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ES OF INDUSTRIAL HEALTH

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L. MIDDLETON [BULL. HYG.].

ASITES. G. DECLERCQ, E. BAL-
nière (No. 28/29) 8:3-5, 1955.

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and sweating. The shoulders and
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E. L. COLLIS.

BARSOTTI and L. PARMEGGIANI,

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peribronchial-type reticulation
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markable improvement of the

ABSTRACTS FROM CURRENT LITERATURE

roentgenological picture, but the clinical conditions almost always remain the same. Pulmonary tuberculosis is seldom associated. With regard to occupational insurance in Italy, such disease should be recognized as caused by sulfur dioxide (Item 18 of table dated Nov. 15, 1952); miners would thus profit by manifold benefits, such as being entitled to a compensation in case of permanent disability starting from a 21% decrease of the working capacity; they would be better treated, and, above all, they could get rid of the fear of silicosis which at present is often mistaken for chronic occupational bronchitis. Criteria for forming the differential diagnosis are analyzed, and suggestions are given for prophylaxis and treatment.

FROM THE AUTHORS' SUMMARY.

INCIDENCE AND CHARACTERISTICS OF LUNG CANCER IN ASBESTOS WORKERS. G. JACOB and M. BOHLIG, Arch. Gewerbepath. u. Gewerbehyg. 14:10-28, 1955.

This is a study of the incidence of lung cancer among asbestos workers in Dresden, with numerous references to and analyses of the literature. Cancer of the lung developing in asbestos workers is not recognized as an occupational disease in West or East Germany. The international literature is based exclusively on the results of autopsies; the incidence among asbestos workers appears to vary between 12% and 17%. In Dresden, however, from research into cases at the clinic and among asbestos workers, it appears to be a rare occurrence. It is estimated that only about one-fourth of these workers have an effective exposure to the dust.

In cooperation with the roentgenological and radium institutes the authors reviewed the cases of asbestosis reported since the middle 1930's; they numbered 339 in all stages; in the first stage, O-I, there were 42 women and 61 men; Stage I, 43 women and 74 men; Stage II, 32 women and 61 men; Stage III, 13 women and 17 men. Silicosis was found in eight men. In 5 women and 10 men active, open tuberculosis was found; in this series the incidence of active tuberculosis was 4.4%. Four fatal cases of lung cancer in asbestos workers, which occurred in Dresden up to 1954, are described. The first patient was a woman of 46, who had been employed for three years, when young, as an asbestos weaver; autopsy showed typical asbestosis, with asbestos bodies and with squamous-cell epithelioma of the right middle-lobe bronchus; no metastases were found; the asbestosis was not diagnosed during life, the roentgenological changes in the lungs having been regarded as due to congestion. The second was a man of 49, an asbestos weaver, in whom asbestosis was diagnosed roentgenologically, with a tumor in the left lower lobe and one in the right radius; autopsy showed asbestosis and bronchial adenocarcinoma, with transitional squamous-cell epithelioma in the left lower lobe, metastases, and a caseating tuberculous lesion in the left lower lobe. The third was a woman of 57, who had worked in asbestos, between 1922 and 1930, for three years as a molder and five years as a weaver; she died in 1954; there was a definite asbestosis and a solid, spreading carcinoma of the right upper-lobe bronchus, with infiltration of the lung parenchyma and widespread metastases. The fourth was a man of 66, who was known at the clinic as an asbestosis patient, diagnosed roentgenologically five years before; he had been employed in asbestos as an opener from 1927 to 1930 and as a spinner from 1931 to 1948; autopsy, in 1955, showed a right-side bronchial carcinoma, with widespread metastases in the lymph nodes, liver, and skeleton.

A long discussion of the literature on cancer among asbestos workers includes an examination of the characteristics of the disease; the duration of exposure to asbestos dust and the latent period between exposure and diagnosis of cancer; the localization of the tumor, characteristically in the lower lobes; the histological nature of the tumors, the cell types and structure, and the statistical evidence. These characteristics are no longer convincing evidence of a high incidence of cancer in asbestosis. In the future, cases of cancer of the lung in asbestosis should not be published individually but should always be considered in the framework of the whole asbestos industry in the region.

E. L. MIDDLETON [BULL. HYG.].

SPONTANEOUS FISSURING IN JOINTS IN CAISSON WORKERS. P. DÉAK, I. RÓZSAHEGYI, and J. DÉVAL, Acta med. Acad. sc. hung. 8:125-131, 1955.

In the course of the medical investigation of 195 caisson workers, most of whom were healthy young men between 25 and 30 years of age, x-ray examinations of the knee joints were also made. In 25 of these x-ray pictures taken in the anteroposterior position, sickle-shaped translucent streaks were seen between the mesial condyles of the tibia and femur, following the contour of the femoral condyle. In some instances, instead of a continuous streak, a few tiny, pearly, translucent areas were noted. These appearances are considered to be caused by

ES OF INDUSTRIAL HEALTH

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E. L. COLLIS.

GANESE, J. RODIER, Arch. mal. profess.

fect, if possible, definite changes at an ate that poisoning was starting before on of how advanced were the clinical causing the toxemia.) No important d, but the phenolsulfonphthalein test hepatic function was hardly modified. ny definite result. Tests of endocrine e was a diminution of the elimination The blood picture showed a definite blood cells was also present in 44%. nical signs in speech and gait, should etabolism, and in the elimination of

E. L. COLLIS.

SIS. A. POLICARD and A. COLLET,

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the surface of coal particles. The in undetermined. Their occurrence equency of processes of absorption individual miner.

E. L. COLLIS.

ION AT THE BEGINNING OF 1955. t d'Hygiène des Mines 10:17

information regarding dust sup- in an appendix. The information ey tell how dust control is being nd, by wet drilling, by capturing ssages or using hygroscopic salt k thereafter is also described. hat, on the whole, improvement be done to bring all dust under

E. L. COLLIS.

NEDIAMINETETRAACETATE. A.

for 45 days with daily 2.5 gm. b excretion, decreased copro- l level in one patient decreased ological values during treatment. d cells and the coproporphyrin ntration had increased, while

[CHEM. ABSTR.]

ABSTRACTS FROM CURRENT LITERATURE

SILICOSIS HAZARD IN THE WORKING OF CLAYS. L. PERETTI and E. OCCELLA, Med. lavoro 45:700-714 (Dec.) 1954.

The joint authors of this paper are teachers of mineralogy and applied geology and of petrography and mining. They discuss the formation, the chemical composition, and the molecular structure of a variety of clays and clay-containing minerals which are used in such industries as brickworks, potteries, foundries and in the manufacture of refractories and of cement. In judging the silicosis hazard of handling such clay materials, their various properties have to be taken into consideration; such are the content of free silica, more particularly the crystalline form, the size of the particles, and their liability to be easily given off and diffused and to be inhaled by those working in the affected atmosphere. The minerals with which the authors are here concerned are sedimentary formations which were derived originally from primary rocks by processes of erosion, transport, and settling, in the course of which they may have acquired an increased content of free silica. The paper discusses various types of mineral concerned and its association with other geological formations, its origin and development, as affecting the original and the final content of free silica.

Because of the fine structure and complex composition of these clay materials, their chemical and petrographic analyses are often not sufficient for an assessment of their likely role in causing silicosis or other pneumoconioses; additional determinations (thermal, x-ray, electro-dialytic, and other techniques) may have to be undertaken.

Clinical and other evidence suggests that the property of free silica of causing fibrosis in the lungs is enhanced when certain hydrosilicates are associated in the atmospheric dust.

J. CAUCHI [BULL. HYG.].

ASBESTOS AND PULMONARY CARCINOMA IN AN ASBESTOS SPINNER: NOTES ON THE INDUCTION OF LUNG CANCER BY ASBESTOS FIBERS. G. ROMBOLÀ, Med. lavoro 46:242-250 (April) 1955.

The first case of pulmonary carcinoma occurring in Italy in a subject affected by slight asbestosis is described. The malignant neoplasia was observed in a woman, 49 years of age, who for 29 years had worked as a spinner in an asbestos factory. The diagnosis formulated in life was confirmed by postmortem examination, the gross and microscopic findings of which are briefly reported. The present clinical, pathological, and statistical knowledge diagnosed on the capacity of asbestos to cause tumors is summarized. A tumor should be diagnosed as occupational in nature only when the statistical data correspond with the experimental researches. While there are many statistical data (though not agreeing for all countries), experimental researches are few and are not concordant. According to the author, a hypothesis should be adopted whereby the capacity of the different types of asbestos to cause tumors would differ according to their chemical composition.

FROM THE AUTHOR'S SUMMARY.

EFFECTS OF OXYGEN INTERMITTENT POSITIVE-PRESSURE BREATHING IN CASES OF SILICOSIS AND IN CASES OF EMPHYSEMA WITH SEVERE RESPIRATORY INSUFFICIENCY. E. SARTORELLI, Med. lavoro 46:411-418 (June-July) 1955.

The effectiveness of the oxygen intermittent positive-pressure breathing was studied experimentally in seven silicotics and in six cases of emphysema with severe arterial anoxemia by means of two devices fitted with tightproof oronasal masks (Bennett's apparatus and Pneophore M.S.A.). Oxygen was given with a spectacle-type nasal catheter for control experiments.

Blood oxygen saturation was measured with the "Cyclops" oximeter during oxygen intermittent positive-pressure breathing and oxygen therapy with nasal catheter.

Experiments have shown that in all patients affected with lung diseases, who during breathing of atmospheric air presented blood oxygen saturation rates varying from 55% to 89% according to the subject, oxygen intermittent positive-pressure breathing with Bennett's apparatus or with the Pneophore gives way to complete disappearance of the arterial anoxemia, while the oxygen therapy by means of nasal catheter, though producing a more or less evident reduction of the arterial anoxemia, has in no case led to increases above 95% of the arterial blood oxygen saturation.

Results obtained show that oxygen intermittent positive-pressure breathing, for its effectiveness in cases of lung diseases with severe respiratory insufficiency, should be preferred to the common oxygen therapy with nasal catheter as a method for the administration of oxygen.

FROM THE AUTHOR'S SUMMARY.

regarding the normal blood pictures under varying conditions, no evidence was forthcoming that the changes were affected by the low concentration of the benzene products in the workshop air.

E. L. COLLIS.

STUDY OF BIOLOGICAL CHANGES IN POISONING BY MANGANESE. J. RODIER, Arch. mal. profess. 16:435-442, 1955.

A study was made of 151 cases of manganism to detect, if possible, definite changes at an early stage of poisoning, which could be used to indicate that poisoning was starting before serious progress had taken place. (No indication is given of how advanced were the clinical symptoms of toxemia or of the extent of the exposure causing the toxemia.) No important interference with the function of the kidney was found, but the phenolsulfonphthalein test indicated retention in 40% of the patients. Similarly the hepatic function was hardly modified. A number of other diverse tests were applied without any definite result. Tests of endocrine function were more profitable. In 80% of the patients there was a diminution of the elimination of 17-ketosteroids, with an increase in basal metabolism. The blood picture showed a definite lymphocytosis in 41% of the cases. A mild increase in the blood cells was also present in 44%. An expert seeking for signs of manganism, apart from clinical signs in speech and gait, should look for alterations in the blood picture, in the basal metabolism, and in the elimination of urinary 17-ketosteroids.

