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NEWSLETTER

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Industrial Hygiene Division



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DETROIT SELECTED FOR 1949 ACGIH MEETING

H. G. Dyktor, New Chairman

The 1949 Industrial Health Conference will be held in Detroit, Michigan, according to an announcement made at the Boston meeting.

Officers and members of committees of the American Conference of Governmental Industrial Hygienists who will serve during the year 1948-49 are:

Chairman, Mr. H. G. Dyktor; chairman-elect, Dr. K. E. Markuson; secretary-treasurer, Mr. J. J. Bloomfield.

Executive committee: Mr. H. G. Dyktor, chairman; Mr. J. J. Bloomfield, Mr. P. D. Halley, Miss Gladys A. Jahncke, Dr. K. E. Markuson, Dr. A. V. Nasatir, Dr. L. W. Spolyar.

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Industrial hygiene codes: Mr. C. D. Yaffe, chairman; Mr. R. M. Brown, Dr. C. D. Berry, Mr. G. S. Michaelson, Dr. L. M. Petrie.

Appraisal and reporting of industrial Hygiene activities: Miss Victoria M. Trasko, chairman; Mr. P. C. Hill, Mr. G. E. Tubich, Mr. R. H. Scott, Miss Joan Y. Ziano.

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Worker health education: Mrs. Catherine Beauchamp, chairman; Miss Catherine Chambers, Mr. S. L. Stokes, Mrs. Mildred Moore, Dr. V. C. Myers.

Industrial Health of Nation Is Fundamental to Great Productivity

Speaking before the American Conference of Governmental Industrial Hygienists, meeting in Boston, Mass., on March 29, 1948, J. J. Bloomfield, Assistant Chief, Industrial Hygiene Division, USPHS, presented the keynote address. It is summarized here.

Since our last meeting, a new unit has been added to the roster, making a total of 58 industrial hygiene units now functioning on a full- or part-time basis in the States and Territories. These units employ approximately 400 professional and technical workers. They may be broadly classified into engineering and chemical personnel, constituting 64 percent; medical and nursing personnel, 21 percent; and technicians, sanitarians, and others, 15 percent.

These 58 units budgeted \$195,000 more this year than last year for industrial hygiene activities. The total for this year is \$2,405,000. Of this amount, 42.9 percent is derived from State and local funds and 57.1 percent from Federal funds.

State Programs Vary Widely

A review of highlights of individual State programs reveals that preliminary surveys of industrial health hazards and facilities are now being undertaken in several States. Contingent on the results, permanent industrial hygiene units may be established. Other areas are conducting State-wide surveys on the basis of which legislation will be proposed regarding occupational disease control and compensation.

A comparatively new wrinkle in an industrial hygiene program is the evaluation of the occupational health hazards of agricultural workers. The North Dakota unit is undertaking such a project and will also seek to promote an adult health program for this group. Kansas is planning to cooperate with the recently established University of Wichita Foundation for Industrial Research in a similar study. Other agricultural States may wish to consider programs of this type.

Several State-wide studies have been completed, including studies of the firebrick industry and brass foundries in

Kentucky, laundries and dry-cleaning establishments in Pennsylvania and Utah, the shoe industry in New Hampshire, and mercury hazards in seed treating plants in Minnesota. Effects of exposure to radiation from X-ray machines and radioactive substances have been the subject of studies in a number of States.

It is noteworthy that many of the surveys conducted in industry are made at the request and with the cooperation of labor unions. Further evidence of labor's growing interest is the increasingly frequent inclusion of health and welfare clauses in labor-management contracts.

Industrial hygiene units continue to be consulted on atmospheric pollution problems, sometimes even aiding in the preparation of city ordinances and charter amendments. The New York unit recently furnished such assistance to the City of Niagara Falls.

Prevention of needless deaths by proper control was demonstrated in Tennessee during the construction of the Mississippi River bridge. The industrial hygiene engineer and nurse jointly supervised the decompression of caisson workers, thereby contributing to the elimination of fatalities from bends.

Representative of the States sponsoring physical examination programs in industry, Mississippi is examining all workers in the State in cooperation with the State Medical Society. The cost is being defrayed by industry itself. In addition to determining the incidence of occupational disease, this survey will reveal the general health status of Mississippi workers and also serve as a case-finding tool for tuberculosis, venereal disease, and cancer control agencies.

There is wide diversity in the programs projected by the various States, ranging from an electrocardiographic study which will be undertaken in Wisconsin to in-plant feeding workshops sponsored in the St. Louis and Kansas City areas. A unique program of industrial sight conservation has been inaugurated by the New Jersey division. Workers are given ophthalmic examina-

tions for near and distant vision, work distance vision, color and depth perception, and major eye defects. Akin to this venture is the 4-year study which Oregon is conducting among high-school students to relate visual capacity to vocational guidance and placement. Oral health, too, is gradually assuming its rightful place in industrial hygiene. The Pennsylvania unit plans to investigate the oral health of workers in the Philadelphia area to determine industrial hazards affecting the teeth and oral tissue.

Federal Activities Increase

On the Washington scene, our activities have run the gamut from consolidating our operations to completing additional studies in the field.

The anticipated completion of the industrial hygiene laboratory at Bethesda will bring to fruition plans for extensive toxicological, medical, dermatological, dental, and engineering research. Through the formation of a Radiant Energy Unit, the Division is providing technical assistance to States regarding the evaluation and control of radiological hazards. Demands for information on health and welfare services have increased multifold. At the request of the United Mine Workers, we are assisting with the development of a medical care plan for that group.

Field activity has been hampered during the past year by lack of travel funds, but this limitation is expected to improve. The preliminary survey of foundries in Illinois has been completed, and the final study is now underway. The study of health hazards associated with the use of sodium fluoride in open hearth operations in steel industries has been completed, and a final report is in preparation.

You Need Legislative Backing

A characteristic of a properly functioning unit is the support afforded by enabling legislation. There are seven States at present in which the need for such legislation is indicated. Duplication of effort and jurisdictional confusion would be eliminated through the passage

of legislation vesting the health department with responsibility and authority for industrial hygiene activities. Only 20 States have this type of legislation to date, and it is vital that the others promote the passage of similar laws.

While striving for legislation conducive to the most effective operations, State units must not lose sight of the value of cooperating with other agencies. Much good will and actual accomplishment can accrue by a willingness to serve other governmental bodies, and no loss of identity or responsibility need be implied.

