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II. HYGIENE AND PHYSIOPATHOLOGY OF WORK
IN AGRICULTURE AND FORESTRY.

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- 1 -

J.Freytag, J.Brzozowski

THE INFLUENCE OF CALCIUM CYAMIDE ON THE HEALTH
OF RURAL WORKERS. 20.1.

Medycyna Pracy, 1952, 2, p.171.

We tested 56 workers, all men being from 19-45 years old. They worked at storing and sowing (by hand and by engine) of dusty calcium cyanamide, during the time of spring labour. We could observe a clinical picture of skin and mucosa changes. The work analyze showed the necessity of a properly profilactical behaviour for the individual and technical circumstances.

W.Szewczykowski

THE DANGER OF PLUMBISM INTOXICATION IN AREAL
TILE MANUFACTORIES. 22.

Medycyna Pracy, 1953, 4, p.291.

We tested a greater part of workers amidst crews, working in cooperative tile-manufactories in the district of Lublin. There we found cases of acute developed plumbism intoxication. We had to take in consideration the poor hygienical conditions and the lack of work-safety in these institutions.

Hygiene principles were not observed, and there was a remarkable lack of competent instruction from the menacing danger. Assurance of suitable hygienical work-conditions, of shelter-settlements, of individual hygienical conditions of every worker, as well as, an exact observation of periodical medical tests, certainly will reduce the percent of plumbish intoxication and allow to withdraw in time workers suffering from this disease out of dangerous environment.

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- 2 -

J.Opieńska-Blauth, A.R.Tuszkiewicz, J.Brzózowski

COMPARISON OF SYMPTOMS FOR EARLY PLUMBISM OF
WORKERS FROM THE LUBLIN-DISTRICT, BEING
EXPOSED TO THIS INTOXICATION.

83.

Annales UMCS, 1953, Sec.D, vol.VIII, p.151.

The authors carried out diagnostic researches, in the matter of early plumbism among a group of workers, like: potters, printers, men working at storage-batteries, electrotechnics, and benzine store-keepers. At the same time, the level of plumbum in the blood and urine as well as porfiryrne in the urine, has been tested. The definition for plumbum-content was performed by the ditizon method. In order to calculate the correlation between the above mentioned, we used the statistical tests " X^2 " and "Student".

The researches showed that the elevation of the plumbum level in the blood and the urine as well as the presence of porfiryrne in the urine, salled out the clinical symptoms for plumbism.

Longer breach-periods are of great influence on the decrease of plumbum in the urine. It seems possible to us that at the begin of working in these professions, one could state a chemical plumbum intoxication in potters and other workers, dealing in meat-conserve factories.

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- 3 -

J.Brzosowski, R.Jakubowski, A.Pietrzykowa

WORK HYGIENE AND STATE OF HEALTH OF PEOPLE WORKING **44.**
IN ORCHARDS BY APPLY OF CALCIUM ARSENATE IN SPRING.

Annales UMCS, 1953, sec.D, vol. VIII, p.16.

The object of these researches was to establish a controle for the state of health for workers being employed at the bespatter of fruit-trees with calcium arsenate.

During the whole work-time of seven weeks, 39 workers had been examined. The health-state controle, comprised ambulatory researches (every day), i.e. urine test, generally tests in regard to the arsene content (method Gutzeit), and on presence of porfiryne. Morphology researches of the blood were also made.

As to the researches about work-conditions, the definition of quantity of calcium arsenate in the air has been taken in consideration. During the following four months, a control on arsen secretion in the urine had been executed.

Physicians' researches showed out subjective pains like: changes on skin and of the conjunctiva, of the nose-mucosa, in the oral -cavity and the pharynx.

Observations showed that the quantity of arsen in the work area was much higher than the permitted content of 0,0003 mg.litr of air, and amounts to the average of 0,048 mg/e. Corresponding to this, the level of arsen in the urine increased and showed an average of 0,183 mg/1 of urine. A prolonged secretion of arsen (even 4 months after the work-period) showed a considerable accumulation of arsen in the organism of those workers.

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- 4 -

J. Freytag, C. Puzyna

**TESTS ON THE INFLUENCE OF MECHANICAL SHAKING
DURING TRACTORISTS' WORK.**

15.

Annales UMCS, 1953, S.D., vol. VIII, p.21.

We wanted to find the source of detrimental factors having such a bad influence on tractorists' health. Among the numerous damages which happen in this kind of work, the permanent one is the mechanical vibration of the apparatus; the vibrations are not too frequent, but they hurt the driver through the seat, the gangway and the driving wheel of the engine. The inequalities of the soil provoke hard shocks, too.

The Ursus C-45 tractor being used in Poland, is a one-cylinder two-tacties lying motor with an incandescent bulb, and its work provokes strong shocks of the whole engine and especially of the seat. Tests showed that the emplitude of the seat shock is - vertical 630-720 mm, and horizontal something about 3 mm; shock frequency = 630-720 c/min. These shocks are mechanical impulsions passing into the exteroceptoric and interoceptoric structure and further are transmitted on the central nervous system, which influences the equilibrium of the whole vegetative structure of men. The troubles deriving from this work have been clinically tested and fixed, during and after the work. They show a functional changeable character which we call, peripheral vegetoze.

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- 15 -

J.Freytag

STATE OF HEALTH OF TRACTORISTS, WORKING IN THE STATE FARMS AND STATE AGRICULTURE MACHINE CENTRES (A STATISTICAL ANALYZE). 26.