E. L. COLLIS.

CURIOUS ASBESTOSIS BODIES SEEN IN CASES OF ANTHRACOSIS. A. POLICARD and A. COLLET, Arch. mal. profess. 16:460-462, 1955.

The plea is entered that the "curious bodies" seen in the sputum and in the lungs of cases of asbestosis are not only to be seen in that condition; they occur also in anthracosis. These bodies are held to be ferruginous protein deposits upon the broken ends of asbestos fibers. Do such bodies occur in anthracosis; they may be deposited on any part of a coal fiber and not only at an end. Illustrations of such deposits are shown in photomicrographs.

The bodies are deposits upon submicroscopic defects in the surface of coal particles. The exact chemical nature and mechanism of these deposits remain undetermined. Their occurrence may depend not so much upon the coal particles as upon the frequency of processes of absorption and the constitutional factors of metabolism peculiar to each individual miner.

E. L. COLLIS.

CAMPAIGN AGAINST DUST IN BELGIAN COAL MINES: POSITION AT THE BEGINNING OF 1955. G. DEGEULDERE, Communication 126, Hasselt: Institut d'Hygiène des Mines 10:1 (March 15) 1955.

Colliery companies in Belgium are called upon to render information regarding dust suppression by filling in yearly a form, copy of which is given in an appendix. The information so collected is now published, embodied in a series of tables. They tell how dust control is being advanced by using damp methods when loading coal underground, by wet drilling, by capturing the dust when it is generated dry, by damping underground passages or using hygroscopic sprays on them. The practice regarding shot firing and return to work thereafter is also described.

A report of this kind is prepared every year. It indicates that, on the whole, improvement has taken place, but the point is still stressed that more must be done to bring all dust under safe control.

E. L. COLLIS.

TREATMENT OF LEAD POISONING WITH CALCIUM ETHYLENEDIAMINETETRAACETATE. A. PLETSCHER, Schweiz. med. Wchnschr. 85:128-131, 1955.

Intravenous treatment of two cases of chronic Pb intoxication for 45 days with daily 2.5 gm. doses of Ca ethylenediamine-tetraacetate resulted in increased Pb excretion, decreased coproporphyrin excretion, and an improved blood picture. The Pb blood level in one patient decreased to normal, while in the other it increased from normal to pathological values during treatment. By 18 weeks after the end of treatment, both the number of stippled cells and the coproporphyrin concentration in the urine had again risen. The fecal Pb concentration had increased, while both blood and urine Pb concentrations were normal.

[CHEM. ABSTR.]

SILICOSIS HAZARD IN THE MINE. W. L. BROWN, J. Am. Med. Assoc. 145:700-714, (Dec.) 1954.

The joint authors of this paper are from the field of petrography and mining. They discuss the crystal structure of a variety of minerals found in mines as brickworks, potteries, etc. In judging the silicosis hazard, they have to be taken into consideration the crystalline form, the size of the particles, and to be inhaled by those who work in the mines. The authors are here concerned with the primary rocks by processes of weathering and have acquired an increased concern with the association of silicosis with the dust as affecting the original and the secondary rocks.

Because of the fine structure of the dust particles and petrographic analyses are causing silicosis or other pneumoconiosis (by dialytic, and other techniques).

Clinical and other evidence of the hazard to the lungs is enhanced when the dust is inhaled.

ASBESTOS AND PULMONARY CANCER BY ASBESTOS. W. L. BROWN, J. Am. Med. Assoc. 145:714-718, (Dec.) 1954.

The first case of pulmonary cancer by asbestos is described. The miner who for 29 years had worked in a mine where life was confirmed by postmortem examination. The presence of asbestos in the lungs is briefly reported. The presence of the capacity of asbestos to cause cancer is in nature only when it is inhaled. While there are many statistical researches are few and are not adopted whereby the capacity of asbestos to cause cancer according to their chemical composition.

EFFECTS OF OXYGEN INTERMITTENTLY AND IN CASES OF EMPHYSEMA. W. L. BROWN, Med. lavoro 46:411-418 (1955).

The effectiveness of the oxygen therapy in seven silicotics and means of two devices fitted with the oxygen (M.S.A.). Oxygen was given with the oxygen therapy by means of the arterial anoxemia, has in saturation.

Blood oxygen saturation was maintained by intermittent positive-pressure breathing.

Experiments have shown that the oxygen therapy presented by the subject, oxygen intermitted with the Pncophore gives way to the oxygen therapy by means of the arterial anoxemia, has in saturation.

Results obtained show that the oxygen therapy in cases of lung diseases is common oxygen therapy with the oxygen therapy by means of the arterial anoxemia, has in saturation.

surveys." This is one of the most detailed long-term surveys of tuberculosis in a defined population ever undertaken. In addition to providing information on the relation between coal miners' pneumoconiosis and pulmonary tuberculosis, it should eventually provide us with additional valuable information with regard to the possibility of eradicating tuberculosis in limited population groups.

JOHN PEMBERTON, M.D., Boston.

BERYLLIOSIS: A CASE REPORT. I. B. SNEDDON, Brit. M. J. 1:1448-1450 (June 18) 1955.

Not many cases of berylliosis have been reported in Great Britain. The one here described was in a woman, aged 25, who had worked three and one-half years at a rotary shearing machine trimming metal strip containing 2% beryllium-copper alloy. Although the shearing blade of the machine revolved slowly, fragments were thrown off with jagged edges which caused cuts and scratches on the hands, forearms, and legs. The patient came under notice with numerous linear granulomatous papules on the fingers, palms, forearms, and legs and with a granulomatous wound on the dorsum of the left foot. She also complained of a dry cough and increasing shortness of breath. Slight exertion produced shallow breathing. X-rays of the lung fields showed a generalized, very fine stippling, not so dense as in sarcoidosis. Patch tests with 1% and 2% solutions of beryllium sulfate and beryllium nitrate gave in 48 hours a strongly positive eczematous reaction. During the height of the skin reactions the lung lesions became temporarily more active. After a full consideration of the causation of the lesions seen, the case was held to fulfill all the criteria for a diagnosis of systemic berylliosis.

E. L. COLLIS.

MORTALITY FROM LUNG CANCER IN ASBESTOS WORKERS. RICHARD DOLL, Brit. J. Indust. Med. 12:81-86 (April) 1955.

This study of lung cancer is a statistical study based on 105 consecutive autopsies done on former employees of a large asbestos works. In these 105 autopsies, asbestosis was found to be present in 75 cases, absent in 30. Lung cancer and asbestosis were found associated in 15 cases. In three cases lung cancer was found, but asbestosis was absent.

From Company records it was determined that 113 men had worked for at least 20 years in places where they were liable to be exposed to asbestos dust. Thirty-nine deaths occurred in this group, whereas only 15.4 were expected. Eleven of the excess deaths were attributable to lung cancer, although only 0.8 deaths were to be expected. Other respiratory and cardiovascular diseases caused 22 deaths, with only 7.6 being expected. It is concluded that lung cancer is a specific industrial hazard of certain asbestos workers, and the average risk among men employed 20 or more years is approximately 10 times that experienced by the general population.

SHERMAN S. PINTO, Denver.

PRIMARY LUNG CANCER IN SOUTH WALES COAL-WORKERS WITH PNEUMOCONIOSIS. W. R. L. JAMES, Brit. J. Indust. Med. 12:87-91 (April) 1955.

In autopsies on 1827 South Wales coal miners with pneumoconiosis, lung cancer was found in 5.1% of those with simple pneumoconiosis and in 1.4% of those with the massive fibrosis type of disease. Autopsies on 1531 South Wales men who were nonminers showed lung cancer in 5.4% of the cases. Histological study showed the types of cancers were very similar in both miners and nonminers. Distributions of metastases were also quite similar. The suggestion is made that early death from pneumoconiosis among coal miners may have the effect of reducing the incidence of lung cancer among miners in a coal field such as South Wales.

SHERMAN S. PINTO, Denver.

PULMONARY FIBROSIS IN NON-FERROUS FOUNDRY WORKERS. H. E. HARDING and A. I. G. McLAUGHLIN, Brit. J. Indust. Med. 12:92-99 (April) 1955.

This study is primarily a review of the lung changes found at autopsy in six men who had worked in nonferrous foundries. Chest x-rays taken at a time late in each man's life had suggested the presence of lung changes which were fibrotic in nature. At autopsy these lung changes were found to be either whorled silicotic nodulation, linear or stellate fibrosis, or transitional stages between these two. The occupational histories suggested that silica exposure came from the use of silica parting compounds or from the dust produced by the removal of sand from castings made in sand molds. No figures for the intensity of a possible silica exposure are given.

SHERMAN S. PINTO, Denver.

ABSTRACTS FROM CURRENT

LEPTOSPIRAL SEROLOGY IN SCOTTISH
Brit. J. Indust. Med. 12:100-102 ()

In a Scottish colliery 11 cases of leptospirosis were found among the colliery's 2700 men. To study 201 blood samples were obtained from a group of men who were somewhat reluctant to participate, younger men. One per cent of the group had leptospiral infections. This is compared with 6.9% among New York fish workers.

OCCUPATIONAL DERMATITIS CAUSED BY RUBBER
Brit. J. Indust. Med. 12:169-171 ()

Aseptic operations were performed in rubber gloves which were sealed at the wrists and terminating in rubber gloves were sealed at the wrists. Manipulations within the box. Ethylene glycol was used for purposes and allowed to remain for 18 hours. The rubber gauntlets absorbed enough of the material and arms when they were inserted into the gauntlets during work was found to result in dermatitis.

DISABLING PNEUMOCONIOSIS FROM LIMESTONE DUST
(July) 1955.

Eight cases of pneumoconiosis, five of which were disabling, are described. Three of the men showed severe disease; and one had died of the disease. The disease showed fibrosis, which suggested the a

The mean duration of employment was 10 years. Though no data as to the size, concentration, or appreciable dust exposure is inferred from the analyses of limestone processed by the company. Limestone from the mine in which the disease occurred.

It is concluded that there is a definite hazard in the mining of at least certain limestone by free silica in the limestone dust, and that limestone dust does not appear to inhibit the disease.

INHALATION OF COAL DUST. C. N. SHERMAN

This paper is a summary of the results of experiments. Among the subjects treated are the effects of dust at various distances downwind exposure, deposition and retention of dust in the lungs. Under ordinary conditions at coal dust concentrations (0.28 to 28 mpcf), the healthy lung is able to clear the dust so that concentration the mechanism of permanent working conditions. The results of the exposure would be a better guide.

INCIDENCE AND PREVENTION OF DUST DISEASE
J. Roy. Inst. Pub. Health & Hyg.

Some account is first given of the known causes of dust disease, known is silicosis, caused by inhaling dust, by x-ray shadows and by postmortem examination known to cause trouble differs in the

F INDUSTRIAL HEALTH

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SHERMAN S. PINTO, Denver.

ABSTRACTS FROM CURRENT LITERATURE

LEPTOSPIRAL SEROLOGY IN SCOTTISH COAL-MINERS. R. S. F. ADAM and P. N. EDMUNDS, Brit. J. Indust. Med. 12:100-102 (April) 1955.