Further legislative criteria for optimum conduct of industrial hygiene activities are adoption of laws on occupational disease compensation and reporting. Thirty-nine States, the District of Columbia, Hawaii, Alaska, and Puerto Rico now have legislation which provides compensation of workers for one or more occupational diseases. Coverage is full in 16 States, the District of Columbia, Hawaii, and Alaska and of the schedule type in 23 States and Puerto Rico. Legislation on occupational disease compensation was passed in 1947 in the States of Iowa, Nevada, South Dakota, Tennessee, Texas, and New Hampshire.

Occupational diseases are reportable to health departments by statute or regulation in 26 States. The last State to require reportings was Arkansas. In 1947, 11 States reported 25,624 cases of occupational disease, of which 60 percent were dermatoses; 11 percent conjunctivitis; 3 percent systemic poisoning from materials, gases, and solvents; and 4 percent were cases of silicosis or other pneumoconioses. The remainder included infections, inflammations, and respiratory conditions. Ninety percent of the reports consisted of claims for compensation, and only 10 percent of them were made by physicians.

OD Control Basic to Your Program

The dominant sphere of activity of a properly functioning unit is the basic practice of industrial hygiene. Too many States have interpreted this to mean adult public health work and have dispersed their energies in conducting TB, VD, and other casefinding programs. As a result, occupational disease control—which is the heart of any

industrial hygiene program—has been slighted. This is evidenced by the fact that the occupational disease picture has not changed materially in the past few years.

The sole function of the industrial hygiene agency in general adult health programs is to provide an entree into industry for the organizations responsible for such work. It does not devolve upon the unit to actually execute these programs. There are too many unsolved occupational disease problems and unexplored fields clamoring for attention to warrant such deviation. The bulk of the State units' time should be spent in evaluating the hazards inherent in various industries and recommending methods for their control. Simultaneously, the promotion of other health programs can be undertaken, but efforts should be limited to laying the groundwork for other divisions in the health department and for interested voluntary health agencies.

If a proper occupational disease control job is being done, the unit will be beset with requests from industry, labor, and civic groups for environmental surveys. Such requests will arrive in direct proportion to the efficacy of the operation. However, over and above these requests, the unit has to initiate services on its own. Merely existing as a service agency will not fulfill its function. The unit must seek out the major industrial hygiene problems in its area, both on an industrial and State-wide basis.

Yours Is a Selling Job

When the studies are completed and the findings made available, the unit then has a selling job to do in getting industry to carry out the clean-up work. It should act only in an advisory capacity, thus conserving its energies for the determination of hazards in other fields. In this connection, the units should conduct State-wide surveys on an industry basis rather than on a hazard basis. This will make for more comprehensive and profitable studies, and allow a more productive use of available facilities. Better results can be achieved, too, through cooperation with unions and trade groups. In the past these groups were not too prone to assist in industrial hygiene programs, but they are now showing their interest and desire to cooperate in more and

more ways. It would also behoove the units to strengthen their relations with various State agencies, medical societies, and other organizations for mutually beneficial cooperative ventures.

One of the major shortcomings of present practice is the disproportionate number of follow-up visits. It is preferable to do fewer good studies and to follow them up until the recommendations are complied with than to initiate numerous studies with no subsequent investigations. The futility of the latter course is obvious.

Dependent on obtaining adequate personnel, units in the larger industrial areas should think in terms of decentralization. Highly industrialized States have found it easier to cope with hazards by setting up district offices in different geographical areas.

Once the basic pattern of industrial hygiene practice is orthodoxly established and followed, new tie-in promotional threads can be woven into its fabric—health and welfare programs, for example, and mental hygiene. Expansion of adult health activities must not detract from the fundamental program of control of occupational diseases, however, for the latter function is the paramount duty of the industrial hygiene unit.

Support Your Requests With Facts

Most of the difficulties confronting the States can be mitigated, if not completely solved, by an increase in State funds appropriated for industrial hygiene. It has been demonstrated repeatedly that one of the best means of obtaining an adequate appropriation is by supplementing budgetary requests with a statement of proposed activity. Make it a cardinal rule to accompany each request for appropriations with a well-developed plan of activity for the forthcoming fiscal year, and give your plan strength and backbone by listing the most compelling reasons for these projects and backing them with supporting evidence.

The horizons ahead are as broad as you choose to make them. With application, diligence, and vision, the year ahead can be one of great productivity, ushering us into a golden era of industrial hygiene. That is a dream worth dreaming and capable of achieving. May our next conference report progress toward its realization.

Present Status of the Poison Ivy Problem

Howard S. Mason, Ph. D., USPHS

It is almost axiomatic that the more "cures" claimed for a disease, the less likely that any is effective. A good case in point is ivy poisoning, for which over 700 remedies have been described in the medical literature. Nevertheless it has been estimated from Public Health Service surveys that 350,000 cases of poison ivy still occur each year, and that these involve approximately 600,000 days of lost time and 465,000 medical visits.¹

Why has progress been so slow? One of the few scientific certainties about poison ivy is that it belongs to a group of diseases, the allergies, against which there is now no certain protection and in only a few special cases, adequate means of treatment. No one is born allergic to poison ivy; each must first be sensitized by a contact of the skin with oil of the plant. The oil, known as *toxocodendrol* (after the plant name, *Rhus toxocodendron*) contains phenolic substances which are the actual irritants, or allergens. Up to the present time investigators have had to use exceedingly crude extracts of poison ivy for their experiments. These extracts not only contained unknown amounts of the oily allergen itself but also innumerable impurities, and since they have been used both for prevention (by injection) and for measurement of degree of sensitivity (by application of dilute solutions to the skin) without any knowledge of *how much* of the active material was being employed, the results have been uncertain and contradictory.

In attacking this problem, the dermatology section has taken the position that before certain progress can be made the pure allergenic substances must be used in known amounts, both for immunization and for the measurement of the effect of the allergen upon the sensitivity of the skin toward poison ivy. As a result of a study of the synthesis of poison-ivy allergens, this section has made readily available a pure, crystalline, stable substance, 3-n-pentadecylcatechol, which occurs in poison ivy and which is so powerful that it is capable of producing the typical poison-ivy eruption

in amounts as little as one millionth of a gram per square centimeter of sensitive skin.²

Exact studies of ivy poisoning with this material are now being made in this and in other laboratories. In addition a method of measuring the sensitivity of skin to very small amounts of this allergen has been worked out.³ This technique makes it possible to determine the precise level of sensitivity before and after treatment.

