenate the worn-out fields.

Less than two decades since one of the world's most famous scientists deplored the fact that the soil nitrogen of the world would be so exhausted within 60 years that the people all over the land would be crying for bread. This estimate was made after an exhaustive study of the available supply of nitrogen and the prediction based upon the loss resulting from crop production and the complete exhaustion of the nitrate beds in Chile and elsewhere. Fortunately, however, science stepped in and has stayed the progress of this terrible calamity through the discovery that certain plants known as the legumes possessed the ability of appropriating atmospheric nitrogen for their growth and development. Thus the farmer has a simple means of restoring nitrogen to his soil. By growing clover, vetch, alfalfa, peas or other legumes, the science stepped in and has stayed the progress of this terrible calamity through the discovery that certain plants known as the legumes possessed the ability of appropriating atmospheric nitrogen for their growth and development. Thus the farmer has a simple means of restoring nitrogen to his soil. By growing clover, vetch, alfalfa, peas or other legumes, the science stepped in and has stayed the progress of this terrible calamity through the discovery that certain plants known as the legumes possessed the ability of appropriating atmospheric nitrogen for their growth and development. Thus the farmer has a simple means of restoring nitrogen to his soil. 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