In a Scottish colliery 11 cases of leptospiral infection were found during the period 1940-1952 among the colliery's 2700 men. To study the incidence of possible subclinical leptospiral infection, 201 blood samples were obtained from a random group of the colliery employees. The older men were somewhat reluctant to participate, and the samples were somewhat weighted in favor of the younger men. One per cent of the group had serological findings suggestive of unrecognized leptospiral infections. This is compared with 2.1% found among New York sewer workers and 6.9% among New York fish workers.

SHERMAN S. PINTO, Denver.

OCCUPATIONAL DERMATITIS CAUSED BY ETHYLENE OXIDE. A. ROYCE and W. K. S. MOORE, Brit. J. Indust. Med. 12:169-171 (April) 1955.

Aseptic operations were performed in a completely sealed box. Long rubber gauntlets terminating in rubber gloves were sealed in the armholes and provided a means for carrying on manipulations within the box. Ethylene oxide gas was introduced into the box for sterilization purposes and allowed to remain for 18 to 24 hours before being flushed out. It was found that the rubber gauntlets absorbed enough ethylene oxide to cause dermatitis of the operator's hands and arms when they were inserted in the gauntlets. A current of air introduced into the gauntlets during work was found to remove the excess ethylene oxide satisfactorily and prevent dermatitis.

SHERMAN S. PINTO, Denver.

DISABLING PNEUMOCONIOSIS FROM LIMESTONE DUST. A. T. DOIG, Brit. J. Indust. Med. 12:206 (July) 1955.

Eight cases of pneumoconiosis, five in limestone grinders and three in limestone miners, are described. Three of the men showed no disability; three had partial disability; one was totally disabled; and one had died of the disease. In the fatal case histological examination of lung tissue showed fibrosis, which suggested the action of silica alone unmodified by other dusts.

The mean duration of employment in the limestone industry of the eight cases was 26.1 years. Though no data as to the size, concentration, and composition of air-borne dust are given, appreciable dust exposure is inferred from observations of limestone grinding and mining. Recent analyses of limestone processed by grinders indicated a free silica content of 1.8% to 11.5%. Limestone from the mine in which the miners worked had 3.9% to 11.9% free silica.

It is concluded that there is a definite pneumoconiosis hazard associated with the grinding and mining of at least certain limestones, that the lesion produced is almost certainly produced by free silica in the limestone dust, and that the high percentage of calcium carbonate in limestone dust does not appear to inhibit the action of free silica.

K. W. NELSON, Salt Lake City

INHALATION OF COAL DUST. C. N. DAVIES, Colliery Guard. 189:442-445 (Oct.) 1954.

This paper is a summary of the author's lectures given in courses in the United States. Among the subjects treated are the following: travel of dust underground; dust concentrations at various distances downwind expressed as percentage of concentration near the source; deposition and retention of dust in the lungs, and requirements for safe conditions of work. Under ordinary conditions at coal-dust concentrations of 10 to 1000 particles per cubic centimeter (0.28 to 28 mpcf), the healthy lung is equipped to dispose of the dust without danger, but above that concentration the mechanism may eventually break down. X-rays cannot be used to assess permanent working conditions. The examination of lungs of deceased miners with known exposure would be a better guide.

INDUST. HYG. DIGEST.

INCIDENCE AND PREVENTION OF DUST DISEASES IN BRITISH INDUSTRY. A. I. G. McLAUGHLIN, J. Roy. Inst. Pub. Health & Hyg. 18:218-239 (Aug.) 1955.

Some account is first given of the various types of chest diseases caused by dust. The best known is silicosis, caused by inhaling fine silica dust. The changes wrought in the lungs as seen by x-ray shadows and by postmortem inspection are well known. But each of the other dusts known to cause trouble differs in the pathological changes set up and in the tendency caused

should be informed about their predisposition as bakers. In all 159 bakers scratch tests were performed with the extracts of wheat and rye. They were employed with, and intracutaneous tests were performed with, wheat and rye. Twenty-four (66%) of the thirty bakers had a positive reaction to the tests with the extracts of wheat or rye.

The clinical aspects of the rhinitis abundant watery secretion (rhinorrhoea); the rhinitis in bakers is an allergic rhinitis. Other causative factors, in addition to the occurrence of asthma in bakers.

Most of the examined bakers showed a mean duration of 12.7 years of sensitization. The interval ranged from a few even decades, in more than two-thirds of the cases. Rhinitis was associated with asthma, the average 18 years' duration of rhinitis. In 15 years' duration of the rhinitis or

Plimasin (a proprietary compound sympathomimetic drug), pyrilamine, benzyl-alpha-amino-pyridine hydrochloride, and sodium cromoglycate were used in the treatment of mild flour rhinitis in patients who were bakers with severe rhinitis specific to flour. The treatment was successful in 100% of patients with automatic treatment.

Good results in treating lead poisoning were obtained in six lead workers with the calcium solution in daily doses of 2 gm. for a course of treatment after a seven-day rest. The urinary excretion of lead increased, while the lead blood levels were changed. A lead complex by exchanging the calcium for lead that does not have the toxic action of lead. Calcium-disodium in lead poisoning is used for the purpose, but greater clinical

A case is described of silicatosis [meerschäum]), which has not hitherto been described, and after considering the possibility that it is a new disease, the author concludes that the initial fibrosis was

In studying the industrial hygiene workers who were employed in one (alumina), and in two alumina reduc-

In examining the workers, special attention was given to respiratory symptoms. Workers with respiratory symptoms had been excluded from work in the underground. Each worker was subjected to a chest examination whenever there was the slightest suspicion of tuberculosis. Whenever symptoms were observed, but these do not conform with the criteria for merging into the other. In the first stage of the disease, shadows and some pale foci; in the

INCIDENCE OF CARDIOVASCULAR AFFECTIONS AMONG COAL MINERS. F. LAVENNE and J. BELAYEN, Hasselt: Institut d'Hygiène des Mines Communication 127, 10:19 (April 28) 1953.

First, an inquiry was made into the cardiovascular effects of mining work in hot conditions underground. Miners who had worked at least five years under unfavorable conditions were compared with others who had worked under better conditions; no significant differences were found. Then the incidence of cardiac abnormalities was estimated in 200 unselected miners between the ages of 25 and 60 working underground, as well as in 400 miners who had been referred to the *Institut d'Hygiène des Mines* by industrial physicians at periodic examinations.

Valvular heart trouble was not found because of the care taken when examining men before they were engaged for underground work. The incidence of cardiac arterial trouble, high pressure, and coronary disturbance was low below age 40, after which it rose to reach 16% after age 50. The medical and physical examinations carried out are explained in detail, and the results are set forth in tables. The occurrence of chronic cor pulmonale was unusual, except when pneumoconiosis was present. Heavy physical work was found conducive to cardiovascular troubles, increasing with age. The suggestion is made that no one should be taken on for mining work if he is over age 35. Stress is laid on the value of the electrocardiogram in doubtful cases of cardiac action. Cardiovascular affections are a frequent cause of invalidity among miners and rank second to illnesses of the respiratory system.

E. L. COLLIS.

Of 159 bakers employed with two large and three medium-sized bakeries in Zurich, Switzerland, 42 showed symptoms of respiratory allergy. All 42 had allergic rhinitis, and 6 had allergic rhinitis and bronchial asthma. A familial tendency to respiratory allergies was observed in 12 (28%) of the 42 bakers, while such a tendency was observed in only 9 (8%) of the 117 bakers without any allergic symptoms. Young people with a familial tendency to asthma or rhinitis

A. M. A. ARCHIVES OF INDUSTRIAL HEALTH

years is given, and a comparison made between those employed in processing cigarettes, other employees, and a comparable sample of the local population.

The results of this study show that the total mortality rate among employees engaged in processing cigarettes for the American Tobacco Company is definitely lower than that among the general population of Virginia and North Carolina. This is true for all causes, for cancer, and for cardiovascular diseases. The death rates for respiratory cancer and for coronary disease among employees of the American Tobacco Company do not differ appreciably from those among the general population.

C. H. WOOD, Boston.

THE PRESENT STATUS OF SILICONE PROTECTIVE CREAMS. R. R. SUSKIND, *Indust. Med.* **24**:413 (Sept.) 1955.

"There is good reason to believe that the clinical protection afforded by a silicone formulation depends on its ability to provide an intact film which will repel or be relatively unaffected by specific chemical substances throughout the period of exposure. The efficacy of the repellent action is determined by (1) the physical and chemical properties of the silicone fluid, (2) the concentration of silicone, (3) the nature of the vehicle and its ability to make a uniformly repellent mixture with the silicone, and (4) the manner and schedule of application."

Chemical and laboratory tests are described which were used to assess the relative value of four different silicone creams in protecting against exposure to commonly used petroleum fractions, polar solvents, water, usage concentrations of hand soap, laundry soap and laundry synthetic detergents, soluble cutting fluids, cutting oils, formaldehyde, phenol, aqueous solutions of mineral acids, alkalies and salts. It should be emphasized that the present silicone creams are not therapeutic agents but should be used strictly as prophylactic devices. While disappointing results have previously been obtained in clinical trials with a cream containing 2% silicone, good results can be obtained with creams containing 30% or 52% silicone. The latter creams are more expensive and not always pleasing from the cosmetic viewpoint, but if correctly selected for a specific irritant, they can be of great protective value.

C. H. WOOD, Boston.

SYPHILIS IN INDUSTRY. J. G. DOWNING, *J. A. M. A.* **158**:468 (June 11) 1955.

The author gives a rough estimate of 600,000 cases as the prevalence of syphilis in industry in the United States. In one large organization in which 90% of the employees accepted a serologic test, 4% were found to be positive. In another firm in which the employees were on a "higher socioeconomic" plane, the prevalence rate of a positive serologic test was 0.23%. A table is presented showing a decline in Connecticut from a prevalence rate among industrial workers of 4.0% in 1949 to 2.9% in 1953. The author concludes that syphilis will remain a problem for some time to come. He is of the opinion that it is worth while attempting to find these cases in industry, so that the services of highly trained employees may be retained and so that unjustifiable claims for disabilities due to syphilis and not to occupation may be eliminated. In areas where the prevalence rate of syphilis is high, the author recommends a serologic test as part of the preemployment routine examination. The advisability of employing applicants with positive blood serology should be decided not by management but by competent physicians.

JOHN PEMBERTON, M.D., Boston.

CARCINOMA OF THE LUNG IN ASBESTOSIS: REPORT OF TWO ADDITIONAL CASES. K. M. LYNCH and H. R. PRATT-THOMAS, *South. M. J.* **48**:565 (June) 1955.

The authors present the histories of two additional patients with asbestosis and bronchogenic carcinoma. These cases bring to 4 the number of patients with carcinoma of the lung in an autopsy series of 49 cases from workers in an asbestos-manufacturing plant who showed demonstrable deposits of asbestos in their lungs. This is an incidence of 8.2%. The incidence of carcinoma of the lungs in the hospital service during the same period and in the same age range as the cases of asbestosis was 1.5%. This incidence of 8.2% is by far the lowest incidence recorded among five series relating to this problem, one of which was reported by the same authors.

ABSTRACTS

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desquamation of the bronchiolar epithelium and an outpouring of numerous macrophages in an attempt to phagocytize the fibers. Fibroblastic proliferation and collagen deposition in the walls of alveoli and about the terminal bronchioles follow at a later stage. Experimental proof of progression from hyperplasia to neoplasia is difficult to produce. Mice exposed to concentrations of asbestos dust having the proper specifications as regards particle volume and size do not develop asbestosis or carcinoma, although pulmonary adenoma is frequently present. In fact, bronchogenic carcinoma of man has no counterpart in other animals. It appears that the pulmonary tissue of dogs may respond to asbestos dust in a manner somewhat more closely analogous to man. Until a valid biologic experiment can be evolved, it appears that the evidence for or against the possible carcinogenic effect of the asbestos fiber will rest primarily on statistical evidence and personal opinion.