What is the hope of a poison ivy cure for the near future? The injection method of prevention and treatment is now being quantitatively studied, and we will soon know under what conditions, if any, this approach can be used. Other, completely new, approaches are also being studied and one of these may provide the final answer. In the meantime, the best that seems available is the treatment of the symptoms of the disease to alleviate so far as possible its discomforts. A symptomatic treatment developed by the dermatology section, and being generally recommended, is described here.

Tannic Acid Treatment For Poison Ivy*

Inflammation of the skin caused by poison ivy, poison sumac, and many other plants is characterized in most instances by the formation of blisters. The blisters vary from pinpoint size to sizes as large as a walnut or even larger. They resemble the blisters caused by heat burns. One of the methods of treating blisters caused by heat burns is to open them and apply tannic acid. It seems to the authors that this method of treatment might be applied to inflammation of the skin caused by poison ivy and other poisonous plants. It was first tried out on 11 patients and the itching and discomfort

stopped within 1 or 2 days and all of them had recovered in a week.

The treatment consists in vigorously rubbing the eruption with a piece of gauze or cheese cloth soaked in 95 percent alcohol. The rubbing should be severe enough to remove the tops from small blisters. Large blisters should first be washed with alcohol and opened with a knife dipped in alcohol. After the tops of the blisters have been removed by rubbing with alcohol, whatever matter oozes from the open blisters should be wiped off with dry sterile gauze and a large piece of gauze or cheese cloth is saturated with a 10 percent aqueous solution of tannic acid and placed over the inflamed area and allowed to stay there for one-half hour. At the end of a half hour, the wet cheese cloth is lifted up and the skin allowed to dry. The skin is not wiped. This treatment is repeated every 6 hours. Whatever new blisters appear should be treated in similar manner.

This treatment usually brings immediate relief from the itching. In most cases three or four treatments are sufficient to cause a crust to form over the places where the blisters were and in a week's time the crust falls off.

The 10 percent solution of tannic acid is made as follows: Buy 4 ounces of powdered tannic acid in a drug store. Dissolve it in 1 quart of water. Stir vigorously until all of it is dissolved. The cheese cloth or gauze can be soaked in this solution and applied to the blisters. The solution can be poured into a bottle and kept for the next treatment. A quart is usually sufficient for six or more treatments.

There is the rare case in which the itching does not stop after one or two treatments. In such cases the addition of 2 teaspoonsful of carbolic acid to the quart of tannic acid solution may relieve the itching. In such cases, however, the patient is advised to see a physician and not himself mix the carbolic acid with the tannic acid solution; this because carbolic acid is a poison and should be used only under the supervision of a physician.

This method of treatment has proven itself to be rapid and efficacious.

² Mason, H. S., *J. Am. Chem. Soc.*, 67, 1538 (1945).

³ Dunn, J. E., Mason, H. S., and Smith, B. S., *J. Invest. Dermat.*, 6, 323 (1945).

*Simplified version of the article "Tannic Acid Treatment of Poison Ivy (*Rhus* Spp.) Dermatitis;" Schwartz, Louis, and Warren, Leon H.: Public Health Reports 56:1039-1041 (May 16) 1941. Reprint No. 2278.

¹ Turner, C. E., *Am. J. Pub. Health*, 37, 7 (1947).

INDUSTRIAL TOXICOLOGY

L. T. Fairhall, Ph.D., USPHS

CARBON TETRACHLORIDE

While prior to World War II the largest use of carbon tetrachloride was in dry cleaning, which accounted for approximately 45,000,000 pounds of carbon tetrachloride annually, its use for this purpose has greatly decreased. Commercial dry cleaning now accounts for approximately 8 percent of the annual output. At the present time 56.5 percent of the yearly consumption of carbon tetrachloride is used in the manufacture of dichlorodifluoromethane (Freon 12). The latter is largely used as a refrigerant and more lately as an insecticide dispersant (DDT).

About 11.6 percent of the total consumption of carbon tetrachloride is used in fire extinguishers where, owing to its noncorrosive character, it is especially adapted to combating fires in electrical works or on electrical equipment. Grain fumigation accounts for 3½ percent of the total amount (1). Carbon tetrachloride finds extensive but decreasing use for degreasing oily machine parts and electrical equipment. It is also used in the extraction of oils from press cakes and oil seeds and for degreasing hides, bones, and garbage. Production in the United States was 192,826,000 pounds in 1945 and 145,766,000 pounds in 1946.

Carbon tetrachloride is potentially toxic and prolonged, excessive or repeated exposures in any form to the product are hazardous. It is in general a strong metabolic poison like chloroform but, while less strongly narcotic than the latter, it is much more toxic. In discussing a fatal case of carbon tetrachloride poisoning following the accidental ingestion of this substance, Cairns (2) states that from 2 to 4 cubic centimeters of carbon tetrachloride may constitute a fatal dose. It is easily absorbed by the mucous membranes, the lungs and, to some extent, by the skin. On inhalation in humans, it produces stupor, paresthesia of the extremities, increased secretion of saliva, weakness, fainting and unconsciousness. Fatal poisoning may result from a single

exposure to a high concentration of the vapor (3).

In fatal poisoning from high concentrations, the post-mortem results show cerebral hemorrhage and edema, pulmonary edema, pulmonary emphysema, and occasionally grossly enlarged liver. Subacute poisoning may end fatally in 1 to 2 weeks. In chronic poisoning which is of more immediate concern in industry, there are noticeable local symptoms of irritation of all the mucous membranes, conjunctival catarrh, nausea, vomiting, stupor, fatigue, bronchitis, and difficulty in breathing. Symptoms especially important for early diagnosis are jaundice (not invariably present in serious cases), blood changes, decreased blood calcium, increased urinary nitrogen, and a limiting of the field of vision, increased acidity of the gastric juice and headaches.

Habituation is stated to occur in workmen exposed to concentrations of from 100 to 160 parts per million (4). The thymolbarbital test has recently been applied in an experimental investigation of animals to the establishment of demonstrable evidence of organic damage from the inhalation of carbon tetrachloride vapor (5). McGill (6) has recently discussed six cases of carbon tetrachloride poisoning which occurred owing to inadequate safety precautions in use.

