

- (3) Publicity in
 - (a) School newspapers
 - (b) Local newspapers
 - (c) Labor organs
 - (d) Industrial plant papers
- (4) Conference of school nurse with
 - (a) Parents failing to cooperate by refusing to have students participate in tuberculin-testing or X-ray activity
 - (b) Parents of students having positive tuberculin tests
- (5) Reports of result of tuberculosis examination—test or X-ray—including interpretation of results and indication for future follow-up.

D. Collaboration with community agencies

A program of tuberculosis education in our schools is not complete unless the school utilizes the services available from community agencies and acquaints the students with the function of each. Many schools provide excellent health programs without assistance from other agencies. However, the student spends only part of his life in school. Other community agencies also contribute to the maintenance and protection of his health. As a student, he should have experience in evaluating, supporting and utilizing such agencies. The school's collaboration with such

community agencies may include the following:

- 1. Joint planning by the coordinating committee (representing the local agencies contributing to the solution of the problem)
- 2. Use of personnel and services of other agencies in the development of the school program
- 3. Classroom instruction leading to
 - a. Student knowledge of the various health agencies and their functions
 - b. Student activities contributing to the programs of other agencies, as for example:
 - (1) Preparation of exhibits
 - (2) Talks to women's clubs, service clubs, etc.
 - (3) Radio dramatizations
- 4. Use of facilities of other community agencies in the development of the instructional program*
 - a. To obtain information relating to the local problem of tuberculosis
 - b. To enlarge the scope of the students' interest and understanding through educational experiences; for example, carefully supervised visits of student committees to
 - (1) Health department
 - (2) Tuberculosis clinic
 - (3) Sanatorium

* See suggestions included in *Tuberculosis Fact-Finding in Your Community*. (Listed under Miscellaneous aids for the teacher, p. 16.)

PART TWO: MATERIALS OF INSTRUCTION

I. INFORMATION FOR THE TEACHER

The following authoritative information is essential to a knowledge of tuberculosis.

Tuberculosis is caused by a germ—the tubercle bacillus.

Tuberculosis germs are so small that they can be seen only with the aid of a high-powered microscope.

Tuberculosis is a communicable or "catching disease."

A healthy person may become infected as a result of close contact with a person who has tuberculosis in a communicable form, i.e., one who is giving off germs.

He may breathe in or swallow some of the germs which the sick person exhales or precipitates into the air by his cough or sneeze.

He may catch germs from handkerchiefs, toilet articles, drinking cups, and other utensils, or from food which has been handled or prepared by a person sick with tuberculosis.

Whoever comes close to the mouth of a person who has active or open tuberculosis is likely to catch some of the germs. Children are very susceptible and all too frequently are subjected to fondling and kissing.

Children may inhale dust which contains the germs of the careless spitter

or may become infected by getting the spittle on fingers and carrying germs to their mouths.

Sleeping in the same bed with a person who has tuberculosis is dangerous because of long hours of close contact.

Tuberculosis is not inherited.

Many people still believe that tuberculosis is inherited because the disease "runs in families." The reason that this seems to be so is because members of families and others in the household live closely and intimately together and if one person has the disease, it stands to reason that others are very likely to catch the germs.

Tuberculosis germs often find their way into the bodies of young children.

When tuberculosis germs first enter the lungs of a young and healthy person they may do comparatively little harm.

Certain cells of the lungs build themselves around the germs and imprison them, thereby protecting the lungs from serious damage. This collection of cells and new tissue is called a tubercle.

The germs usually remain in a dormant state awaiting a chance to get out of the tubercle; good health helps to keep the wall around the tubercle strong.

Tuberculosis often exists without obvious signs or symptoms.

In its early stage tuberculosis does not reveal its presence by any obvious signs. A person may not look nor feel ill.

In the beginning the damage may be so slight that the lung will continue to work as usual. These early changes ordinarily are not discovered by the routine health examination.

As time passes and the disease progresses, certain symptoms may appear which are so common that little attention is paid to them. The danger signs are: fatigue, loss of weight, indigestion, and a cold or a cough that "hangs on." These may be due to other causes, but it is always wise to make sure that they do not indicate tuberculosis.