STUDY OF THE MECHANISM OF ABSORPTION OF PARTICULATES IN THE RESPIRATORY TREE: I. QUARTERLY REPORT NO. 1, SEPTEMBER 1-DECEMBER 1, 1953. ARNOLD E. REIF, MARY C. ELLIOTT, THOMAS L. CHIFFELLE, and CLAYTON S. WHITE. II. QUARTERLY REPORT NO. 2, DECEMBER 1, 1953-MARCH 1, 1954. ARNOLD E. REIF, THOMAS L. CHIFFELLE, ULRICH C. LUFT, JAMES CLARK, CLAYTON S. WHITE, MARY C. ELLIOTT, and HELEN S. BAKER, Contract Da-18-108-CML-5050, Lovelace Foundation for Medical Education and Research, Albuquerque, N. Mex., Jan., 1955.

The operating characteristics of the Roller Particle Size Analyzer were investigated as a means of producing closely sized aerosols. Preliminary results are reported from studies of the pulmonary absorption of various dyes and particles of various sizes in rats and dogs.

NUCLEAR SC. ABSTR.

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Design and performance are described of an air-jet nebulizer for the production of water aerosols. Methods are described for determining the particle size of water aerosols. Design is described of an automatic, electronically controlled, respiratory cycling valve for animal respirators. A brief summary is included of results from aerosol inhalation studies with rats.

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A "FOLLOW-UP" CHEST X-RAY SURVEY IN THE RHONDDA FACH: I. PULMONARY TUBERCULOSIS. A. L. COCHRANE, J. G. COX, and T. F. JARMAN, Brit. M. J. 1:371 (Feb. 12) 1955.

This is an interim report on an ambitious and interesting attempt to eradicate pulmonary tuberculosis from an isolated Welsh coal-mining valley with a population of some 24,000. In addition to the intrinsic value of such a program, the authors wish to test the hypothesis that the advanced and progressive stage of coal miners' pneumoconiosis, known to the Pneumoconiosis Research Unit of South Wales as progressive massive fibrosis (P. M. F.), is a form of tuberculosis modified by pneumoconiosis. Only 1% of these cases give a positive sputum in life, but 40% do at necropsy. At the first survey in 1951, 87% of the female and 92% of the male population over 5 years of age were x-rayed. At the second survey in 1953, 91% of the new population over 5 and 95% of those previously surveyed were x-rayed. The chief preventive measures taken after the first survey were the B. C. G. vaccination of children under 5 years of age, who were tuberculin-negative and were in contact with active cases, and the hospitalization of active cases. All but 2 of the 112 active cases were hospitalized, but not all were willing to remain long in hospital. After the first few months there were nearly always 40 known infected cases.

comparison made between those employed in processing cigarettes, other comparable sample of the local population.

This study shows that the total mortality rate among employees engaged in for the American Tobacco Company is definitely lower than that among men of Virginia and North Carolina. This is true for all causes, for cancer, and for diseases. The death rates for respiratory cancer and for coronary disease in the American Tobacco Company do not differ appreciably from those among men.

C. H. WOOD, Boston.

USES OF SILICONE PROTECTIVE CREAMS. R. R. SUSKIND, *Indust. Med.* **24**:413

Reason to believe that the clinical protection afforded by a silicone formulation is to provide an intact film which will repel or be relatively unaffected by substances throughout the period of exposure. The efficacy of the repellent is due to (1) the physical and chemical properties of the silicone fluid, (2) the vehicle, (3) the nature of the vehicle and its ability to make a uniformly adherent film, and (4) the manner and schedule of application."

Experimental tests are described which were used to assess the relative value of the creams in protecting against exposure to commonly used petroleum products, water, usage concentrations of hand soap, laundry soap and laundry-soluble cutting fluids, cutting oils, formaldehyde, phenol, aqueous solutions of acids and salts. It should be emphasized that the present silicone creams are not to be used but should be used strictly as prophylactic devices. While disappointing results have been obtained in clinical trials with a cream containing 2% silicone, better results have been obtained with creams containing 30% or 52% silicone. The latter creams are not always pleasing from the cosmetic viewpoint, but if correctly selected they can be of great protective value.

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SYPHILIS. J. G. DOWNING, *J. A. M. A.* **158**:468 (June 11) 1955.

A rough estimate of 600,000 cases as the prevalence of syphilis in industry.

In one large organization in which 90% of the employees accepted a serologic test were found to be positive. In another firm in which the employees were on a "clean" plane, the prevalence rate of a positive serologic test was 0.23%. Following a decline in Connecticut from a prevalence rate among industrial workers in 1949 to 2.9% in 1953. The author concludes that syphilis will remain a problem to come. He is of the opinion that it is worth while attempting to find a way, so that the services of highly trained employees may be retained and occupational disabilities due to syphilis and not to occupation may be eliminated. If the prevalence rate of syphilis is high, the author recommends a serologic test as a pre-employment routine examination. The advisability of employing applicants with a positive serologic test should be decided not by management but by competent physicians.

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LUNG IN ASBESTOSIS: REPORT OF TWO ADDITIONAL CASES. K. M. PRATT-THOMAS, *South. M. J.* **48**:565 (June) 1955.

From the histories of two additional patients with asbestosis and bronchogenic carcinoma, the number of patients with carcinoma of the lung in analyses from workers in an asbestos-manufacturing plant who showed demonstrable asbestos in their lungs. This is an incidence of 8.2%. The incidence of carcinoma of the lung in the hospital service during the same period and in the same age range as the workers was 1.5%. This incidence of 8.2% is by far the lowest incidence recorded in the literature relating to this problem, one of which reports an incidence of 16.3%.

The inference from this and other series does not allay the suspicion that there is a causal relationship between the two conditions.

The production of asbestosis by asbestos dust is believed to be due to the physical nature

desquamation of the bronchiolar epithelium and an outpouring of numerous macrophages in an attempt to phagocytize the fibers. Fibroblastic proliferation and collagen deposition in the walls of alveoli and about the terminal bronchioles follow at a later stage. Experimental proof of progression from hyperplasia to neoplasia is difficult to produce. Mice exposed to concentrations of asbestos dust having the proper specifications as regards particle volume and size do not develop asbestosis or carcinoma, although pulmonary adenoma is frequently present. In fact, bronchogenic carcinoma of man has no counterpart in other animals. It appears that the pulmonary tissue of dogs may respond to asbestos dust in a manner somewhat more closely analogous to man. Until a valid biologic experiment can be evolved, it appears that the evidence for or against the possible carcinogenic effect of the asbestos fiber will rest primarily on statistical evidence and personal opinion.

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PHYSIOLOGICAL OBSERVATIONS ON MEN WORKING IN SUPPOSEDLY LIMITING ENVIRONMENTS IN A WEST AFRICAN GOLD MINE. W. S. S. LADELL, Brit. J. Indust. Med. 12:111-125 (April) 1955.

This study of physiological reactions of men working in an atmosphere near tolerable limits was made in two areas of a mine. In one, the dry-bulb temperatures were 93 to 93.5 F; wet-bulb, 92 to 92.5 F; air movement, 60 to 70 ft. per minute; basic effective temperature, 91.5 F. In the other, the basic effective temperature was 93 F. Further observations were made on men in the laboratory under controlled conditions which produced an effective temperature of 95 F.

In the mine itself no sickness was found attributable to the heat. The men avoided heat stress by taking frequent rests and withdrawing to cooler parts of the mine during blasting operations.

Under controlled laboratory conditions with an effective temperature of 95 F, some subjects had a rectal temperature rise to 104 F while doing measured work. Under such conditions the pulse rate rose to about 190 beats per minute. Trained miners under such conditions were found to sweat at the rate of 16.3 ml. per minute, while untrained novice miners had a rate of 12.1 ml. per minute. There was some evidence that trained miners had a somewhat lower chloride concentration in the sweat than did untrained subjects.

From these studies there was no indication that the West African deep miner has an unusually high heat tolerance. In all environmental heat-stress conditions, work rhythm as well as climatic conditions must be assessed when considering the tolerability of the working place.

SHERMAN S. PINTO, Denver.

BLOOD EXAMINATIONS IN INDUSTRY: A COMPARISON OF BLOOD CELL COUNTS FROM EAR LOBE AND THUMB PULP. A. BUTTERWORTH and N. GOODMAN, Brit. J. Indust. Med. 12:172-173 (April) 1955.

Blood samples were obtained from the ear lobe and the thumb pulp of 35 workmen. Total white blood cell count, differential count, red blood cell count, and hemoglobin values were found to be quite comparable in each worker when the samples of blood from each site were compared.

SHERMAN S. PINTO, Denver.

THE ENERGY COST OF SOME INDUSTRIAL OPERATIONS. D. TURNER, Brit. J. Indust. Med. 12:237 (July) 1955.

The energy expended in carrying out 48 different jobs involving light to heavy physical effort was estimated by (1) subjective assessment—job analysis by time study and observation of the work—and (2) determinations of the metabolic rates of the workers. There was close agreement between the two methods of estimation. It is suggested that satisfactory information to aid in the proper placement of unfit or elderly factory workers can be obtained by subjective appraisal of various tasks without need for metabolic rate measurements.

K. W. NELSON, Salt Lake City.

THE EFFECT OF HEAT STRESS ON MINeworkERS WITH REGARD TO LOSS OF WATER AND ELECTROLYTES. W. M. POLITZER and A. KING, South African M. J. 19:155 (Dec.) 1954.

The response to salt-and-water loss was studied in 81 mine workers who were engaged in heavy manual labor in the hottest areas of the St. Helena Gold Mine in South Africa. Atmospheric conditions consisted of an average dry-bulb temperature of 86 F, an average wet-bulb temperature of 84 F, wet kata cooling power of 13.3 mcal. per second, and 92% humidity. Underground observations were carried out during November, December, and January, the hottest months of the year. The clinical and biochemical examinations did not reveal any evidence of a pronounced sodium chloride deficiency and its sequelae, i. e., muscular cramps and heat exhaustion. The presence of a high incidence of sweat rashes in 9 of the 81 miners and the pronounced temporary loss of weight during the shift indicated that profuse perspiration did occur.

The temporary fluid loss which occurred during work was replenished within 18 hours of rest. This mild temporary dehydration was not detectable by biochemical or hematocrit determinations but only by weight recordings. No departures from the normal range of values in respect to serum chloride, urea, sodium, potassium, total protein, and packed cell volume were observed.

It had been expected that, as a result of acclimatization, the sweat would be very dilute. However, electrolyte determinations showed that this was not the case, and some values were high.

ABSTRACTS FROM CURRENT LITERATURE

The miners' diet contained salt. Salt was available at meal time to satisfy the desire of the individual miner for salt and consumed it liberally during working hours, but 11 miners consumed salt in the form of salt tablets, in excess of the necessary amount.

No cases of heat exhaustion, heat stroke, or heat stroke with loss of consciousness were observed during the period of adaptation.