In view of these occasional cases of industrial poisoning, careful consideration should be given to the establishment of proper engineering control, with particular reference to adequate ventilation. Employees should be warned against careless exposure to high concentrations of the vapor, even though the duration of exposure may be brief. The threshold limit of carbon tetrachloride in industry as accepted in 1948 by the American Conference of Governmental Industrial Hygienists is 50 parts per million.

References

(1) Rager, C. A.: Carbon tetrachloride. *Industrial Reference Service*, U. S. Dept. Commerce 3: Part 2, No. 33 (1945).

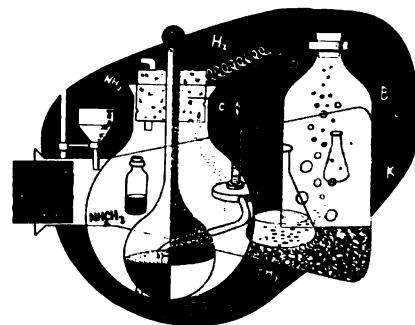
(2) Cairns, F. J.: Carbon tetrachloride poisoning: a fatal case following accidental ingestion of carbon tetrachloride. *New Zealand Med. J.* 45: 169 (1946)

(3) Eddy, J. H.: Carbon tetrachloride poisoning in industry. *Ind. Med.* 14: 283 (1945).

(4) Smyth, H. F., Smyth, H. F. Jr., and Carpenter, C. P.: The chronic toxicity of carbon tetrachloride: animal exposures and field studies. *J. Ind. Hyg. Toxicol.* 18: 277 (1936).

(5) McCord, C. P., Sterner, J. H., Kline, L. L., and Williams, P. E.: The thymol-barbital test in experimental carbon tetrachloride poisoning. *Occ. Med.* 1: 160 (1946).

(6) McGill, C. M.: Death and illness from the use of carbon tetrachloride. *Northwest Med.* 45: 169 (1946).



NEWSLETTER IS READ IN 27 COUNTRIES

In a study of the INDUSTRIAL HYGIENE NEWSLETTER mailing list it was found that 194 persons in 26 countries other than the United States receive the Newsletter. Many of these people have become acquainted with the publication through personal visits in the Industrial Hygiene Division of the USPHS.

In the past 18 months more than 2,000 persons have been added to the mailing list, which now numbers over 6,000. Since the number of free copies is limited by the Bureau of the Budget, persons not engaged in Federal, State, and local governmental agencies are asked to subscribe to the publication from the Government Printing Office.

STATE AND LOCAL NEWS



CALIFORNIA

Smoke Generators—Smoke clouds produced for filming of fire and fog scenes in the movies apparently have been irritating to many actors. Several stars have refused to appear in fire scenes for this reason.

A local distributor of fumigating equipment has proposed use of his generator and fluid (without insecticide) as an effective, harmless source of smoke or fog. Before the movie industry would consider even testing this equipment they requested, through the proposed supplier, that tests be conducted by the Los Angeles City Division of Industrial Health.

Under intentionally extreme conditions tests were made in the shop of the supplier. Small amounts of a known irritating air contaminant were found, as well as a high concentration of oil vapor or mist.

On the basis of these results and precautions which were recommended, the movie industry scheduled a large-scale trial run on the set of a major studio. Reports of this experiment will be made in a later issue of the NEWSLETTER.

CONNECTICUT

Conference—The New England Conference of Industrial Physicians and Surgeons held its annual spring meeting at Hartford, Conn., May 27, 1948.

This meeting was sponsored by the Committee on Industrial Health of the Connecticut State Medical Society. Guest sponsors included the Occupational Health Council of the Manufacturers Association of Connecticut, the Connecticut Safety Society, and the Industrial Nursing Section of the Connecticut State Nurses' Association.

The meeting was devoted to general industrial, nursing, safety, and medical problems, and ways and means of solving them through more effective cooperative approaches. Participants in

the program were highly qualified in their respective fields, and it is believed that they will be effective in pointing the ways toward further utilization of existing professional knowledge in the promotion of better health and safety service in industry.

In addition to the program there were several interesting exhibits of surgical, medical, and safety equipment.

MASSACHUSETTS

Plant Tours—At the request of Dr. Leon A. Bradley of the University of Massachusetts, arrangements have been made to conduct students in the public health course at the university on a tour through the Westinghouse plant in East Springfield. During this visit, which is one of a series to be conducted by the staff of the Massachusetts Division of Occupational Hygiene, Engineers Harold Bavley and Richard I. Chamberlin will point out to the students the methods of control of atmospheric contaminants, as well as requirements for plant sanitation and safety. In addition, plans are being made for lectures by the staff of the Division of Occupational Hygiene next fall as part of the course in public health at the University of Massachusetts.

Smoke—The Division of Occupational Hygiene has been cooperating with the Division of Sanitary Engineering to eliminate environmental atmospheric pollution by smoke in the Worcester and Connecticut Valley districts. These studies were made by the division engineers in conjunction with the district engineers.

Safety—The division is also cooperating with the Department of Public Health in promoting a program for the prevention of accidents in the home, on the farm and on the playground. Division Director John B. Skinner and Nursing Consultant Sarah E. Almeida,

R. N., are members of the Committee on Industry to organize the industrial nurses associations in disseminating information concerning safety programs for the prevention of accidents. Dr. Harry Heimann of U. S. Public Health District No. 1 has also been invited to join in this campaign.

MICHIGAN

Dry Cleaning—The Bureau of Industrial Health, Michigan Department of Health, has entered into a working agreement with the State Fire Marshal's Office which enables a systematic industrial health check of all chlorinated dry-cleaning plants operating in the State.

A new State dry-cleaning law enforced by the Fire Marshal's Division requires that all dry-cleaning plants using non-flammable or flammable solvents shall pay a yearly inspection fee of \$10 in order to secure an operating permit, which is to be renewed yearly. All money received goes into the State general fund.

In the case of dry-cleaning establishments using chlorinated hydrocarbons, section 123 of the new law requires that "ventilation shall be installed to meet the requirements of the Michigan Department of Health." All chlorinated hydrocarbon dry-cleaning plants are referred to the Bureau of Industrial Health for approval before an operating permit is issued by the State Fire Marshal's Office.

Personnel—Dr. K. E. Markuson, Director of the Bureau of Industrial Health, Michigan Department of Health was elected president-elect of the Michigan Association of Physicians and Surgeons at their recent annual meeting.

