

FILE NAME: National Safety Council (NSC)

DATE: 1945 June

DOC#: NSC014

DOCUMENT DESCRIPTION: NSC - National Safety News - Industrial Health



Industrial Health

HIGHLIGHTS IN THE FIELDS OF INDUSTRIAL MEDICINE, HYGIENE, AND NURSING
COMPILED BY FREDERICK S. MALLETT, INDUSTRIAL DIVISION, N.S.C.

Heat and Humidity

From the Journal of Industrial Hygiene and Toxicology, March, 1945.

This study has confirmed the observations previously made that the wet bulb temperature of the environment is the most important factor in determining the upper limits of heat and humidity in which men can work. It adds evidence indicating that the wet bulb temperature determines the severity of many of the physiologic changes induced in men working in such heat. Furthermore, whereas industrial experience has been largely limited to hot environments with high relative humidity, this study indicates that with higher air temperature (up to 120°F) and lowered humidity, the wet bulb temperature is still the major factor in determining whether man can or cannot work. The limiting wet bulb temperatures are quite stable, changing but little over a range of air temperatures from 90°F to 120°F and over relative humidities ranging from 100 to 30 per cent. Thus, simple lines may be added to psychometric charts to indicate conditions of equivalent severity for work in hot environments approaching upper tolerable limits.

The limiting nature of the wet bulb temperature makes this simple determination a useful guide for the management of men working in excessively hot surroundings. The following rules are suggested for environments in which the dry bulb temperature does not exceed 120°F. Healthy acclimatized men will work easily, efficiently and effectively, and without heat casualty when the wet bulb temperature does not exceed 91°F. When the wet bulb temperature is between 91°F and 94°F, they will work with difficulty, inefficiently and often ineffectively. In this range, mild heat casualties may occur. At wet bulb temperatures exceeding 94°F, most men are incapable of sustained effort, those continuing to work being inefficient and ineffective. In this range, a high incidence of heat casualties (often severe) may be expected.

These rules are formulated for nude

men working as described in the study. Clothing probably lowers the environmental upper limit. Nevertheless, these rules may be useful to industry because the rate and continuous nature of the work described imposes a load not likely to be matched in industry and this may balance out an added clothing load. It is of interest to note that the upper limits here described compare with those found in underground work in the Kolar Gold Field Mines.

The duration of exposure to any single environment in this study was short, several days to a week. Therefore; it is not altogether permissible to predict the performance and reactions of men exposed daily for longer periods (months) to the more severe environments described. It was indicated that prolonged exposure might lead to a deterioration of performance. When men work daily in the impossible environments (wet bulb temperature above 94°F), their performance, and particularly their morale and will-to-work, appear to deteriorate with succeeding days.

No such deterioration was evidenced when men worked repeatedly in the relatively easy environments (wet bulb temperature 91°F or less). This is further reason for accepting the line of relatively easy equivalent conditions as the practical and safe upper environmental limit for acclimatized men working in hot surroundings.

Occupational Illnesses in Cotton Industries

From the Journal of Industrial Hygiene and Toxicology, February, 1945.

Allergic individuals may develop a hypersensitivity to the high concentrations of cotton dust associated with some manufacturing processes in the cotton industry. There is apparently a wide variation in the severity of asthmatic attacks that result from this exposure. In the 12 cases studied, none gave evidence of any complicating pulmonary disease, even though in one case the condition had been present for 17 years.

Physical examinations and X-rays were made on employees who had worked in excess of twenty years in the card-rooms of textile miller rooms of cotton seed. Of the 26 cases in this group, no complaints or physical findings pointing to their respiratory systems.

Inquiries into the occupation of all individuals on whom a diagnosis of bronchiectasis (dilatation of bronchi) or emphysema (dilatation of alveoli) had been made at the Tuberculosis Sanitarium failed to find a single case employed in any of the dusty operations of the cotton business.