Annales UMCS, 1953, S.D., vol. VIII, p.21.

We gathered a great many complaints of tractorists, about different troubles and pains. The author collected the enquiries, and tried to work out a statistical register, in order to know which diseases were the frequentest one. The tabula contained a material of 2265 enquiries and the percentage for the different kinds of complaint and their character.

The result showed that the percentage for damaged persons showed to be 36 %; 48 % of diseases are the consequence of the tractorist's work. The localization for the pains is to be found in: head, ventricula, sacrum iliae. We stated a percentage for vertigo, head aches, nausea and vomiting. The diseases grow with the number of work-years. All the pains are in relation with the mechanical throbbing of the tractor.

J.Brzozowski, R.Jakubowski, B.Kawecka, A.Pietrzykowa,
J.Rodziewicz

WORK-HYGIENE AND STATE OF HEALTH OF PEOPLE WORKING ACCORDING TO THE USE OF CALCIUM-ARSENATE AT WESTING AWAY THE "LEPTINOTARSA DECEMLINEATA". 27.

Annales UMCS, 1953, Sec.D, vol.VIII, p.17,p.282

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- 6 -

J. Brozowski, R. Jakubowski, B. Kawecka, A. Pietrzykova,
J. Rodziewicz

8.

STATE OF HEALTH OF WORKERS AND HYGIENE WORK-CONDI-
TIONS DURING THE WESTING AWAY OF THE LEPTINOTARSA
DECEMLINEATA.

Medycyna Pracy, 1954, Nr 2, p. 100.

The authors made researches about the state of health among rural workers (99 persons), working at the westing of Leptinotarsa decemlineata, by the help of calcium arsenate.

The observations took place during the bespattering with a solution of 0,5 % calcium arsenate, and the sprinkling with a factory preparate of 10 %.

The researches enclosed: ambulatory researches by physicians; ambulatory tests for the Hb level evaluation, further, on erythrocytes in blood and urine, and a general urine-analyze, on the arsen-level in the urine.

In regard to the possibilities of liver damages, eleven (11) among the tested people have been directed to the II Interna-Clinic in Poznań (Posen), for an exacter controle. The hygienic work-conditions were tested, with a special regard for arsen evaluation of the air, in the work-area.

Air samples were gathered into bottles, filled with water - where the arsen content has been definitied (Gutzeit method).

On the base of work-conditions, ambulatory, clinical and laboratory tests, we could affirm that:

1. Arsen level in urine and air is higher than the industrial standard shows, though rural exhibitions are occasional.

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- 7 -

2. The use of calcium-arsen dust is more dangerous for workers than sprinkling.
 3. The workers showed changes caused by arsen.
 4. A dependance of the arsen level in the urine, onto exacerbation of clinical symptoms, could not be affirmed.
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J.Freytag, J.Brzozowski, R.Jakubowski, A.Pietrzykowa

WORK HYGIENE AND HEALTH OF WORKERS APPLYING
CALCIUM CYANAMIDE IN AGRONOMY.

2A9.

Medycyna Pracy, 1953, No.5, p.363.

The authors discussed the activity mechanism of calcium cyanamide being applied in agronomy, onto men organism, with special regard on circumstances, being propicious for all kind of intoxications, which may happen in rural centres. The air around a sowing machine has been tested for the content of calcium cyanamide, and showed that its concentration oscillates in limits of 0 - 1198 mg in one liter of air. The tests have been performed by the means of comparison between the two bottles, each containing a liter of air. The absorption time was 3 minutes.

Azote has been definitied by the means of the Kjeldahl method and after that, count over in calcium cyanamide. The results out of ambulatory clinical tests of 111 persons who were employed at rural work with calcium cyanamide, have been assembled by the authors on a tabula.

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- 8 -

J.Czajka, J.Brozowski

DEFINITION FOR HEXACHLOROCYCLOHEXANE IN URINE
AND AIR.

29. 10.

Medycyna Pracy, 1954, Nr 5. p.343.

The authors modified the definition for hexachloro-cyclohexane in urine and air by adapting it to the hydrolyze metallic Na, in the environment of Xylen. The apply of the precipitation method, for the definition of chlorus, often leads to great mistakes. The use of reagents 0,01 enables the definition of HCH in stiffings of about 250 g/l. By taking air tests one should take care of the flow-rapidity which cannot over-cross two lt/min. By the use of this method we could carry out a definition for contents of HCH in air-regions of rural labour, as well as for contents in urine from persons fighting against leptinotarsa decemlineata Say. The air stiffing at rural work in fields showed an average of 0,12 mg/l, and for closed dwells, an average of 0,225 mg/l.

People working in such conditions showed a contain of chloro-carbohydrides in urine, from 2,6 - 11,9 mg/l. The extension for individual results was 0,27,6 mg/l.

J.Brzoowski, J.Czajka, T.Dutkiewicz, I.Kęsy, J.Wójeik

11.

WORK-HYGIENE AND STATE OF HEALTH OF WORKERS EMPLOYED 30.
IN FIGHTING WITH THE "LEPTINOTARSA DECEMLINEATA", BY
THE HELP OF HEXACHLOROCYCLOHEXAN AND DICHLOROETAN.

Medycyna Pracy 1954, Nr.2, p.89.

The authors performed researches about the influence of HCH and dichloroetan on the health of workers.