Conference—The Michigan Safety Conference, which is made up of all the local safety councils throughout the State, held its annual meeting in Detroit, May 17 through May 20. One full day was devoted to industrial health.

KANSAS CITY, MO.

Nurses—A survey of industrial nursing activities and of qualifications of the industrial nurses in the Kansas City area was begun and largely completed. This work will be continued as additional nurses are visited. Letters were sent out to all plants in the area of such size or nature that they could benefit from a nursing service. These letters offered the assistance of the industrial hygiene service in establishing such services or improving those already in existence. The industrial hygiene nurse was asked to speak before three groups of student nurses on the general subject of industrial nursing. The industrial hygiene nurse also participated in a panel discussion before a large group of representatives of C. I. O. unions. The purpose of this panel was to explain to the representatives the work of the various agencies, including the Industrial Hygiene Service in the Kansas City area.

Nutrition—The Food Service Association which grew out of the work shop on in-plant feeding was formally organized. A constitution was adopted and regular officers elected. Several new plant cafeterias were visited, and the assistance of the health department offered to them. The new nutritionist with the St. Joseph Nutrition Service was introduced to the plant cafeteria operators in the St. Joseph area. A sanitary inspection was made and a report submitted on a new plant cafeteria in St. Joseph. Numerous recommendations were made for improvements. A talk on food handler sanitation was made to cafeteria employees at a large mail order house.

NEW YORK

Occupational Disease Diagnosis—Occupational disease diagnosis presents many interesting problems for the medical unit of the Division of Industrial Hygiene which is called into consultation, from time to time, by the medical profession in New York State. An interesting question of differential diagnosis between pneumoconiosis and lung cancer presented itself recently.

A medical consultation was requested by the physician of a worker who was employed in operating a carborundum grinding wheel. This physician, who is a lung specialist, interpreted his

patient's X-ray findings as possible pneumoconiosis and wanted our opinion.

A member of our medical staff saw the patient and his X-ray pictures in the hospital, in consultations with the worker's physician; visited the plant where he had worked, and carefully studied the grinding operation. Considerable experience with this type of exposure led to the conclusion on the part of our physician that the pathological condition of the lung could hardly have been caused by so slight an exposure to this dust, for so short a period of time; and a tentative diagnosis of lung cancer, unrelated to occupation, was suggested. This met with considerable surprise and doubt not only on the part of the worker's physician, but of the hospital staff generally.

The matter was finally settled at autopsy with a diagnosis of lung cancer.

OKLAHOMA

Carbon Monoxide—In a farm home equipped with a gas floor furnace, a gas stove of recent design, and an automatic hot water system, carbon monoxide almost took the lives of three people. In spite of vents on the floor furnace and the hot water heater, two residents of the home became very ill. The owner feeling light-headed and confused, suspected the cause and managed to open the doors and windows and shut off the gas outside the house.

Tests made by the State Department of Health located the source of the trouble in the hot water heating system. The vent from the burner was connected to the vent from the floor furnace which in turn was connected to the chimney. The draw created was insufficient to carry the carbon monoxide formed in the heater to the chimney as intended. The occupants were advised never to connect one vent into another, but lead each vent to the chimney separately, and to be sure the vent pipes are large enough to carry off the gases formed. Since carbon monoxide has no detectable odor, the only safe protection is a safe installation with gas-tight vents properly maintained.

PENNSYLVANIA

Talks—Several talks have been made recently by personnel of the Pennsylvania Bureau of Industrial Hygiene. Mr.

K. R. Doremus addressed the members of the Conshohocken Manufacturers' Association at a luncheon meeting. "Services Provided by the Bureau of Industrial Hygiene" was the subject of a talk by Miss Betty Brennan at a meeting of the State Clinic Staff, held in Scranton. Mr. A. M. Stang discussed "Engineering Procedures for Sampling of Atmospheric Contaminants" at a meeting of the Women's Club of Delmont.

At the annual meeting of the American Association of Industrial Dentists held in Boston, Dr. E. R. Aston, Dental Consultant of the Bureau, was named president-elect of that organization. He will be installed in office during April 1949.

TEXAS

Conference—The annual meeting of the Industrial Section of the Graduate Nurses Association of Texas was held in Galveston, Tex., April 14, 1948. Dr. W. E. Doyle, USPHS, District 9, Industrial Hygiene Consultant, discussed the role of the nurse in the industrial program. Mr. Richard Peters, Personnel Director, Humble Oil Co., Midland, Tex., discussed the value of good industrial relations. Officers elected for this section were: Chairman, Miss Jeanette Bartholomew, The Texas Co., Houston, Tex.; first vice president, Miss Bonnie Kirby, Bethlehem Supply, Texarkana, Tex.; second vice president, Mrs. Roxy Thornell, Neches Butane Products Co., Port Neches, Tex.; secretary-treasurer, Miss Evelyn Johnson, Federal Reserve Bank, Dallas, Tex.

WASHINGTON

Publication—A 1 year subscription to the *Industrial Nursing Journal* has been ordered for the Nurses' Professional Registry by the Industrial Nurses' Section to keep them informed of the activities of the nurse in industry.

Extension Course—A course in Principles and Practices of Industrial Nursing, has been offered through the Extension Division, University of Washington, at Vancouver during the spring quarter. Miss Gladys A. Jahncke, industrial nursing consultant, Washington State Department of Health, is the instructor.

Extension courses provide an excellent opportunity for nurses to continue with further preparation when they live too far from a university or college or are unable to be relieved at the time for further study. Courses in many other subjects can be given at any time when there is sufficient interest and demand for them.

Recirculation of Filtered Air From Industrial Processes

As the cost of fuel for the heating of industrial establishments increases there is greater interest in the savings which may be had through recirculation of part or all of the air which has been exhausted through industrial ventilating systems. At the present time, the majority of exhaust systems for the control of toxic and nuisance materials remove workroom air to the out of doors. The volume of air removed must be replaced by other air from the out of doors, either by infiltration or through air tempering or conditioning units. Inasmuch as there may be a considerable temperature differential between the workroom and the outside, an appreciable heat loss is experienced.

Various filters and absorption devices have been developed and installed with some success. These devices are placed in the exhaust system in such a manner that contaminated air is passed through them and the cleaned air either partially or wholly returned to the workroom.