No evidence was found to even support the existence of byssinosis (cotton dust lung disease) as a distinct entity arising among employees exposed to Upland cotton in a section of that industry in Mississippi.

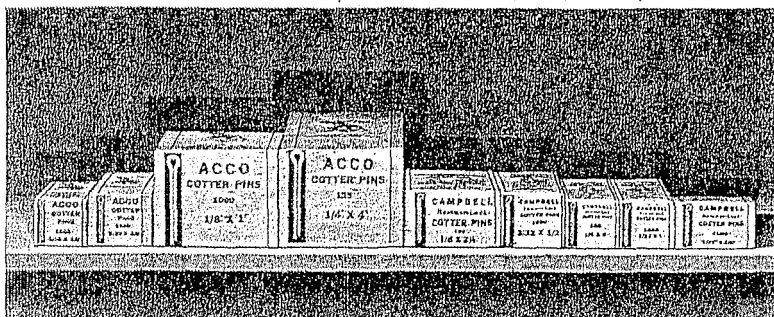
Further Studies on DDT

From Public Health Reports, March, 1945.

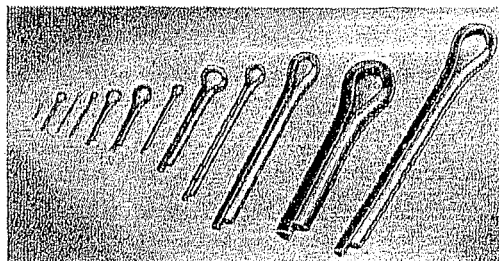
Amazing claims have been made for the new insecticide DDT, known by chemists as 2, 2 Bis (p-Chlorophenyl), 1, 1, 1 Trichlorethane, but because of its indicated toxicity, pharmacological studies by the United States Public Health Service have been expedited to prevent careless use of the compound. It has been shown in previous studies that the substance is quite toxic, its effect is cumulative, that its principal actions are on the central nervous system and the liver, and that the practical usefulness of the compound combined with its toxicity merited thorough search for means of controlling incipient poisoning.

The present reported results are an extension of the previous observations designed to determine more accurately the extent of cumulative action of the compound and the value of the chemical test of organic chlorine determination in detecting early poisoning. Experiments were also made on the influence of certain dietary deficiencies on the chronic toxicity of DDT, on the

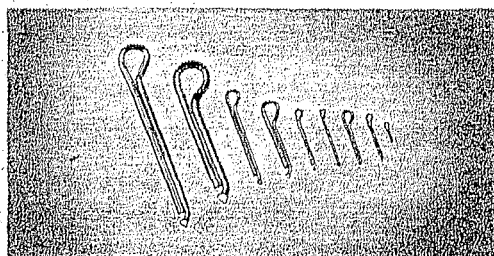
(To page 36)



PACKED IN SUBSTANTIAL BOXES—PLAINLY LABELED AND NUMBERED



ACCO—
REGULAR TYPE



CAMPBELL—
HAMMERLOCK TYPE

Acco and Campbell Cotter Pins

• Acco and Campbell Cotter Pins are doing a first-rate job for many essential industries.

We draw our own wire for these good cotter pins to assure uniformity. Their shanks are parallel—and they close all the way to the shoulder. Users sometimes say a blind man could insert these pins.

Other good features: easy, positive locking—quick removal—cleaned by tumbling—packed in substantial boxes with clear, legible labels and numbers.

In addition to regular materials, both types are available in Monel, stainless steel, brass and bronze. Steel cotter pins may be had in electro-galvanized, cadmium plated and coppered finishes.

ACCO

York, Pa., Boston, Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco, Portland, Bridgeport, Conn.



**AMERICAN CHAIN DIVISION
AMERICAN CHAIN & CABLE**

In Business for Your Safety

INDUSTRIAL HEALTH

(From page 34)

antidotal value of hypnotics in poisoning, and on the condition of the vasomotor and respiratory centers and the central nervous system in the terminal stages of DDT poisoning.