Under present conditions the

Occupational Diseases

RHEUMATOID ARTHRITIS IN A MINING COMMUNITY. W. E. MIALI

Miall says that Caplan pointed out the association among coal miners with pneumoconiosis and the appearance of rheumatoid arthritis. An epidemiological investigation was undertaken to determine whether the prevalence of rheumatoid arthritis was an etiological factor in the development of pneumoconiosis. The investigation was undertaken in a Welsh mining community.

Immediately before an x-ray examination of the hands and feet, each person was asked whether he had rheumatoid arthritis in the hands or feet. Medical practitioners were asked to report any cases of rheumatoid arthritis.

All patients with rheumatoid arthritis were given x-rays of chest, hands, and feet. The results of the x-rays were used in the diagnosis of the disease.

The survey showed that, though the prevalence of massive fibrosis is about 2.7%, the prevalence of the disease among miners is about 1.5% and therefore it is most unlikely that the disease is concluded therefore that neither exposure to dust nor pneumoconiosis play a causal role in rheumatoid arthritis.

Evidence obtained confirmed the important causal role in rheumatoid arthritis of the characteristic Caplan's syndrome and the present findings suggest an association with the skeletal system, in those with, or without, the disease. The hypothesis would account for the prevalence of the disease in miners accompanied by active tuberculosis which was reported in 1902, but it does not confirm Pon

BRONCHIAL CARCINOMA IN PRINTING. 1955.

Surveying the occurrence of pulmonary carcinoma by analysis of the material observed at the Royal Free Hospital from 1931 to 1950 showed that the number of cases observed in the previous 20 years was 10.

The cause of this increase has not been determined. The use of cigarettes may or may not be

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PINTO, Denver.

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ABSTRACTS FROM CURRENT LITERATURE

The miners' diet contained sufficient salt and water to replace electrolyte and fluid loss. Salt was available at meal times and could be used liberally to supplement the diet according to the desire of the individual miner. Several miners stated that they had a marked appetite for salt and consumed it liberally at their meals. Most miners said that they consumed water during working hours, but 11 miners denied drinking any water. The administration of sodium chloride in the form of salt tablets, in excess of the amount consumed in the ordinary diet, is regarded as unnecessary.

No cases of heat exhaustion or heat stroke were observed. The best method of preventing heat exhaustion and heat stroke is the provision of atmospheric conditions of temperature, humidity, and air movement of such a nature that they are within the limits of the body's powers of adaptation.

Under present conditions there appears to be no risk of heat exhaustion in the mine studied.

Occupational Diseases and Hazards

RHEUMATOID ARTHRITIS IN MALES: AN EPIDEMIOLOGICAL STUDY OF A WELSH MINING COMMUNITY. W. E. MIALI, Ann. Rheumat. Dis. 14:150 (June) 1955.

Miall says that Caplan pointed out in 1953 that some patients with rheumatoid arthritis, among coal miners with pneumoconiosis, can be recognized from a characteristic chest x-ray appearance. An epidemiological investigation of this new syndrome showed that this nodular lung fibrosis was associated with rheumatoid arthritis in more than 50% of cases; it also suggested that the prevalence of rheumatoid arthritis was increased among men with complicated pneumoconiosis. To determine whether the progressive massive fibrosis of complicated pneumoconiosis was an etiological factor in the development of the arthritis, a survey of rheumatoid arthritis was undertaken in a Welsh mining valley in which progressive massive fibrosis was common among the miners.

Immediately before an x-ray survey was started in the valley, a census was taken of the population, and during this census a note was made of all persons said to be suffering from arthritis. Ninety per cent of the population over the age of 15 was subsequently x-rayed, and each person was asked whether previously or now he had painful swellings of the small joints of the hands or feet. Medical practitioners and the rheumatism clinic provided lists of patients with rheumatoid arthritis.

All patients with rheumatoid arthritis found from these four sources were asked to submit to x-rays of chest, hands, and feet and to a differential agglutination test; criteria by objective evidence were used in the diagnosis of rheumatoid arthritis.

The survey showed that, though the prevalence of rheumatoid arthritis among all patients with massive fibrosis is about 2.7%, compared with 0.6% among miners without massive fibrosis, the prevalence of the disease among miners does not differ significantly from that among nonminers, and therefore it is most unlikely that massive fibrosis predisposes to rheumatoid arthritis. It is concluded therefore that neither exposure to dust nor the lung changes of complicated pneumoconiosis play a causal role in rheumatoid arthritis.

Evidence obtained confirmed the observations of other investigators that heredity plays an important causal role in rheumatoid arthritis; this is also true of Caplan's syndrome and of patients with the characteristic Caplan chest x-ray findings without arthritis. Caplan's syndrome and the present findings suggest an inherited abnormality of tissue reaction, not confined to the skeletal system, in those with, or presumably liable to develop, rheumatoid arthritis. This hypothesis would account for the numerous descriptions of cases of rheumatoid arthritis accompanied by active tuberculosis which have appeared since Poncet described tuberculous rheumatism in 1902, but it does not confirm Poncet's view that tuberculosis is a cause of rheumatoid arthritis.

BRONCHIAL CARCINOMA IN PRINTING WORKERS. E. ASK-UPMARK, Dis. Chest 27:427 (April) 1955.

Surveying the occurrence of pulmonary carcinoma in Sweden, Ask-Upmark found that an analysis of the material observed at the University of Uppsala during the 20-year period from 1931 to 1950 showed that the number of cases observed during the last decade is about twice the number observed in the previous decade.

The cause of this increase has not been completely explained, although the increased consumption of cigarettes may or may not be of importance.

regarding the normal blood pictures under varying conditions, no evidence was forthcoming that the changes were affected by the low concentration of the benzene products in the workshop air.

E. L. COLLIS.

STUDY OF BIOLOGICAL CHANGES IN POISONING BY MANGANESE. J. RODIER, Arch. mal. profess. 16:435-442, 1955.

A study was made of 151 cases of manganism to detect, if possible, definite changes at an early stage of poisoning, which could be used to indicate that poisoning was starting before serious progress had taken place. (No indication is given of how advanced were the clinical symptoms of toxemia or of the extent of the exposure causing the toxemia.) No important interference with the function of the kidney was found, but the phenolsulfonphthalein test indicated retention in 40% of the patients. Similarly the hepatic function was hardly modified. A number of other diverse tests were applied without any definite result. Tests of endocrine function were more profitable. In 80% of the patients there was a diminution of the elimination of 17-ketosteroids, with an increase in basal metabolism. The blood picture showed a definite lymphocytosis in 41% of the cases. A mild increase in the blood cells was also present in 44%. An expert seeking for signs of manganism, apart from clinical signs in speech and gait, should look for alterations in the blood picture, in the basal metabolism, and in the elimination of urinary 17-ketosteroids.

E. L. COLLIS.

CURIOUS ASBESTOSIS BODIES SEEN IN CASES OF ANTHRACOSIS. A. POLICARD and A. COLLET, Arch. mal. profess. 16:460-462, 1955.

The plea is entered that the "curious bodies" seen in the sputum and in the lungs of cases of asbestosis are not only to be seen in that condition; they occur also in anthracosis. These bodies are held to be ferruginous protein deposits upon the broken ends of asbestos fibers. But such bodies occur in anthracosis; they may be deposited on any part of a coal fiber and not only at an end. Illustrations of such deposits are shown in photomicrographs.

The bodies are deposits upon submicroscopic defects in the surface of coal particles. The exact chemical nature and mechanism of these deposits remain undetermined. Their occurrence may depend not so much upon the coal particles as upon the frequency of processes of absorption and the constitutional factors of metabolism peculiar to each individual miner.

E. L. COLLIS.

CAMPAIGN AGAINST DUST IN BELGIAN COAL MINES: POSITION AT THE BEGINNING OF 1955. G. DEGUELDRE, Communication 126, Hasselt: Institut d'Hygiène des Mines 10:17 (March 15) 1955.

Colliery companies in Belgium are called upon to render information regarding dust suppression by filling in yearly a form, copy of which is given in an appendix. The information so collected is now published, embodied in a series of tables. They tell how dust control is being advanced by using damp methods when loading coal underground, by wet drilling, by capturing the dust when it is generated dry, by damping underground passages or using hygroscopic salt on them. The practice regarding shot firing and return to work thereafter is also described.

A report of this kind is prepared every year. It indicates that, on the whole, improvement has taken place, but the point is still stressed that more must be done to bring all dust under safe control.

E. L. COLLIS.

TREATMENT OF LEAD POISONING WITH CALCIUM ETHYLENEDIAMINETETRAACETATE. A. PLETSCHER, Schweiz. med. Wchnschr. 85:128-131, 1955.

Intravenous treatment of two cases of chronic Pb intoxication for 45 days with daily 2.5 gnl. doses of Ca ethylenediamine-tetraacetate resulted in increased Pb excretion, decreased coproporphyrin excretion, and an improved blood picture. The Pb blood level in one patient decreased to normal, while in the other it increased from normal to pathological values during treatment. By 18 weeks after the end of treatment, both the number of stippled cells and the coproporphyrin concentration in the urine had again risen. The fecal Pb concentration had increased, while both blood and urine Pb concentrations were normal.

[CHEM. ABSTR.].

SILICOSIS HAZARD IN THE
45:700-714 (Dec.) 1955

The joint authors of petrography and mining. The fine structure of a variety of minerals as brickworks, pottery, etc. In judging the silicosis hazard, the authors have to be taken into consideration the crystalline form, the size of the particles and to be inhaled by the workers. The authors are here concerned with the primary rocks by processes of weathering. They have acquired an increased knowledge of the silicosis hazard and its association as affecting the original air.

Because of the fine structure of the rocks and petrographic analyses causing silicosis or other diseases, the authors are here concerned with the silicosis hazard and its association as affecting the original air.

Clinical and other evidence of the silicosis hazard in the lungs is enhanced when the authors are here concerned with the silicosis hazard and its association as affecting the original air.

ASBESTOS AND PULMONARY
OF LUNG CANCER BY
1955.

The first case of pulmonary asbestosis is described. The patient, who for 29 years had worked in the asbestos industry, was confirmed by post-mortem examination. The authors are here concerned with the silicosis hazard and its association as affecting the original air. While there are many studies on the capacity of asbestos to cause pulmonary disease, the authors are here concerned with the silicosis hazard and its association as affecting the original air.

EFFECTS OF OXYGEN INTAKE
AND IN CASES OF EXHAUSTION
Med. lavoro 46:411-41

The effectiveness of the oxygen therapy in seven silicotic patients is described. The authors are here concerned with the silicosis hazard and its association as affecting the original air.

Blood oxygen saturation was measured in seven silicotic patients. The authors are here concerned with the silicosis hazard and its association as affecting the original air.

Experiments have shown that the oxygen therapy in seven silicotic patients is effective. The authors are here concerned with the silicosis hazard and its association as affecting the original air.

Results obtained show that the oxygen therapy in seven silicotic patients is effective. The authors are here concerned with the silicosis hazard and its association as affecting the original air.

OF INDUSTRIAL HEALTH

tions, no evidence was forthcoming
the benzene products in the workshop

E. L. COLLIS.

NESE, J. RODIER, Arch. mal. profess.

t, if possible, definite changes at an
that poisoning was starting before
of how advanced were the clinical
(using the toxemia.) No important
but the phenolsulfonphthalein test
patic function was hardly modified.
definite result. Tests of endocrine
was a diminution of the elimination
The blood picture showed a definite
blood cells was also present in 44%.
ical signs in speech and gait, should
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E. L. COLLIS.