Air studies have shown that the greatest possibility of success, at the moment, appears to be in the recirculation of air from processes which only produce dust. Some work has been done in the elimination of toxic and nuisance materials in the form of fumes, gases, mists, or vapors but we do not have conclusive evidence that results are satisfactory.

No air-cleaning device may be considered sufficiently effective to permit of recirculation unless it has, first, been checked by an air study during actual working conditions; second, the construction of the device assures a reasonable period of use; and third, maintenance is relatively simple and will be provided when required.

The bureau, because of the many uncertainties involved, does not foster the use of air recirculation equipment.

However, when informed of contemplated installation, as required by Regulation 280 of the Sanitary Code, we are glad to consult with plant management to give constructive engineering advice and arrange for air studies following installation.

Regulation 280 contains the following paragraphs:

"No person, firm, corporation or other employer shall use or permit to be used in the conduct of his business, manufacturing establishment or other place of employment, any process, material or conditions known to have an adverse effect on health, unless arrangements have been made to maintain the occupational environment in such a manner that injury to health shall not result.

"Before any person, firm, corporation or other employer shall undertake any actual construction in connection therewith, the state department of health shall be notified of any contemplated replacement, extension, or new installation of any industrial exhaust ventilating system for the removal of dust, fumes, vapors, mists, or gases which may affect the health of workers."

We believe that the use of air recirculation will increase and that with a rational approach to the problems involved on the part of plant management, ventilating contractors, equipment manufacturers and this bureau, the health of our industrial workers will be safeguarded.—Connecticut State Department of Health—Bureau of Industrial Hygiene.

LEAD POISONING—ITS PREVENTION

May R. Mayers, M. D.*

Intelligent understanding on the part of special industries of the health hazards inherent in their own operations—potential as well as real—provides one of our most promising approaches to many difficult problems in the field of industrial hygiene. This is all the more true when this understanding is combined with a well-organized effort to study and control such hazards. In the case of lead, which has been widely used throughout the world for many generations, information with reference to control has been accumulated from a variety of sources in many countries.

In a fluid industrial structure, many new problems may be anticipated, of course, as new uses are found for this metal in one chemical form or another. However, sound basic engineering principles underlying industrial control of the lead hazard have been developed. And in the medical field, adequate diagnostic techniques and procedures for the early detection, correct diagnosis and prevention of lead poisoning are at hand. With meticulous application to individual plant problems of what we already know, effective control of lead poisoning in industry is within our grasp.

It is for that reason that those who are especially concerned with these problems note with interest the fact that the Lead Industries Association has recently invited Mr. Manfred Bowditch, a well-known figure in industrial hygiene, to direct their health and safety program. Perhaps most significant of his mature and realistic approach to his new responsibilities was his first address to this Association in which he read the following excerpt from a letter which he had received from a leading authority in the field of lead poisoning:

"For a goodly number of years I have been deeply interested in bringing about more effective control of lead exposure, both in the community at large and more particularly in the lead trades. My impression is that these industries, by and large, have not taken full advantage of the available information that now enables satisfactory control to be achieved. I should like to see the lead trades generally brought into such a state that we could say and demonstrate that this hygienic problem had largely been solved. It is entirely possible to do this, and I hope that the lead industries will not wait until the state of society and the attitude of organized labor compel them to do what they could have done, with great profit to themselves and to the community, at a much earlier time."

This forward-looking approach to its own problems by the Lead Industries Association promises well for the future. We will follow Mr. Bowditch's efforts with considerable interest, and wish him well.

*Chief, Medical Unit, Division of Industrial Hygiene and Safety Standards, New York Department of Labor.

ILLNESS CAUSED BY METHYL CHLORIDE

Methyl chloride leaking from a refrigerator resulted in severe exposures requiring hospitalization of two members of a family and affecting several others to a lesser degree. The refrigerator was 1 of 18 connected to a single central compressor in the basement of the apartment, and was designed for use with Freon 12. Methyl chloride had been substituted for Freon 12 in violation of the refrigeration code. The leak was apparently caused by perforation of the coil in the evaporator. Symptoms observed were severe headache, nausea, vomiting, drowsiness, difficulty with speaking and swallowing, mental confusion, double vision, ataxic gait, and dizziness.

The local press gave publicity to the dangers and a second similar circumstance was brought to the attention of the District of Columbia Health Department. In this instance, a small unit rated for 25 ounces of sulfur dioxide had been recharged with methyl chloride. Symptoms were nearly identical in the two cases. In each family those members who spent most of their waking hours away from home were only slightly affected. Reports of the case histories follow.

Case No. 1

Dr. R. was called to the home to see Miss G., aged 18 on December 8. The patient had been referred to him by a physician who stated that he believed Miss G. was suffering from some form of toxemia. Miss G. gave a history of having been sick for over 1 week. On November 30 she had gone bowling and had complained of an inability to make one leg function properly. She remembered this distinctly since it had interfered with her bowling.

On December 1, the following day, she had a severe headache, nausea, and some vomiting. From December 1 to December 8 Miss G.'s illness progressed and she took to bed where she spent most of her time sleeping. The family had difficulty in arousing her and following eating she had severe attacks of nausea and vomiting.

On December 8 Dr. R. discovered that she had a considerable speech difficulty, found swallowing laborious, and

had developed a marked ataxic gait. She appeared to be drowsy and experienced faulty vision, developing double vision at various times, and gave the impression of one suffering from encephalitis. Dr. R. recommended that she be hospitalized.

At the hospital she was treated much as a meningitis patient. A spinal puncture was made; the fluid was found to be negative. She made rather marked improvement and was discharged on December 18 as sufficiently well to return home, although she complained of headaches and had some symptoms of giddiness.

At the time that Miss G. was returned to her home the mother was reported ill and Dr. R. visited her and found that she was suffering from the usual symptoms of a severe cold. He treated her for this ailment.

On January 5, Dr. R. visited the mother who had developed identical symptoms to those experienced by the daughter. The mother was ill and in bed for several days and an older married daughter, a graduate nurse who lived in a suburb had come to assist in the care of the family. She had brought her son, 5 years old, with her. The son, a moderately active youngster, played and exercised a good deal in the house and during the doctor's visit developed several dizzy spells and fell to the floor. The doctor said that he himself developed some of the symptoms, particularly headache, and he asked to have the windows to the apartment opened. It was suggested that the family go with the older daughter to her home in the suburbs.