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- 9 -

The following researches were made:

- a) ambulatory health control,
- b) lobular tests for outfinding the allergy,
- c) general urine-test,
- d) blood-morphology,
- e) tests for liver activity,
- f) definition of HCH and bichloroetan in the air of the work-area.

In order to find a real definition for work conditions, we carried out systematical observations on the method, and this is different posts, we defined HCH and chloroetan in the air. The results of these researches showed clinical changes in 70 % of workers using dichloroetan for their work, and in 66 % using HCH. The percentage of subjective changes was a lower one. The average level of HCH in the air, showed about 0,120 mg/liter, instead of bichloroetan which showed 0,016 mg/liter.

J.Freytag, R.Jakubowski.

12.

INVESTIGATIONS ABOUT THE WORK HYGIENE.

DM

Polski Tygodnik Lekarski, 1954, No.50, p.52.

Scientific workers of the State Institute of Rural Occupational Medicine and Rural Hygiene had worked out a method in support of a Government Office Bill from the 1.VIII.1954 which assures progress for the work safety activity being fit for testing. This method agrees with the purport of the mentioned bill and takes under consideration the progress of agrotechnic with its practical requirements.

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- 10 -

1. Technic physical tests of the used engines and apparatus, taking into consideration the postulates of physiological work.
 2. Health analyses for people, being employed at special works (test card for tractorists and periodical investigations).
 3. Periodical investigations of the workers of State Engine Centres and testing their sanitary work conditions, as well as State Engine Centres workshops.
 4. Investigations of young people working at rural mechanization.
 5. Foundation of an establishment for conditions in order to create the collaboration of technics and physicians at projections for new machines and settlements for agronomy and forestry.
-

J. Breytag, W. Szewczykowski

WORK-HYGIENE PROBLEMS FOR TRACTOR-SCHOOL PUPILS.

Vol 13.

Medycyna Pracy, 1955, 3, p.187.

The authors analysed the influence of bad factors which may happen for the pupils' organism, out of this kind of work. The vegetative nerve-system, as well as the bone-articular organ are particularly exposed to the activity of mechanical stimulus.

The authors measured the work-places on the Ursus C-45 tractor, in order to test seat and helm dispositions. Body measures of the driver have been performed, too. They further stated the necessity of mutual fitting between the driver and the machine in order to the work-mechanism, i.e. to find the way for equilibrating the stream of work and the burden of the man, which should

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- 11 -

not be nuisible for the tractorist's organism. The authors worked out rules for medical researches onto the pupils of Tractor-Schools; young people with diseases like: nerve-system troubles, bone-joint and muscle diseases, tooth-carries, chronic naso-pharyngal maladies and in generally weak people and young men of low growth, should not be accepted.

B.Szucki, B.Holeszowski

A NEW METHOD FOR QUANTITATIVE DEFINITION OF
ALDEHYD ACET IN THE AIR. 14.
20.

Medycyna Prasy, 1956, Nr.2, p.115.

The authors worked out a new colorometrical method for the definition of "aldehyd acet" in the air. We got tests by the help of an air prostration rinse-glass, with a porous plate, by the velocity of 30 liter/hour. For absorbing liquid, we used H_2SO_4 . After precise mixing the content of the rinse-glass - 3 ml - was gathered and put into a gange with a content of 1 mln 2 % solution of codeine, in 50 % H_2SO_4 . After 30 minutes the valor of the extension had been read from Pulfrich's photometer by using a filter S-47. The stiffing of aldehyd was read from the standard curve, preparated from solutions with known aldehyd-stiffings. The definition for this sample should be executed in an interval of 4-5 hours, the valor of the result can be lower about 10 %. The definition competence of the sample showed from 10 - 60 mg. The test mistake was ± 3 %.

The fitness of this method has been tested from researches about labour conditions in a vinegar factory.

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- 12 -

J.Brzozowski, W.Berbed, J.Rodziewicz, J.Wójcik

WORK HYGIENE AND HEALTH-STATE OF PEOPLE
WORKING AT THE DESTROYMENT OF LEPTINOTARSA
DECEMLINEATA, BY THE MEAN OF DICHLOROETAN.

14.15.

Annales UMCS, 1957, Sec.D, vol. XII, p.281.

In order to answer the question as to which degree dichloroetan could be fastidious for men working at the destroying action of Leptinotarsa decemlineata, and which kind of work-safety method should be employed, the Institute for Work-Medicine and Hygiene (Lublin) organized a research expedition in the years 1953-54. We tested 118 workers and their work environment in regard to dichloroetan content in the air. Their state of health has been evaluated on the following tests:

- ambulatory (dermatologists and internists) - some of the workers were clinical-tested, and were for a few days in hospital treatment;
- general blood-morphology;
- general urine analysis;
- estimation of dichloroetan in the urine;
- liver activity (Quick) and epidermical tests (Jadassohn-Bloch).

For the results a statistical enregistration was made. We confirmed that there may be a possibility of some resorption of the chemical preparate by the respiratory system. Taking in consideration the lack of knowledge how to act with chemical compounds, we stated, that there may exist a great possibility of absorption by the skin. The changeable climatic conditions and insufficient nourishment are of course most important factors able to weaken the bodily resistance.