OSIS. A. POLICARD and A. COLLET,

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broken ends of asbestos fibers. But
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E. L. COLLIS.

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er information regarding dust sup-
n in an appendix. The information
They tell how dust control is being
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passages or using hygroscopic salt
work thereafter is also described.
es that, on the whole, improvement
ust be done to bring all dust under

E. L. COLLIS.

HYLENEDIAMINETETRAACETATE. A.

ation for 45 days with daily 2.5 gm.
sed Pb excretion, decreased copro-
blood level in one patient decreased
thological values during treatment.
tipped cells and the coproporphyrin
concentration had increased, while

[CHEM. ABSTR.]

ABSTRACTS FROM CURRENT LITERATURE

SILICOSIS HAZARD IN THE WORKING OF CLAYS. L. PERETTI and E. OCCELLA, Med. lavoro
45:700-714 (Dec.) 1954.

The joint authors of this paper are teachers of mineralogy and applied geology and of petrography and mining. They discuss the formation, the chemical composition, and the molecular structure of a variety of clays and clay-containing minerals which are used in such industries as brickworks, potteries, foundries and in the manufacture of refractories and of cement. In judging the silicosis hazard of handling such clay materials, their various properties have to be taken into consideration; such are the content of free silica, more particularly the crystalline form, the size of the particles, and their liability to be easily given off and diffused and to be inhaled by those working in the affected atmosphere. The minerals with which the authors are here concerned are sedimentary formations which were derived originally from primary rocks by processes of erosion, transport, and settling, in the course of which they may have acquired an increased content of free silica. The paper discusses various types of mineral concerned and its association with other geological formations, its origin and development, as affecting the original and the final content of free silica.

Because of the fine structure and complex composition of these clay materials, their chemical and petrographic analyses are often not sufficient for an assessment of their likely role in causing silicosis or other pneumoconioses; additional determinations (thermal, x-ray, electro-dialytic, and other techniques) may have to be undertaken.

Clinical and other evidence suggests that the property of free silica of causing fibrosis in the lungs is enhanced when certain hydrosilicates are associated in the atmospheric dust.

J. CAUCHI [BULL. HYG.]

ASBESTOS AND PULMONARY CARCINOMA IN AN ASBESTOS SPINNER: NOTES ON THE INDUCTION OF LUNG CANCER BY ASBESTOS FIBERS. G. ROMBOLÀ, Med. lavoro 46:242-250 (April) 1955.

The first case of pulmonary carcinoma occurring in Italy in a subject affected by slight asbestosis is described. The malignant neoplasia was observed in a woman, 49 years of age, who for 29 years had worked as a spinner in an asbestos factory. The diagnosis formulated in life was confirmed by postmortem examination, the gross and microscopic findings of which are briefly reported. The present clinical, pathological, and statistical knowledge diagnosed on the capacity of asbestos to cause tumors is summarized. A tumor should be diagnosed as occupational in nature only when the statistical data correspond with the experimental researches. While there are many statistical data (though not agreeing for all countries), experimental researches are few and are not concordant. According to the author, a hypothesis should be adopted whereby the capacity of the different types of asbestos to cause tumors would differ according to their chemical composition.

FROM THE AUTHOR'S SUMMARY.

EFFECTS OF OXYGEN INTERMITTENT POSITIVE-PRESSURE BREATHING IN CASES OF SILICOSIS AND IN CASES OF EMPHYSEMA WITH SEVERE RESPIRATORY INSUFFICIENCY. E. SARTORELLI, Med. lavoro 46:411-418 (June-July) 1955.

The effectiveness of the oxygen intermittent positive-pressure breathing was studied experimentally in seven silicotics and in six cases of emphysema with severe arterial anoxemia by means of two devices fitted with tightproof oronasal masks (Bennett's apparatus and Pneophore M.S.A.). Oxygen was given with a spectacle-type nasal catheter for control experiments.

Blood oxygen saturation was measured with the "Cyclops" oximeter during oxygen intermittent positive-pressure breathing and oxygen therapy with nasal catheter.

Experiments have shown that in all patients affected with lung diseases, who during breathing of atmospheric air presented blood oxygen saturation rates varying from 55% to 89% according to the subject, oxygen intermittent positive-pressure breathing with Bennett's apparatus or with the Pneophore gives way to complete disappearance of the arterial anoxemia, while the oxygen therapy by means of nasal catheter, though producing a more or less evident reduction of the arterial anoxemia, has in no case led to increases above 95% of the arterial blood oxygen saturation.

Results obtained show that oxygen intermittent positive-pressure breathing, for its effectiveness in cases of lung diseases with severe respiratory insufficiency, should be preferred to the common oxygen therapy with nasal catheter as a method for the administration of oxygen.

FROM THE AUTHOR'S SUMMARY.

A. M. A. ARCHIVES OF INDUSTRIAL HEALTH

TRANSACTIONS OF THE SEVENTEENTH ANNUAL MEETING OF THE AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS. AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, 140 pp., June, 1955.

Occupational Health Study in the Diatomite Producing Industry: Environmental Aspects, Dr. Lewis J. Cralley.

Occupational Health Study in the Diatomite Producing Industry: Medical Aspects, Dr. W. Clark Cooper.

The Health Hazards of Working with Flame-Proofed Fabrics, Mr. Irving Ettinger and Mr. Martin Jeremias.

The Control and Disposal of Radioisotopes, Mr. G. W. Morgan.

The Manufacturing Chemists Association Labeling Program, Mr. Sanford J. Hill.

Mercurialism in Cinnabar Reduction in Idaho, Mr. Howard L. Burkhardt.

Reduction of Incidence of Silicosis After Seventeen Years of Dust Control in the Barre, Vermont, Granite Industry, Mr. Harry B. Ashe.

Uranium Operations on the Colorado Plateau, Mr. J. D. Torrey and Mr. P. W. Jacoe.

Performance of Automatic Louvers in Industrial Ventilating Systems, Mr. Irving Kingsley.

The Effect of the Calcium Chelate of Disodium Ethylene-Diamine Tetraacetic Acid on Lead in the Blood and Urine of Battery Workers, Dr. Ira A. Manville and Dr. Robin Moser.

Potentials of an Occupational Health Program in a State Department of Health, Dr. Daniel Bergsma.

Need for Threshold Limits, Dr. Miriam Sachs.

Engineering and Chemical Application of Standards, Mr. Allen D. Brandt.

Mimeograph copies are available in limited supply from Mr. Charles D. Yaffe, U. S. Public Health Service, 1014 Broadway, Cincinnati 2, Ohio.

Physiology and Nutrition

ECONOMY OF WORK UNDER THE INFLUENCE OF INCENTIVES. B. PETZ, *Archiv. hig. rada* 5:321-329, 1954.

The question whether incentives are harmful to the organism has been very little investigated. According to the results of Bujas and Petz, the organism works more economically in the state of increased motivation. The author has tried to check these results by measuring the degree of fatigue after the work with and without special motivation. The fatigue was measured by letting the subject repeat static work of the same intensity after a pause which was not long enough to provide complete recovery.

The experiments were performed with a mercury dynamometer.

Results: 1. The endurance while performing static work was prolonged under the influence of increased motivation. Fatigue after such prolonged work was equal to the degree of fatigue which occurred in experiments without additional motivation and shorter work. 2. When in experiments with increased motivation the subject's effort was suddenly stopped at the moment corresponding to his maximal endurance without motivation, the fatigue was smaller than after the same work performed without additional motivation.

The author concludes that the increase in work output caused by incentives is not due to an increase in energy expenditure but to a better and more economical use of the available energy.

The author considers that incentives should be used within the normal working time and within the normal intensity limits of the average everyday work but not to increase the maximum work output; they have to be means to make the work easier and decrease the fatigue. Only in special cases should they be used also as means to increase the work output.

FROM THE AUTHOR'S SUMMARY.

Occupational Diseases and Hazards

SIGNIFICANT CASE OF PNEUMOCONIOSIS IN A SOFT-COAL WORKER. L. L. FRIEDMAN, A. M. A. *Arch. Int. Med.* 95:328-332 (Feb.) 1955.

The paper presents the case history of a soft-coal worker who had worked for an unspecified time at drilling in a coal mine when he first complained of breathlessness at the age of 46. His x-ray then showed simple pneumoconiosis. He continued to work underground for six years, after which an x-ray showed early progressive massive fibrosis in both lungs, and he gave up his

ABSTRACTS FROM CURRENT

work because of dyspnea. His sputum test was negative in dilutions of 1:10. At age of 57, by which time he had died at both bases. Serial x-rays are giving confirming massive fibrosis with ischaemia and dihydrostreptomycin without effect.

This case confirms the relentless pneumoconiosis after exposure to dust and antituberculous therapy. Its particularity was negative.

OCCUPATIONAL CANCER OF THE URINARY TRACT IN ASBESTOS TEXTILE WORKERS AND M. J. STEWART, *Am. J. Clin. Pathol.*

The value to the cancer problem, and by experiment, together with the consideration of the total amount of types of recognized occupational cancer.

More detailed consideration of it, formerly, the extent of the hazard, the various species are discussed. In regard of 72 male and female asbestos textile workers in England, is described.

The common factor in these two (hematite miners) is silica, and the presence of silica (as silicic acid) causes a malignant process. The fibrosis is a cancer supervenes. On published evidence silicosis per se and lung cancer is not in asbestosis. Hueper (1952) examined that "the available evidence supporting lung is unimpressive." It seems possible that the presence of hematite dust may exert an influence on the fibrotic process itself. Further studies on conioses is thus obviously needed.

TREATMENT OF ACUTE AND CHRONIC LEAD POISONING. J. F. WADE JR. AND J. F. BURTON

Five patients with acute or chronic lead poisoning were treated with calcium versenate (Ca EDTA) and the first 12 hours of therapy.

Loss of body lead into the urine, disappearance of all signs and symptoms, including anemia, and (c) return to normal values of bilirubin; no immediate reversal of lead poisoning.

No toxic effects from Ca EDTA. Ca EDTA affords a safe and effective treatment.

Since this paper was submitted, additional patients with acute or chronic lead poisoning have been treated.

MORTALITY AMONG WORKERS IN VIRGINIA. *Med.* 24:239 (June) 1955.

This is a brief report of the study of mortality among workers in Virginia, North Carolina, and Kentucky. The program was initiated in 1946 for

INDUSTRIAL HEALTH

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Environmental Aspects,

Medical Aspects, Dr. W.

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THOR'S SUMMARY.

FRIEDMAN, A. M. A.

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ground for six years,
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ABSTRACTS FROM CURRENT LITERATURE

work because of dyspnea. His sputum was negative for tuberculosis, and his tuberculin skin test was negative in dilutions of 1:100 and 1:1000 then and subsequently until his death at the age of 57, by which time he had developed extensive massive fibrosis with severe emphysema at both bases. Serial x-rays are given and lung sections prepared by Professor Gough, both confirming massive fibrosis with ischemic cavitation. The patient was treated with isoniazid and dihydrostreptomycin without effect.

This case confirms the relentless progress of progressive massive fibrosis and coal miners' pneumoconiosis after exposure to dust has ceased, in the absence of a positive sputum and despite antituberculosis therapy. Its particular interest lies in the observation that the Mantoux reaction was negative.