At Dr. R.'s suggestion a safety engineer from the gas company visited the home on January 6 to check the condition of the gas stove. The safety engineer found a leak in the coil in the refrigerator and said that there had been no difficulty with the gas appliances.

On January 10 the matter was brought to the attention of the health department. Inspection of the premises revealed that the leaking refrigerator had been repaired. It was 1 of 18 units connected to a single central compressor located in the basement of the apartment. Although the name plate clearly stated that the compressor was designed for Freon 12, it had been recharged with methyl chloride.

On January 14 the inspector of plumbing ordered the landlord to have the entire refrigeration system cleared of methyl chloride, cleaned, and recharged with Freon 12.

Case No. 2

On November 20 Mr. H., age about 26, came to Dr. S. complaining of a severe vise-like headache, some nausea, and dizziness, with tendency to falling toward the left side. A condition involving the central nervous system was suspected, or possibly a brain tumor. The patient was given a mild sedative and advised to consult an eye specialist. The ophthalmologist reported a possible slight papilledema.

Patient returned to Dr. S. on December 9. Ménière's syndrome was suspected. Injections of papamine were begun and repeated at 4 or 5 day intervals. Patient seemed to improve with each injection, but it is now thought that improvement was caused by the patient leaving the apartment and breathing uncontaminated air.

On December 22, patient was given complete check-up. Results negative. Injections discontinued on January 5.

On January 6 the refrigerator was repaired. Patient reported rapid improvements, with complete return to normal in about 3 days.—Peter J. Valaer, Industrial Hygienist, Washington, D. C., Health Department.

NEW JOURNAL

The American Physiological Society will begin publication of the *Journal of Applied Physiology* in July 1948. The purpose of the new journal is to furnish a vehicle for original researches in human physiology. The following fields of particular interest to the industrial hygienist will be served immediately by the journal: work and exercise; industrial physiology; psychosomatic physiology; aviation and military physiology; stress physiology, shock and trauma; and environmental physiology—altitude, temperature, climate.

The journal will be issued monthly with one volume of about 800 pages per year. Subscription price: \$7.50 per year. Address: Editorial Office, 2101 Constitution Avenue, Washington 25, D. C.

Improved Chlorinated Hydrocarbon Sampling Device

The size, awkwardness, and unhandy manipulation of the Willson Combustion Analyzer for determining concentrations of chlorinated hydrocarbons are apparent to anyone who has used it. By using various parts of the Willson Combustion Analyzer and its general principle of operation, an improved chlorinated hydrocarbon sampling device has been constructed and successfully used in the field.

The sampling device is contained in a wooden box 11 inches wide, 10 inches deep, and 14 inches long. The device is complete with all necessary equipment for sampling, including air pump, orifice meter, heating element, and collecting tubes. The unit weighs approximately 15 pounds. A plate on the bottom permits the device to be mounted on a tripod.

Each sample is collected in a midjet impinger flask which contains the necessary chemical solution. After collecting the sample, caps are placed on the impinger openings, and a new, prepared impinger is placed in the line for the next sample. Samples are then brought to the laboratory for analysis. The accompanying photograph illustrates the new unit.

The sampling device consists of the following parts:

Heater element, quartz tube, platinum foil, and rheostat from Willson Combustion Analyzer.

Jordan air pump, type MW-999, manufactured by Jordan Air and Suction Pump Co., Kansas City, Mo.

No one has a "corner" on ideas. We believe industrial hygienists have found many ideas and devices to increase the efficiency of their work, or to decrease the time and energy spent in doing a job, or perhaps both. If you will share your favorite labor-saving devices or successful techniques which you have discovered useful in laboratory, office, or field we will publish them in this column. Unless you specify to the contrary, your name will be published with the article. Send your ideas illustrated with sketch or photograph, if possible, to the Managing Editor, INDUSTRIAL HYGIENE NEWSLETTER, P. H. S., 25, Federal Security Agency, Washington 25, D. C.

Dwyer plastic manometer with anti-surge traps manufactured by F. W. Dwyer Manufacturing Co., Chicago, Ill.

Eight midjet impingers filled to the 20-cc. mark with 2-mm. glass beads and containing enough sodium arsenite to cover the beads.

Wooden rack to hold impinger flasks.

One-fourth inch brass union with plastic orifice plate designed for flow rate of 1 liter per minute.

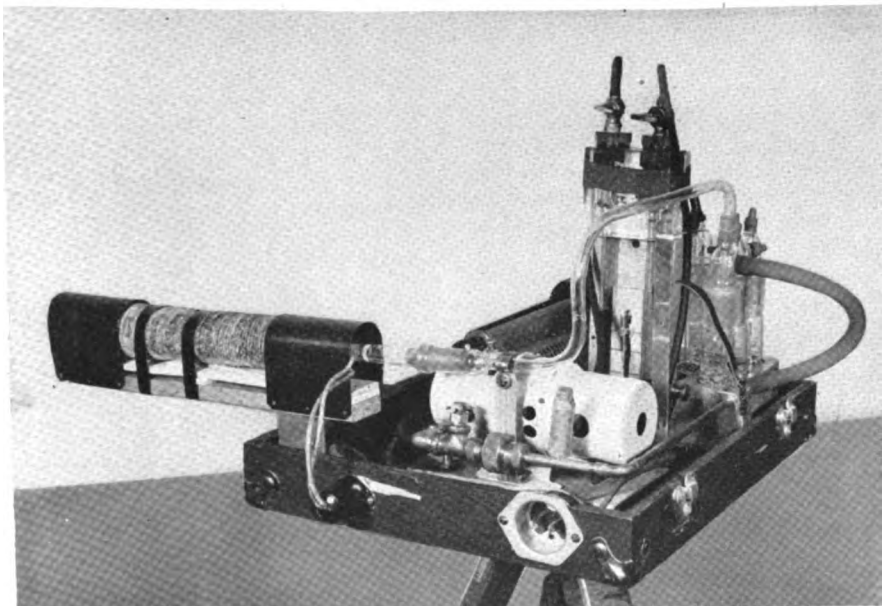
Copper and glass tubing for collection circuit.

Laboratory tests with known concentrations established the efficiency of this device to be approximately 95 percent for carbon tetrachloride.