We stated that the stiffening of dichloroetan in the air, holds in limits, or something higher as the industrial

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- 13 -

standard permits, i.e. 0,05 mg/liter. The period for danger is a short one, and doesn't awake any kind of restriction. On the other hand it often happens that somebody being careless pours the chloroetan on clothes and body; sometimes the utensils are not suitable, sometimes people do not realize that carelessness means a serious danger for their health. Chloroetan absorbs itself very easily even through a not-damaged skin.

We didn't remark serious intoxications but we found in 10 % of tested workers lesions evoked by chloroetan, and we had to remove them from work with chemical compounds.

The dichloroetan level in urine cannot be a factor for the degree of a damage in ones' health. Blood-tests showed in 18 % a level-increase, in 75 % fall of the neutral absorbement of white blood-corpuscles, and 90 % showed an increase of lymphocyt number.

These changes were due to early intoxication (exposition as to 6 weeks). Results of active liver tests (hipur-test, of Quick) were not satisfactory.

B.Szucki, Z.Soczewińska

DEFINITION FOR ACET-ALDEHYD IN THE BLOOD OF
EXPERIMENTAL ANIMALS.

Annales UMCS, 1957, Sec.D, vol.XII, p.21.

In connection with blood investigations about the influence of calcium cyanamide and alcohol etylene on animal's organism, a colorymetrical method has been worked out in order to definite the presence of acet-aldehyd in the blood of experimental animals.

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- 14 -

For this method we used the many coloured reaction of acet-aldehyd on codeine, in an environment of stiffen H_2SO_4 . We put into a blood-sample of 3-4 ml a whirled solution of sodium Me_2SO_4 ; after that, destilated aldehyd, into acet-sulphur, stiffed to 3 ml. The destilation was performed at the temperature of $80 - 85^{\circ}C$, during an interval of 30 minutes. It was passed, at the same time, through the air test. The distilation done, we added a 2 % solution of codeine in 50 % H_2SO_4 , which was put into a recipient. The intensity of colour has been read from Pulfrich's Photometer by using the filter S-47.

The aldehyde level was to be seen on the standard curve which was made out under the same conditions, from solutions of known aldehyde stiffings.

The competence of acet aldehyde definitions in the blood-sample showed 10-7 mg.

The error between the individual definitions did not surpass ± 3 %. This method has been verified by the quantity definition of acet aldehyde contents in the rabbit's blood, among which an alcohol investigation has been evoked, by adding ethyl alcohol and dizyklohexil tetroetyltiuran.

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- 15 -

J.Brzozowski, B.Szucki, K.Turowicz, M.Podolak,
J.Rodziewicz, D.Wijakowska

D.D.D. WORKERS' STATE OF HEALTH IN THE DISTRICT
OF LUBLIN. 17.

An elaborate worked out on a base of periodical
researches.

Bul. of D D D, 1957, II. 1, 191.

In 1957, 25 workers, employed in DDD, had to pass
through periodical researches (district of Lublin).

They all were submitted under double control of their
state of health. After excluding symptoms which could
be provoked by other supplementary pains, we analyzed
only those, which were caused by the activity of che-
mical factors, being used in the DDD action. Beside
clinical tests, the patients have been subdued to
supplementary researches. They were:

1. an entire blood morphology,
2. bleeding and coagulation-time,
3. generally urine test,
4. rentgenological researches of the respiratory
system,
5. skin tests for the ability of alcali neutrali-
zation,
6. evaluation of the talium-hydrogen-chloride-sulpha-
tes, and porfirine level in the urine.

A confrontation of research and laboratory results with
the work-conditions showed, that in the present conditions
in Poland workers being employed in the DDD-Service, are
greatly exposed to the activity of hydrogen-chlorides and
their solvents.

By the apply of this diagnostic method, we couldn't find
other kinds of damage, provoked by chemical compounds.
In half of these researches we constated an increase of

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- 16 -

urobilinogen in the urine, and one serious alergicical case of alfanatylo urea and derivates.

W.Missiuro, J.Freytag

A TEST OF PHYSIOLOGICAL CHARACTER IN TRACTOR WORK. ~~67~~ 18

Medycyna Pracy, 1957, No.2, p.99.

The organism of a rural tractorist is subjected to the influence of a lot of environment factors. We want to enumerate those which merit a particular attention:

1. influences of combustibles, mechanical vibrations, provoked by the tractor work,
2. influence of meteoclimatical conditions.

All these factors have been analyzed from the physiological point of view.

As to the work, we already showed the reaction of the circulation and respiratory organs, besides of the nerve-muscle system and changes provoked by gases.

The characteristical activity reaction of the ciraulation organ to the work was led on measuring the arterial pressure by the help of mercur strignomanometer, and onto a registration of the active heart currents in final repositions.

The tests have been performed in rural conditions, before and after the tractorists' work. The metabolism tention has been designed by help of the calorimetrical Douglas-Haldane method. We registrated also the activity currents, diverted out of triceps sura muscle, in standing position, and on tiptoe. The currents have been diverted by the help of two hyposuccing electrodes. The reception electrode in the motoric point of the muscle, "neutral" at its base, has been measured by the power of handfinger

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- 17 -

curving, by the help of a spring dinamometer. The given results allowed us to admit, that there may occur a systale state in the small blood vessels. A moderate tension at the analyzed work (harrowing, potatoe-planting, corn-seed) showed the average of a day use (24 hours), i.e. of 3777 calories.

J.Danielski

THE PROBLEMATIC OF RURAL WORK AND ITS NEEDS.

Medycyna Pracy, 1957, No.6, p.437.

19.