Results indicate considerable difference in the effects produced by administration of DDT. For instance, the rabbit shows severe and irreversible liver damage while the cat shows scarcely any. Possibly the metabolism of this substance is not the same in the two species which possibly counts for the difference. Low protein diet seems to contribute slightly to general toxicity but does not materially alter the susceptibility of the rat to the toxic action of this compound.

Studies on the action of a series of hypnotics and related compounds in acute DDT poisoning in rats indicate good antidotal effects from urethane and to a lesser degree from dilantin.

Pneumoconiosis

From the Journal of the American Medical Association, March 24, 1945

Many other conditions besides silicosis and benign pneumoconiosis produce a similar x-ray appearance of the lungs. Among these are sprue, cancer, Hodgkin's Disease, millary tuberculosis, lipid pneumonia, parasitic and fungus infections of various kinds.

Diagnosing between pneumoconiosis of any variety and any of the other conditions depends largely upon the clinical features of the case, a detailed history to establish or exclude occupational exposure to dust, and a thorough physical examination and appropriate laboratory study.

It is impossible for the x-ray specialist to tell the difference between the nodulation resulting from the active fibrosis produced by free silica in the lung tissues and the shadow of pseudo-nodulation cast by the opaque substance itself in benign pneumoconiosis. Therefore, in order to differentiate between silicosis and benign pneumoconiosis one must have recourse to a much detailed occupational history and, whenever possible, first-hand knowledge of the environmental conditions surrounding the worker. Frequently an industrial hygiene survey of the plant must be made to determine the nature and concentration of the dust to which the employee is exposed.

Advanced silicosis with conglomerate nodulation is often a disabling condition.

801

Yes

—or

When

near

Or

But

diox

met

fluid

system

fire

C

Walter

MEN MOVE *Faster and Safer on* INLAND 4-WAY FLOOR PLATE

WRITE FOR BULLETIN
INLAND STEEL CO.

38 S. Dearborn St., Chicago 3, Ill.

Sales Offices: Cincinnati • Detroit • Kansas City • Milwaukee
New York • St. Louis • St. Paul

ease, and when silicosis is complicated by tuberculosis it is fatal. Asbestosis, when extensive, reduces pulmonary ventilation. This may embarrass the heart and induce cardiac failure.

Benign pneumoconiosis produces nothing but "shadows cast on a roentgenogram."

For these reasons it is unfair to place the burden on the worker, to labor and to industry, to the clinician and the roentgenologist to take their responsibilities when they are called on to distinguish between silicosis or asbestosis on the one hand and benign pneumoconiosis on the other.

Physical Impairment

From "Physical Impairment and Job Performance," Journal of the American Medical Association, April 7, 14, 1943.

This report presents the results of a regular safety study made of job performance of 2,858 physically impaired male and female workers as compared with 5,523 able-bodied male and female workers of similar age, experience, occupational characteristics, and from standpoints of accident experience, production and efficiency, absenteeisms and employment.

The average accident frequency rate for the physically impaired was found to be higher than the average frequency rate for the able-bodied. An examination of a number of accidents in certain defect classes contributed to the finding that the accident frequency rate of the physically impaired group. However, the physically impaired experienced proportionally less severe accidents than the able-bodied.

There is evidence that a psychological element relating to some types of physical impairments plays an important role in causing significant variations of frequency rate among several classes of physical impairment found among impaired workers in a study. Although this psychological element also exists among the able-bodied, it has greater significance among workers with certain types of physical defects from the standpoint of prevention of further impairment by accidents and determining a safe method of absorption of physically impaired workers into certain types of industries without raising overall accident and severity rate or production costs in those industries.

This psychological element in accident proneness cannot be measured or altered either by ordinary interview or by matching physical capacities with qualifications to physical demands of jobs. It can to some extent be detected before employment by means of tests which partially