In summary, this improved chlorinated hydrocarbon sampling device offers the following advantages: Ease of sampling; less bulk; compactness; no chemicals or water required in field use; fragile glass parts reduced to a minimum; reduction of possible errors in field sampling and laboratory analysis; and reduced cost.—**Donald E. VanFarowe, Chief Chemist, and Robert S. McClintock, Engineer, Bureau of Industrial Health, Michigan Department of Health.**

ENGINEERS GO ALOFT

That the industrial hygienist should be concerned with tests of air is not unusual. However, it is unusual when he is asked to make tests *in* the air. Recently one of the major air lines requested assistance from the Kansas City Area Industrial Hygiene Service in making a rather novel investigation. The company had installed a new fire detection and extinguishing system in the baggage compartment of one of its planes on an experimental basis. This system involved the release of carbon dioxide into the compartment to smother the fire. The problem was to determine whether the installation complied with CAA requirements of initial concentration and retention of the carbon dioxide to completely smother the fire. A closely related question was whether excessive concentrations would be pro-



duced in the pilot and passenger compartments. The Industrial Hygiene Service agreed to make these tests.

A first series of tests were made with the plane on the ground. The following day the plane was taken on a test flight on which engine, propeller and other intricate tests were made by company and CAA officials. The industrial hygiene engineers who were aboard were interested spectators of these operations. After the other tests were completed, the carbon dioxide was released into the baggage compartment and the industrial hygiene engineers went to work. Air samples were drawn from the compartment at intervals and analyzed for carbon dioxide by means of an Orsat Analyzer. Simultaneously, tests were made in the passenger and pilot compartments, using a hand-cranked pump with a midget bubbler containing standard alkali. Both the company and the CAA expressed appreciation for the assistance in these tests.

PERSONNEL NEWS

Mr. Edward J. Otterson recently joined the engineering staff of the Industrial Hygiene Unit, Wisconsin Board of Health.

Knowlton J. Caplan, ventilation engineer with the Bureau of Industrial Health, Michigan Department of Health has resigned to accept a position with the Mallinckrodt Chemical Works, St. Louis, Mo. Robert S. McClintock, engineer, and Bodo A. Brocker, draftsman, are new members of the bureau's staff.

Dr. Clarence M. Maloof has been appointed to fill a newly created post in the Massachusetts Division of Occupational Hygiene. A recent graduate of Tufts College of Medicine, with Navy duty in the Caribbean area (Puerto Rico). Dr. Maloof joins Dr. Emil Paige in carrying out the medical activities of this division. Another recent appointee is Chemist Harland Wade, who studied at the Universities of Washington and Oregon before serving in the Navy.

Dr. Emil Paige of the Massachusetts Division of Occupational Hygiene addressed a dinner meeting of the Lowell Industrial Safety Council on the topic, "Medical Services in Industry and the

Role of the Nurse and First Aider in the Medical Department Organization."

Dr. Paige also talked at the Industrial Hygiene Section of the 27th Annual Massachusetts Safety Conference. His subject was "Industrial Lung Diseases Other Than Silicosis." Director John B. Skinner acted as chairman of the session on industrial hygiene.

Mr. George S. Michaelsen, acting director, Division of Industrial Health, Minnesota Department of Health, recently delivered a speech on occupational disease hazards to the Elevator and Dock Section of the Duluth Industrial Safety School.

Mr. J. C. Radcliffe is now in charge of the Industrial Hygiene Department, Ford Motor Co. Mr. Radcliffe was formerly associated with the Division of Adult and Industrial Health, New Jersey Department of Health.

RECOMMENDED READING

Anon.: Glossary of labor terms. *Industrial Bulletin*, New York State Department of Labor, 27: 10-12 (April) 1948.

Black, S. Bruce: Industry needs medicine and vice versa. *Appendix, Congressional Record*, 94: A 421-422 (January 26) 1948.

Hoskyn, C. H.: Occupational dermatitis occurring in transplanted skin. *Brit. Med. J.*, 1: 500 (March 13) 1948.

Jefferson, Geoffrey: Sepsis scientifica. *Brit. Med. J.*, 1: 379-382 (February 28) 1948.

Scott, William C., and Smith, Donald W.: The nurse's legal problems, *Am. J. of Nursing*, 48: 243-245 (April) 1948.

Silver, J., and Janis, L.: Medical service plans under collective bargaining. *Monthly Labor Review*, 66: 34-39 (January) 1948.

U. S. Army Medical Department.: What every medical officer should know about the atomic bomb. *Bulletin* (March) 1948. Begins series of articles clearly presenting basic principles of physics and the clinical effects of radiation injury. Copies available in medical libraries.

Zubin, Joseph: Recent advances in screening the emotionally maladjusted. *J. Clin. Psychol.*, 4: 56-63 (January) 1948. Abstract in: *Digest of Neurology and Psychiatry*, 16: 222 (April) 1948.

BOOK REVIEW

The Industrial Environment and its Control by J. M. Dalla Valle (Pitman Publishing Corp., New York, \$4.50).

Although this book is small (225 pages) it will undoubtedly be found of value by industrial hygiene engineers, many engineers not engaged in health activities, plant management personnel, and nonengineering professional individuals interested in the occupational health field. It presents the fundamental concepts of industrial hygiene, its trends, the factors of engineering significance, and control techniques, each entirely relieved of detail. The presentation is at times so succinct as to be terse and so devoid of interrelated factors as to appear oversimplified.

Doctor Dalla Valle, basically a ventilation engineer, elaborates most heavily on the ventilation method of environmental control, but his broad experience and unbiased approach enable him to state (page 213) with candor that "the segregation or isolation of a process giving rise to a hazardous condition is not only simple to achieve but also the most successful."

The organization of the book is excellent, the coverage is adequate, and it is a scholarly addition to the literature on industrial hygiene engineering.

Dr. W. C. Hueper To Direct Activities in Field of Environmental Cancer

Dr. W. C. Hueper has accepted the responsibility of organizing and directing an intensive program of laboratory and clinical research on environmental cancer at the National Cancer Institute, USPHS. What the industrial hazards are that may lead to cancer and what can be done about them are the questions to which Dr. Hueper will endeavor to find the answers.

The rapid increase in the number of recognized and suspected agents causing industrial cancers in the last 40 years, Dr. Hueper says, makes it likely that new and heretofore unsuspected agents will be discovered.

Our end-of-the-fiscal year funds will not permit printing the usual 16 pages this month.—Managing Editor.