C. M. FLETCHER [BULL. HYG.].

OCCUPATIONAL CANCER OF THE URINARY BLADDER IN DYESTUFFS OPERATIVES AND OF THE LUNG IN ASBESTOS TEXTILE WORKERS AND IRON-ORE MINERS. G. M. BONSER, J. S. FAULDS, AND M. J. STEWART, *Am. J. Clin. Path.* 25:126-134 (Feb.) 1955.

The value to the cancer problem, as a whole, of the study of occupational cancer in the field and by experiment, together with the time lag between these two aspects, is discussed. A short consideration of the total amount of cancer in any population follows, and a classification of the types of recognized occupational cancer.

More detailed consideration of industrial bladder and lung cancer follows. In regard to the former, the extent of the hazard, the nature of the chemicals involved, and their metabolism in various species are discussed. In regard to the latter, the occurrence of lung cancer in a group of 72 male and female asbestos textile workers and in 192 hematite miners in Cumberland, England, is described.

The common factor in these two types of occupational lung cancer (in asbestos textile workers and hematite miners) is silica, and it is suggested that this may be the carcinogenic agent. The presence of silica (as silicic acid) causes pulmonary fibrosis which precedes the initiation of the malignant process. The fibrosis is usually of smaller degree, however, in those lungs in which cancer supervenes. On published evidence the case for an etiologic relationship between nodular silicosis *per se* and lung cancer is much less strong than in silicosis associated with siderosis and in asbestosis. Hueper (1952) examined the literature very thoroughly and came to the conclusion that "the available evidence supporting a causal relation between silicosis and cancer of the lung is unimpressive." It seems possible, therefore, that the fibrous nature of asbestos or the presence of hematite dust may exert a modifying effect on the chemical action of the silica or on the fibrotic process itself. Further study of the nature of the carcinogenic process in pneumoconiosis is thus obviously needed.

FROM THE AUTHORS' SUMMARY AND CONCLUSIONS.

TREATMENT OF ACUTE AND CHRONIC LEAD POISONING WITH DISODIUM CALCIUM VERSENATE. J. F. WADE JR. AND J. F. BURNUM, *Ann. Int. Med.* 42:251-259 (Feb.) 1955.

Five patients with acute or chronic lead intoxication successfully treated with disodium calcium versenate (Ca EDTA) are reported.

Ca EDTA produced a marked increase in urinary lead excretion which was maximal during the first 12 hours of therapy.

Loss of body lead into the urine was accompanied by (a) rapid and striking amelioration of all signs and symptoms, including an "acute abdomen"; (b) disappearance of gingival lead lines, and (c) return to normal values of basophilic stippled red blood cells and serum indirect bilirubin; no immediate reversal of decreased erythrocyte osmotic fragility.

No toxic effects from Ca EDTA were observed.

Ca EDTA affords a safe and effective means of therapy of acute and chronic lead poisoning.

Since this paper was submitted for publication, the authors have successfully treated 14 additional patients with acute or chronic lead poisoning with disodium calcium versenate.

BULL. HYG.

MORTALITY AMONG WORKERS IN CIGARETTE FACTORIES. H. F. DORN and W. S. BAUM, *Indust. Med.* 24:239 (June) 1955.

This is a brief report of the survey carried out in the American Tobacco Company plants in Virginia, North Carolina, and Kentucky. A comprehensive health service and group-insurance program was initiated in 1946 for all employees. An analysis of the experience of 70,532 person

years is given, and a comparison made between those employed in processing cigarettes, other employees, and a comparable sample of the local population.

The results of this study show that the total mortality rate among employees engaged in processing cigarettes for the American Tobacco Company is definitely lower than that among the general population of Virginia and North Carolina. This is true for all causes, for cancer, and for cardiovascular diseases. The death rates for respiratory cancer and for coronary disease among employees of the American Tobacco Company do not differ appreciably from those among the general population.

C. H. WOOD, Boston.

THE PRESENT STATUS OF SILICONE PROTECTIVE CREAMS. R. R. SUSKIND, *Indust. Med.* 24:413 (Sept.) 1955.

"There is good reason to believe that the clinical protection afforded by a silicone formulation depends on its ability to provide an intact film which will repel or be relatively unaffected by specific chemical substances throughout the period of exposure. The efficacy of the repellent action is determined by (1) the physical and chemical properties of the silicone fluid, (2) the concentration of silicone, (3) the nature of the vehicle and its ability to make a uniformly repellent mixture with the silicone, and (4) the manner and schedule of application."

Chemical and laboratory tests are described which were used to assess the relative value of four different silicone creams in protecting against exposure to commonly used petroleum fractions, polar solvents, water, usage concentrations of hand soap, laundry soap and laundry synthetic detergents, soluble cutting fluids, cutting oils, formaldehyde, phenol, aqueous solutions of mineral acids, alkalies and salts. It should be emphasized that the present silicone creams are not therapeutic agents but should be used strictly as prophylactic devices. While disappointing results have previously been obtained in clinical trials with a cream containing 2% silicone, good results can be obtained with creams containing 30% or 52% silicone. The latter creams are more expensive and not always pleasing from the cosmetic viewpoint, but if correctly selected for a specific irritant, they can be of great protective value.

C. H. WOOD, Boston.

SYPHILIS IN INDUSTRY. J. G. DOWNING, *J. A. M. A.* 158:468 (June 11) 1955.

The author gives a rough estimate of 600,000 cases as the prevalence of syphilis in industry in the United States. In one large organization in which 90% of the employees accepted a serologic test, 4% were found to be positive. In another firm in which the employees were on a "higher socioeconomic" plane, the prevalence rate of a positive serologic test was 0.23%. A table is presented showing a decline in Connecticut from a prevalence rate among industrial workers of 4.0% in 1949 to 2.9% in 1953. The author concludes that syphilis will remain a problem for some time to come. He is of the opinion that it is worth while attempting to find these cases in industry, so that the services of highly trained employees may be retained and so that unjustifiable claims for disabilities due to syphilis and not to occupation may be eliminated. In areas where the prevalence rate of syphilis is high, the author recommends a serologic test as part of the preemployment routine examination. The advisability of employing applicants with positive blood serology should be decided not by management but by competent physicians.

JOHN PEMBERTON, M.D., Boston.

CARCINOMA OF THE LUNG IN ASBESTOSIS: REPORT OF TWO ADDITIONAL CASES. K. M. LYNCH and H. R. PRATT-THOMAS, *South. M. J.* 48:565 (June) 1955.

The authors present the histories of two additional patients with asbestosis and bronchogenic carcinoma. These cases bring to 4 the number of patients with carcinoma of the lung in an autopsy series of 49 cases from workers in an asbestos-manufacturing plant who showed demonstrable deposits of asbestos in their lungs. This is an incidence of 8.2%. The incidence of carcinoma of the lungs in the hospital service during the same period and in the same age range as the cases of asbestosis was 1.5%. This incidence of 8.2% is by far the lowest incidence recorded among five series relating to this problem, one of which reports an incidence of 16.3%.

Thus statistical inference from this and other series does not allay the suspicion that there may be an association between the two conditions.

The tissue reaction produced by asbestos dust is believed to be due to the physical nature of the asbestos particle rather than to any chemical constituent. The asbestos fiber causes

ABSTRACTS FROM CURRENT

desquamation of the bronchiolar attempt to phagocytize the fibers. alveoli and about the terminal bronchion from hyperplasia to neoplasia. asbestos dust having the proper develop asbestosis or carcinoma, bronchogenic carcinoma of man. monary tissue of dogs may resemble analogous to man. Until a valid basis for or against the possible carcinogenic statistical evidence and personal

STUDY OF THE MECHANISM OF
QUARTERLY REPORT No. 1,
ELLIOTT, THOMAS L. CHIEF
DECEMBER 1, 1953-MARCH 1
LUFT, JAMES CLARK, CLAY
Contract Da-18-108-CML-50
Albuquerque, N. Mex., Jan.

The operating characteristics means of producing closely size pulmonary absorption of various

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Design and performance at aerosols. Methods are described of an automatic, electricators. A brief summary is included.

A "FOLLOW-UP" CHEST X-RAY
CULOSIS. A. L. COCHRAN

This is an interim report of tuberculosis from an isolated addition to the intrinsic value of advanced and progressive stages. Research Unit of South Wales tuberculosis modified by pneumococci. 40% do at necropsy. At the follow-up over 5 years of age were over 5 and 95% of those previously after the first survey were the tuberculin-negative and were in hospital. All but 2 of the 112 active cases. After the first few in valley, who were carefully surveyed found that there had been a fall among women and a lower fall among older miners and ex-miners. "10 cases of progressive massive infectious in 1953, and 46 in

DUSTRIAL HEALTH

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C. H. Wood, Boston.

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H. Wood, Boston.

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ABSTRACTS FROM CURRENT LITERATURE

desquamation of the bronchiolar epithelium and an outpouring of numerous macrophages in an attempt to phagocytize the fibers. Fibroblastic proliferation and collagen deposition in the walls of alveoli and about the terminal bronchioles follow at a later stage. Experimental proof of progression from hyperplasia to neoplasia is difficult to produce. Mice exposed to concentrations of asbestos dust having the proper specifications as regards particle volume and size do not develop asbestosis or carcinoma, although pulmonary adenoma is frequently present. In fact, bronchogenic carcinoma of man has no counterpart in other animals. It appears that the pulmonary tissue of dogs may respond to asbestos dust in a manner somewhat more closely analogous to man. Until a valid biologic experiment can be evolved, it appears that the evidence for or against the possible carcinogenic effect of the asbestos fiber will rest primarily on statistical evidence and personal opinion.

STUDY OF THE MECHANISM OF ABSORPTION OF PARTICULATES IN THE RESPIRATORY TREE: I. QUARTERLY REPORT No. 1, SEPTEMBER 1-DECEMBER 1, 1953. ARNOLD E. REIF, MARY C. ELLIOTT, THOMAS L. CHIFFELLE, and CLAYTON S. WHITE. II. QUARTERLY REPORT No. 2, DECEMBER 1, 1953-MARCH 1, 1954. ARNOLD E. REIF, THOMAS L. CHIFFELLE, ULRICH C. LUFT, JAMES CLARK, CLAYTON S. WHITE, MARY C. ELLIOTT, and HELEN S. BAKER, Contract Da-18-108-CML-5050, Lovelace Foundation for Medical Education and Research, Albuquerque, N. Mex., Jan., 1955.

The operating characteristics of the Roller Particle Size Analyzer were investigated as a means of producing closely sized aerosols. Preliminary results are reported from studies of the pulmonary absorption of various dyes and particles of various sizes in rats and dogs.

NUCLEAR SC. ABSTR.

STUDY OF THE MECHANISM OF ABSORPTION OF PARTICULATES IN THE RESPIRATORY TREE: I. QUARTERLY REPORT No. 4, 1954 (INCLUDES AN APPENDIX: AUTOMATIC ELECTRONICALLY CONTROLLED RESPIRATORY CYCLING VALVE). JAMES CLARK II. SUMMARY OF REPORTS ISSUED SINCE DECEMBER 1, 1953. ARNOLD E. WHITE, MARGOT P. HOLCOMB, HELEN S. BAKER, and CLAYTON S. WHITE, Contract DA-18-108-CML-5050, Lovelace Foundation for Medical Education and Research, Albuquerque, N. Mex., Jan., 1955.