The author points to scientific literature about work hygiene, and compares our and foreign work laws. He gives a short outline of most important problems and needs of rural work, and work-hygiene. He divided the large sphere of these work and its hygiene in the following groups:

1. Personal hygiene and life conditions of rural workers.
2. Prevention for rural workers, against social and parasite diseases.
3. Hygiene in rural building.
4. Sanitary farm-settlements.
5. Problems, being related to pathophysical rural work.
6. Hygiene and safety in agronomy.
7. Teaching hygiene and work safety in agronomy.
8. Organization of physician care, and morbidity structure among rural workers.
9. Laws and prescriptions for hygiene and work safety standard in agronomy.

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- 18 -

The author discusses the problems of sanitary teaching, dwelling hygiene and nourishment hygiene, being related to life conditions, as well as fighting against alcoholism. He enumerates diseases which often occur among rural workers, and traces the main principles for prophylactic. The author divided the problem into three questions:

... Dwelling building, farm building, work establishments. He speaks about the necessity of linking the three groups together, which may lead to establish the hygiene problem for rural work, by taking its needs under consideration.

The author emphasizes that tasks, which arise out of these problems should deduct from a real background, everyone of these questions must find a solution which must be conform to the needs of particular terrain. These problems need an efficacious scientific and social collaboration with the state and its regional administration.

J. Freytag, J. Brzozowski

THE INFLUENCE OF AZOTE ON THE HEALTH OF RURAL WORKERS.

49. 20

Medycyna Pracy, 1952, Nr. 2, p. 171

J. Brzozowski, R. Jakubowski, A. Pietrzykova, J. Rodziewicz

WORK-HYGIENE AND STATE OF HEALTH OF WORKERS DEALING AT EMPLOY OF AZOTE IN AGRICULTURE.

Annales UMCS, 1958, Sec. D, vol. VIII, p. 302.

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- 79 -

21. J.Freytag, J.Brzozowski, R.Jakubowski, A.Pietrzykowa

WORK-HYGIENE AND STATE OF HEALTH OF PEOPLE
WORKING AT EMPLOY OF AZOTE IN AGRICULTURE.

Medycyna Pracy, 1953, Nr.5, p.363.

The authors show us results carried out of own observations concerning the state of health and the work conditions of rural workers, who employ calcium cyanamide at spring-time in corn-sown. The control of their state of health has been completed, besides physician-ambulatory researches, by laboratory urine and blood tests, epidermical skin tests, and the evaluation of azote contains in the air. Every worker has been controlled before and immediately after work. Researches were made onto 65 workers. Among subjective symptoms we could often recognize weakness, bad self-sensation, aspire lose, head-aches and giddiness, ringing in the ears, baking in the conjunctiva, a feeling of hot on face and neck, painful hands-skin, throat-scratching, painful cough, and baking behind the sterum. These kind of pains lasted generally some days, and sometimes even manifold. Subjective symptoms were, before all, on the skin and mucosas. Laboratory tests for urine and blood didn't show conspicuous deviations from the standard.

In three cases (among 31 tested) the epidermical skin test was positive.

The contents of azote in the air oscillated in limits from 0,11 mg/liter, the average was 150 mg/liter.

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- 30 -

J. Freytag, W. Pleszczyński

INVESTIGATIONS ABOUT WORKER'S SICKNESS DISCHARGE
IN POLISH STATE ENGINE CENTRES. (POM).

404 22

Annales UMCS 1959, Sec.D, vol. XIV/18, p.157

The absence of sick workers in the Machine Centres is, taken from the economical and sanitary point of view, a special one. This problem differs of the absence problem for industrial workers, and didn't as to now, find a real print in our national literature. The Institute for Rural Medicine and Hygiene showed that the amount for loss (work days) in the POM is a big one. We found in POM a statement of 3 % cases (76 % for the total), of lost workdays. We may accept as pawn for the State Engine Centres an amount of 100 - 110 thousand lost work days for a year. The amount of lost workdays was consequently 81.472 days. The highest disease positions are: trauma with complications (something about 37 %). They represent more than 41 % of the total sum, in regard with the loss of work-days. Among traumas we found that 25 % of lost workdays were leg fractions, 11 % hand fractions. The average for lost workdays because of leg-fractions is 81 days; for hand-fractions - 56 days; for rib-fractions - 42 days. Hand injuries mean a loss of 6 work days. Applies payed for injuries, losses for rural work, because of the discharged workers who cannot act, especially during season production, should be taken under consideration.

All these accidents show how rational are all expenses for bhp (work-safety) and it high meaning for a development of this institution.

There should be many outposts of Work Safety, through the rural districts of our country.

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- 21 -

J.Freytag, W.Nicewicz, W.Pleszczyński

DUST CONCENTRATION AT TRESHING AND DEFINITION
FOR THE MICROFLORA IN DUST.

23.

Arch.Hygiene u.Bakteriol., 1959, Bd.43, H.5,p.322.

Rural production has many characteristic activities which produce dust. Dust has a great extension. The literature shows that there is an enormous disproportion of works, consecrated to dust and to pneumoconiosis in agronomy and in industrial work. An especially great pollution through the work environment can be observed at treshing; there the harmfulness of the dust is joined together with its organical structure and where we can find the bacterial mycological flora, which is not indifferent to us because it often produces repeated intoxications to the damaged tissue in the inhalatory system. The presence of silicon alliances, being non organical compounds of the dust, being provoked by treshing, may show a very complicated clinical picture for its reaction onto lung telas.

The authors confirmed in people working at the treshing engine acute bronchus catarrh; they tested the whole material gathered from the conjunctiva sac, nose and larynx of workers, as well as the dust, by means of a direct sediment method, and just there where people worked. They used for their investigations agar agar medium, agar agar mixed with blood, agar agar sabourau and agar agar of potatoes. They affirmed that among the isolated kinds they could find Fungi imperfecti, which takes a great part in men and animal pathogeny and develops mycosis in the inhalatory system and on the skin.

It should be very necessary to introduce the clinical diagnosis for all these cases, especially in the country. The diagnosis should be based on mycological investigations.

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22
- ~~22~~ -

That may allow the researchers to discover a very big number for mycosis intoxications, which at this moment is rather impossible.

W. Pleszczyński

THE DUST PROBLEM IN AGRONOMY, SEEN FROM A POINT
OF VIEW OF A TECHNICAL MEASUREMENTS METHOD.

14a 24

Biuletyn IMP and HW, 1960, Nr. 11

Many activities occurring in rural production cause clouds of dust of a very wide extension. This dust expansion is one of the most serious problems concerning this kind of work from a hygienical point of view.

Wherever dust appears it always has a different character which depends on its different origine, chemical composition, form, weight, grain-size and its mutual relation of individual fractions ... and so on, which may cause serious difficulties, being of methodical nature. A review of investigation methods, used for hygienical tests of environment pollution allowed us to confirm that as to the conditions for the rural dust, the best results may be obtained by the means of a membrane measure filter.

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23
- 103 -

J.Brzozowski, B.Szucki, M.Podolak, W.Berbec

THE LEVEL OF CHOLINESTERAZE OF HEALTHY PEOPLE.

Medycyna Pracy, 1960, Nr.6, p.421.

Considering the changeability of the cholinesteraze level measures for the activity of the enzyme have been performed among various kinds of population, and this on 149 healthy people, living in the district of Lublin. The tests have been subdued to physician's selection and were divided into two groups. The first one were the blood-givers. The Transfusion-Station of Lublin, errected the following conditions:

For women: Hb over 75 %, and 400.000 erythrocytes for mm^3

For men: Hb over 80 %, 4.500.000 erythrocytes for mm^3 , furthermore complete lack of whatever changes, stated by physical researches, and by the help of supplementary researches.

The second group were patients from the provincial Council-Station for professional diseases in Lublin, responding to the following conditions: Hb above 80 % and 4.500.000 erythrocytes in mm^3 ., and lack of whatever kind of diseases.

The definition for cholinesteraze level was carried out from the plasma of 143 persons, among them 55 women. The definitions have been carried out by the Michel method, modified by Janok-Liski, which is based onto measuring the changes caused by the potential electrodes (calomel-glass), thanks to a progressive stiffing of vinegar, and secretion during the enzymatic hydrolize of acetylholine. We tested the following activities of enzyme:

red blood corpuscle: middle - 0,708 Δ pH/hours; value
limit: 0,50 - 1,10 Δ pH/ hours

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plasma: middle - $0,721 \Delta \text{pH}$ hours, value limit: $0,40 - 1,50 \Delta \text{pH/hours}$.

A great disperse of individual activity of cholinesterases creates a necessity for carrying out the first definitions before beginning the work with organic-phosphoric preparations, because only then one can affirm, if the drop of activity in the enzyme is essential.

J. Billewicz-Stankiewicz, M. Pawłowski

TESTS ABOUT THE INFLUENCE OF INHALATED CALCIUM
CYANAMIDE ON PHYSICAL EFFICIENCY IN EXPERIMENTAL
ANIMALS.

26

Zeitschr.f.d.ges.Hygiene u.Grenzgebiete.1960,9,p.540.

These kinds of tests have been performed for white rats and mice. The animals have been put in the inhalation cell and exposed to a dusty suspension of about 3 mg.concentrated azote in one liter of air. The rats' efficiency has been measured by the means of swimming time in a water of $36 - 37^{\circ}\text{C}$, by adding a load of about 30 gr. After having exposed the animals for ten minutes a day under the azote influence, the authors observed that they swam for a shorter time - in comparison with control estimation. This grew stronger every day and certifies the accumulation of calcium cyanamide activity.

An exposition for 20 minutes showed a higher intensivity of this action - in the sense of a quicker accumulation. Average times for swimming in day series, when the animals had been exposed to inhalation were lower, in comparison with the average time, when the animals had not been exposed to inhalation. The average differences were statistically characteristic.

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25
- 25 -

White mice being put in Schlagintweit's actograph two times for 15 min.; by a rest of 10 - 30 min. they inhaled calcium cyanamide dust. The individual mobility of the animals was lower after 10 or 20 min. lasting inhalation. The resting in the inhalation cell, where calcium cyanamide had not been introduced didn't change the animals mobility. Actographical curves had been not only visually estimated, but also by definition of movement numbers. The statistical analyse showed that lower movements of animals being under the influence of inhalation are very significant. As to their stay in inhalation cell and the influence of such factors as the motor noise, the current of air, and so on, does not avoke statistical and real changes in the animal's mobility.

The authors think, that calcium cyanamide being rather not very toxic, exercees nevertheless a negative influence on living organisms, and evokes a decrease of individual and physical efficiency and mobility. These phenomena explain the necessity to protect people working in calcium cyanamide dust against the inhalation of this substance in the respiratory organs.