Design and performance are described of an air-jet nebulizer for the production of water aerosols. Methods are described for determining the particle size of water aerosols. Design is described of an automatic, electronically controlled, respiratory cycling valve for animal respirators. A brief summary is included of results from aerosol inhalation studies with rats.

NUCLEAR SC. ABSTR.

A "FOLLOW-UP" CHEST X-RAY SURVEY IN THE RHONDDA FACH: I. PULMONARY TUBERCULOSIS. A. L. COCHRANE, J. G. COX, and T. F. JARMAN, *Brit. M. J.* 1:371 (Feb. 12) 1955.

This is an interim report on an ambitious and interesting attempt to eradicate pulmonary tuberculosis from an isolated Welsh coal-mining valley with a population of some 24,000. In addition to the intrinsic value of such a program, the authors wish to test the hypothesis that the advanced and progressive stage of coal miners' pneumoconiosis, known to the Pneumoconiosis Research Unit of South Wales as progressive massive fibrosis (P. M. F.), is a form of tuberculosis modified by pneumoconiosis. Only 1% of these cases give a positive sputum in life, but 40% do at necropsy. At the first survey in 1951, 87% of the female and 92% of the male population over 5 years of age were x-rayed. At the second survey in 1953, 91% of the new population over 5 and 95% of those previously surveyed were x-rayed. The chief preventive measures taken after the first survey were the B. C. G. vaccination of children under 5 years of age, who were tuberculin-negative and were in contact with active cases, and the hospitalization of active cases. All but 2 of the 112 active cases were hospitalized, but not all were willing to remain long in hospital. After the first few months there were nearly always 40 known infectious cases in the valley, who were carefully supervised by the public health nurse. At the second survey it was found that there had been a marked fall in the prevalence of infectious tuberculosis among the women and a lower fall among the younger men. There had been a slight increase among the older miners and ex-miners. "In spite of ample hospital accommodation, 35 (amongst whom were 10 cases of progressive massive fibrosis) of the 112 cases which were infectious in 1951 were still infectious in 1953, and 46 new cases of tuberculosis developed in the valley between the two

INDUSTRIAL HEALTH

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THE AUTHOR'S SUMMARY

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ABSTRACTS FROM CURRENT LITERATURE

work because of dyspnea. His sputum was negative for tuberculosis, and his tuberculin skin test was negative in dilutions of 1:100 and 1:1000 then and subsequently until his death at the age of 57, by which time he had developed extensive massive fibrosis with severe emphysema at both bases. Serial x-rays are given and lung sections prepared by Professor Gough, both confirming massive fibrosis with ischemic cavitation. The patient was treated with isoniazid and dihydrostreptomycin without effect.

This case confirms the relentless progress of progressive massive fibrosis and coal miners' pneumoconiosis after exposure to dust has ceased, in the absence of a positive sputum and despite tuberculosis therapy. Its particular interest lies in the observation that the Mantoux reaction is negative.

C. M. FLETCHER [BULL. HYG.].

OCCUPATIONAL CANCER OF THE URINARY BLADDER IN DYESTUFFS OPERATIVES AND OF THE LUNG IN ASBESTOS TEXTILE WORKERS AND IRON-ORE MINERS. G. M. BONSER, J. S. FAULDS, AND M. J. STEWART, *Am. J. Clin. Path.* 25:126-134 (Feb.) 1955.

The value to the cancer problem, as a whole, of the study of occupational cancer in the field by experiment, together with the time lag between these two aspects, is discussed. A short consideration of the total amount of cancer in any population follows, and a classification of the most recognized occupational cancer.

A more detailed consideration of industrial bladder and lung cancer follows. In regard to the latter, the extent of the hazard, the nature of the chemicals involved, and their metabolism in these species are discussed. In regard to the latter, the occurrence of lung cancer in a group of male and female asbestos textile workers and in 192 hematite miners in Cumberland, England, is described.

The common factor in these two types of occupational lung cancer (in asbestos textile workers and hematite miners) is silica, and it is suggested that this may be the carcinogenic agent. The action of silica (as silicic acid) causes pulmonary fibrosis which precedes the initiation of the cancer process. The fibrosis is usually of smaller degree, however, in those lungs in which cancer supervenes. On published evidence the case for an etiologic relationship between nodular silicosis per se and lung cancer is much less strong than in silicosis associated with siderosis and emphysema. Hueper (1952) examined the literature very thoroughly and came to the conclusion that the available evidence supporting a causal relation between silicosis and cancer of the lung is "unimpressive." It seems possible, therefore, that the fibrous nature of asbestos or the action of hematite dust may exert a modifying effect on the chemical action of the silica or the fibrotic process itself. Further study of the nature of the carcinogenic process in pneumoconiosis is thus obviously needed.

FROM THE AUTHORS' SUMMARY AND CONCLUSIONS.

TREATMENT OF ACUTE AND CHRONIC LEAD POISONING WITH DISODIUM CALCIUM VERSENATE. W. F. WADE JR. AND J. F. BURNUM, *Ann. Int. Med.* 42:251-259 (Feb.) 1955.

The patients with acute or chronic lead intoxication successfully treated with disodium calcium versenate (Ca EDTA) are reported.

The EDTA produced a marked increase in urinary lead excretion which was maximal during the first 12 hours of therapy.

Loss of body lead into the urine was accompanied by (a) rapid and striking amelioration of signs and symptoms, including an "acute abdomen"; (b) disappearance of gingival lead lines; and (c) return to normal values of basophilic stippled red blood cells and serum indirect bilirubin, with no immediate reversal of decreased erythrocyte osmotic fragility.

No toxic effects from Ca EDTA were observed.

Ca EDTA affords a safe and effective means of therapy of acute and chronic lead poisoning.

At the time this paper was submitted for publication, the authors have successfully treated 14 patients with acute or chronic lead poisoning with disodium calcium versenate.

BULL. HYG.

TOBACCO AMONG WORKERS IN CIGARETTE FACTORIES. H. F. DORN and W. S. BAUM, *Indust. Hyg. Pub. Health* 24:239 (June) 1955.

This is a brief report of the survey carried out in the American Tobacco Company plants in North Carolina, and Kentucky. A comprehensive health service and group-insurance program was initiated in 1946 for all employees. An analysis of the experience of 70,532 person

INDUSTRIAL HEALTH

t autopsies; (2) by reexpanding by clamping the trachea before section. An experimental received intratracheal injections preparing the lungs for section. ven the form and arrangement hose in lungs prepared by other ast majority of dust cells were ntly found over the phagocytes als that survived, a considerable he lymph follicles were almost ith carbon-filled phagocytes or s were nearly always adjacent arances suggest that, over the ions and show no evidence of pithelial lining had formed over photomicrographs, in which a phagocytes.

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ITES. G. DECLERCQ, E. BAL- (No. 28/29) 8:3-5, 1955.

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ABSTRACTS FROM CURRENT LITERATURE

roentgenological picture, but the clinical conditions almost always remain the same. Pulmonary tuberculosis is seldom associated. With regard to occupational insurance in Italy, such disease should be recognized as caused by sulfur dioxide (Item 18 of table dated Nov. 15, 1952); miners would thus profit by manifold benefits, such as being entitled to a compensation in case of permanent disability starting from a 21% decrease of the working capacity; they would be better treated, and, above all, they could get rid of the fear of silicosis which at present is often mistaken for chronic occupational bronchitis. Criteria for forming the differential diagnosis are analyzed, and suggestions are given for prophylaxis and treatment.

FROM THE AUTHORS' SUMMARY.

INCIDENCE AND CHARACTERISTICS OF LUNG CANCER IN ASBESTOS WORKERS. G. JACOB and M. BOHLIG, Arch. Gewerbepath. u. Gewerbehyg. 14:10-28, 1955.

This is a study of the incidence of lung cancer among asbestos workers in Dresden, with numerous references to and analyses of the literature. Cancer of the lung developing in asbestos workers is not recognized as an occupational disease in West or East Germany. The international literature is based exclusively on the results of autopsies; the incidence among asbestos workers appears to vary between 12% and 17%. In Dresden, however, from research into cases at the clinic and among asbestos workers, it appears to be a rare occurrence. It is estimated that only about one-fourth of these workers have an effective exposure to the dust.

In cooperation with the roentgenological and radium institutes the authors reviewed the cases of asbestosis reported since the middle 1930's; they numbered 339 in all stages; in the first stage, O-I, there were 42 women and 61 men; Stage I, 43 women and 74 men; Stage II, 32 women and 61 men; Stage III, 13 women and 17 men. Silicosis was found in eight men. In 5 women and 10 men active, open tuberculosis was found; in this series the incidence of active tuberculosis was 4.4%. Four fatal cases of lung cancer in asbestos workers, which occurred in Dresden up to 1954, are described. The first patient was a woman of 46, who had been employed for three years, when young, as an asbestos weaver; autopsy showed typical asbestosis, with asbestos bodies and with squamous-cell epithelioma of the right middle-lobe bronchus; no metastases were found; the asbestosis was not diagnosed during life, the roentgenological changes in the lungs having been regarded as due to congestion. The second was a man of 49, an asbestos weaver, in whom asbestosis was diagnosed roentgenologically, with a tumor in the left lower lobe and one in the right radius; autopsy showed asbestosis and bronchial adenocarcinoma, with transitional squamous-cell epithelioma in the left lower lobe, metastases, and a caseating tuberculous lesion in the left lower lobe. The third was a woman of 57, who had worked in asbestos, between 1922 and 1930, for three years as a molder and five years as a weaver; she died in 1954; there was a definite asbestosis and a solid, spreading carcinoma of the right upper-lobe bronchus, with infiltration of the lung parenchyma and widespread metastases. The fourth was a man of 66, who was known at the clinic as an asbestosis patient, diagnosed roentgenologically five years before; he had been employed in asbestos as an opener from 1927 to 1930 and as a spinner from 1931 to 1948; autopsy, in 1955, showed a right-side bronchial carcinoma, with widespread metastases in the lymph nodes, liver, and skeleton.

A long discussion of the literature on cancer among asbestos workers includes an examination of the characteristics of the disease; the duration of exposure to asbestos dust and the latent period between exposure and diagnosis of cancer; the localization of the tumor, characteristically in the lower lobes; the histological nature of the tumors, the cell types and structure, and the statistical evidence. These characteristics are no longer convincing evidence of a high incidence of cancer in asbestosis. In the future, cases of cancer of the lung in asbestosis should not be published individually but should always be considered in the framework of the whole asbestos industry in the region.

E. L. MIDDLETON [BULL. HYG.].

SPONTANEOUS FISSURING IN JOINTS IN CAISSON WORKERS. P. DÉAK, I. RÓZSAHEGYI, and J. DÉVAI, Acta med. Acad. sc. hung. 8:125-131, 1955.

In the course of the medical investigation of 195 caisson workers, most of whom were healthy young men between 25 and 30 years of age, x-ray examinations of the knee joints were also made. In 25 of these x-ray pictures taken in the anteroposterior position, sickle-shaped translucent streaks were seen between the mesial condyles of the tibia and femur, following the contour of the femoral condyle. In some instances, instead of a continuous streak, a few tiny, pearly, translucent areas were noted. These appearances are considered to be caused by