B. Szucki, Z. Soczewińska

THE METHODS OF AIR DETERMINATION OF CALCIUM
VERSENATE, CALCIUM CYANATE, HEXACHLOROCYCLO-
HEXANE, AND DICHLOROETHANE ADAPTED TO THE
RURAL INVESTIGATION.

Medycyna Pracy, 1960, XI, 6, 464.

27.

49

As there exists the necessity of adaption of laboratory methods to the conditions in which the investigations in the field of occupational hygiene are carried out, as well as in view of the interest aroused by the problem of

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26
- 06 -

standards and the methods of the standard investigation, the authors made an attempt to present the methods used in their own studies.

The experience resulting from the investigations on the effect of calcium versenate, calcium cyanate, hexachlorocyclohexane and dichloroethane has permitted to introduce some modifications in the laboratory method of air examination, which are the subject of this publication.

J. Billewicz-Stankiewicz, W. Tybureczyk

EXPERIMENTAL STUDIES ON THE EFFECT OF PHYSICAL
WORK UPON CHANGES IN THE BLOOD CHOLINESTERASE
ACTIVITY.

16m 38.

Medycyna Pracy, 1960, XI, 6, 427.

The investigations were made on with rats subjected to the effort test (swimming test). Before and after the effort test the red blood cell and plasma cholinesterase activity was determined. It was stated that after one hour effort test the red blood cell cholinesterase activity increases significantly. Moreover, in the course of further experimental series, it was stated that the sympathetic system has no influence on plasma and erythrocytes cholinesterase level. This statement is based on the results of determinations made after administration of atropine and dihydroergotoxine. It was proved too, that the administration, before the effort test, of atophane causing disturbances of the liver function, provokes after the effort no increase of the activity of cholinesterase contained in erythrocytes.

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- 27 -

In connection with this and after having verified that this phenomenon does not depend upon the blood inspissation, the authors came to the conclusion that a longer physical effort causes the increase of activity of the non-specific cholinesterase, which is taken by erythrocytes.

J.Brzozowski, B.Szucki, M.Podolak, W.Berbed

CHOLINESTERASE LEVEL IN HEALTHY MEN.

29. *ma.*

Medycyna Pracy, 1960, XI, 6, 421.

As the cholinesterase level is different in different populations, the determinations were carried out in the district of Lublin among 149 healthy men. The determinations were made with the Michel's method modified by Janok and Liska.

The following enzyme activity was stated: the red blood cells 0,7089 pH/h, limit values - 0,50 - 1,10 pH/h, plasma - mean: 0,72,12 pH/h, limit values 0,40 - 1,50.

The necessity of the preliminary cholinesterase determination before the work with organophosphoric insecticides is to be started, was emphasized.

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28
- 28 -

J. Billewicz-Stankiewicz, L. Pawłowski

EXPERIMENTAL STUDIES ON THE EFFECT OF CALCIUM
CYANAMIDE INHALATION UPON THE HIGHER NERVOUS
ACTIVITY OF ANIMALS.

48, 30

Medycyna Pracy, 1960, XI, 6. 433.

The investigations on the effect of inhalation of calcium cyanamide dust upon the higher nervous activity were carried out in rats. Conditional reflexes were created in rats. These reflexes were stereotypical for the following stimuli and ranged as follows: 1 and 2 - bell sound, 3 and 4 - red light, 5 - bell sound, 6 - tinkle roar (buffer differentiation stimulus), 7 and 8 - bell sound, 9 and 10 - red light. Resting in the inhalation chamber and the roar of the electric aspirator provoke in rats no real changes in the stereotype. Shorter exposures to the action of calcium cyanamide dust suspension (2,9 mg/l 1 - 2300 thousand particles in 1 liter of air) in the limits from 10 to 50 minutes have caused the weakening of the inhibitory processes. The longer inhalation of calcium cyanamide (1 - 2 hours) in all animals have lead to the weakening and then to the disappearance of many positive reflex reactions. These phenomena lasted up to several hours after the end of inhalation. During the next period of eleven days after stopping the exposure to the calcium cyanamide action, the conditional reflexes came to the normal state. Dust suspension of a concentration smaller about by half (1,6 mg/l - 1300 thousands particles in 1 l) did not cause changes in the conditional reflex activity of rats.

The authors came to the conclusion, that the threshold concentration of dust suspension influencing the highest nervous activity of rats lays between 1300 thousands to 2300 thousands particles in 1 liter of air, whereas threshold activity time is ranging from several to ninety minutes.

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29
- 29 -

B.Szucki, Z.Soczewińska

A METHOD FOR DEFINITION OF CALCIUM ARSENATE,
CALCIUM CYANAMIDE AND DICHLOROETHANE, ADAPTED
TO RESEARCHES IN RURAL DISTRICTS. 14.31

Medycyna Pracy, 1960, 6, p.463.

Taking in consideration, hygienic work conditions, at the time of plant-shelter, a very simple and exact method has been worked out in order to definite individual compounds in the air.

We used a notcapillary glass-cotton absorber in order to test air, stained with calcium cyanamide. HCH (hexachlorocyclohexane), dichloroethane has been absorbed on a silicagel column.

Calcium arsenate:

Arsenate has been definited by the Gutzeit method. By the help of a special construction of the apparatus we got on blotting paper saturated with HgBr_2 , regular stained blotches, having a tension which depends on the quantity of reacting arsen-hydrogen. By help of this method, we can definite 1-30 mg of calcium arsenate in the test, with an accuracy to 1 mg, occuring in lower tensions, and 2-3, at higher ones, which depends on the scale magnitude for prepared standards.

Calcium cyanamide:

The definition for calcium cyanamide depends on the quantitative determination of the cyanamide content. In order to absorb calcium cyanamide out of the air, an absorber, filled with glass cotton, it's inside stratum being 10 cm thick, has been wetted with paraffin-oil. Using our method for the definition of calcium cyanamide, the secretion of amoniac was resorbed in a H_3BO_3 solution, and (demeasured) 0,02 n HC_1 .

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- 30 -

Hexachlorocyclohexane:

The definition for HCH supports on the oxidize of the preparate by help of $K_2Cr_2O_7$ with a stiffing of H_2SO_4 in the temperature of $130-135^{\circ}C$ and the absorption of secreted Ch in an acid solution of tolidine ($CH_3C_6H_4NH_2$). A yellow compound, carried out from the result of reaction can be definited colorimetrically on Buffrich's Photometer, using a filter S-47, or by demeasurement (0,0001 n $Na_2S_2O_3$). The competence of definition HCH in the test is 5-70; middle mistake = 4,5 %.

Dichloroethane:

The base for dichloroethane definition is Fahy's method, which depends upon an alcalical hydrolize and demeasurement of the resting chlorures 0,01 n Ag NO_3 in the presence of K_2CrO_4 . There are new conditions for hydrolize, which short the duration of reactions as to 5 hours. The hydrolize has been carried out in the environment of alcohol izo-propil at $70^{\circ}C$. This new discovered method gives 0,297 mg; middle mistake \pm 2,2 %.

A, Jasiński, W. Tyburczyk

ESTIMATION OF ADRENALINE OXIDASE IN BLOOD PLASMA,
BY MEANS OF A COLOMETRICAL METHOD.

32

(in impr.)

A micromethod has been worked out which estimates the activity of phenolo-cytochronic - and amino oxidase, as well as nonenzimatical oxidase of the blood plasma. Adrenaline has been used as substrate. Separate enzyme groups had been differentially estimated. The colorimetric method estimated pink stained andrenaline, as an endproduct of adrenochrom. This differential, blocked

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- 3 -

the activity of individual enzymes, by the mean of a suitable chemical-pharmacological substances as: potassium cyanide wersenian soda, iproniasyd. In order to restrain enzyme reactions natriumazide has been used, and for stabilization of the organized adrenaline, the acidification of 0,05 N HCL.

The estimations have been performed by the means of Pulfrich's photometer in microcuvettes of 5 cm, by the use of a filter with maximal absorption of 500 m, in the presence of a phosphorised buffer pH-6,0. The highest conditions for adrenaline inactivity through the blood plasma, - by means of individual parameter investigations as: temperature, buffer concentration, pH-environment and substrate concentration, - have been established.

A phosphorated buffer of isotonic concentration pH-6,0 has been used for the investigations. The incubation time lasted for 30 minutes, at a temperature of 37°C. Adrenaline has been added in form of substrate to the samples, with a quantity of 50 γ in two drops of 3 % oxygenated water. The investigations were made on human blood.

On the base of these tests one can suppose that the oxydase of adrenaline through catalising plasma corps, forms adrenachrom, which in dependence of pH environment, turn quickly or somewhat slower, into melanin.

The acid environment stabilises perfectly the formed andrenochrom. The activity of the monoamino-oxidase was a so small one, that it showed to be between the error limits of the method. It seems, that the mono-amino-oxidase of human plasma doesn't have a great meaning for inactivating adrenaline.

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32
- 12 -

J. Billewicz-Stankiewicz, L. Pawłowski

EXPERIMENTAL INVESTIGATION OF THE INFLUENCE OF
INHALING CALCIUM CYANAMID, IN THE HIGHER NERVE
ACTIVITY IN ANIMALS.

fol. 33.

(in impr.)

The authors performed their researches upon this object on rats. They observed conditional reflexes, stereotypically arranged for exitements, and noted the following alternations: 1 and 2, Bell's tune; 3 and 4, red light; 5 bell's tune; 6 tinkeling noise; (a differential skid exitement); 7 and 8 bell's tune; 9 and 10, red light. The stay in the inhalation cell, and the noise of an electric aspirator, didn't cause essential changes in the rat's stereotype. Shorter expositions onto the activity of dusting calcium cyanamid emulsion 2,9 mg/L (2300 thousand particles in a liter of air), during a limit of 10-15 minutes, caused a debilitation of the skid processes in animals. A longer inhalation of calcium cyanamid (1-2 hours) let to a general debilitation in all the animals, and further to an evanescence for positive reaction reflexes. They showed to be phenomena, lasting from 10- to some ten hours after the inhalation. During the next eleven days, after interruption of the exposition to inhalation, the conditional reflexes returned to their standard line. The dusting emulsion, having a density half less than 1,6 mg/L (1300 thousand particles in 1 liter of air) didn't cause any change in the conditional reflexion activity of rats.

The authors infer, that a limend concentration of the dusting emulsion, exersed on a higher nerve activity in the rats, lays between 2,9 mg a 1,5 mg/L (1300 thousand particles to 2300 thousand particles in a liter of air); the limend time of activity = from about 10-some ten minutes.

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