Tuberculosis is preventable.

Tuberculosis cannot be prevented by vaccination or immunization. The best preventive we have is education.

We now have a safe and accurate means of discovering the presence of tuberculous infection or tubercles in the body long before any physical signs of illness make their appearance. It is known as the tuberculin test.

The tuberculin test is a simple and painless skin test.

Tuberculin, the test material, is a colorless liquid, containing no tuberculosis germs, either living or dead. It is made in laboratories under government supervision with exactness and extreme care. The following is a simple description of how tuberculin is made. Tuberculosis germs are grown in a glycerine broth for some weeks until no further growth occurs. The culture is heated to boiling, to kill the bacteria, then filtered, and the bacteria-free liquid is evaporated to one-tenth its original volume. The resulting liquid is called tuberculin. It is the protein substance in tuberculin which produces the reaction.

Reactions

Negative—No reaction to the tuberculin test means that at that time no tuberculosis germs are in the body. This is no guarantee of permanent freedom from infection, since germs may enter the body at any time. Therefore, it is necessary for students with no reaction to be retested during the following year's tuberculosis control program in school.

Positive—A reaction to the tuberculin test means that tuberculosis germs are in the body. Damage and its extent can be determined only by an X-ray of the chest. It is essential for every student who has a positive reaction to be X-rayed. A positive reaction indicates at least some tuberculous infection, but not necessarily tuberculous disease.

The X-ray—The purpose of the chest X-ray is to discover whether there are shadows in the lungs suggestive of tuberculosis. Further examination by other methods is desirable before a final diagnosis of tuberculosis is made. The X-ray is the only sure way of discovering early tuberculosis.

Tuberculosis is curable.

At the present time there is no specific medicine, drug, or other agent to cure tuberculosis, although for many years research workers have been endeavoring to find one.

Tuberculosis can be cured, however, and the earlier the disease is discovered, the quicker is the recovery.

Rest is the important factor in cure.

Rest is one of the most important factors in the cure of tuberculosis, and the sanatorium or hospital is the best place in which to get well because at the hospital or sanatorium everything is planned for the purpose of helping people recover as quickly as possible.

The sanatorium or hospital has a two-fold purpose: to cure the sick people who go there and to protect the well people at home and others in the community from contact with infectious cases of tuberculosis.

In the sanatorium or hospital under the skilled guidance of the doctor and the nurse, the patient learns how to live the kind of life necessary to cure tuberculosis. Thus, the sanatorium is truly an educational institution. The patient is surrounded with new friends who are there for the same purpose of getting well.

II. LOCAL COMMUNITY TUBERCULOSIS PROBLEM

A. Conditions in high school

Many communities have conducted tuberculosis programs among high school students for several years. If your school has had a group program for the entire school or for specific grades for the past three years, the extent and success of this program should be studied. Such facts as these may be investigated:

1. On the basis of program offered, determine percentage of students participating each year
2. Percentage of reactors to tuberculin test each year
3. Number of suspicious and active cases found
4. If program was offered to teachers, number participating
5. Number of active cases among teachers in entire school system

B. Conditions in community

If an instruction program in tuberculosis is a concrete vital school activity, there should be a study of local conditions. (See table on following page.)

In order that the students may be able to determine the adequacy of existing facilities and be able to work out a community program for the control

of tuberculosis, such facts as the following will be needed:

1. Deaths reported in county and state—rate per 100,000
2. Number of cases of tuberculosis reported in county and state for past year—ratio of these to reported deaths
3. Ratio of sanatorium beds or days of care per reported death (county and state)
4. Extent of nursing service compared to cases and deaths (city or county)
5. Number of cases hospitalized compared to deaths (city or county)
6. Per cent of minimal cases among total admissions to sanatoria (city or county)
7. Ratio of clinic visits to deaths (city or county)

These and many other similar problems may be made the basis of a local survey project. The teacher should become familiar with accepted standards of evaluating local control facilities. The American Public Health Association has developed an appraisal form for such evaluations. (See *Appraisal Form for Local Tuberculosis Activities*, listed under Miscellaneous aids for the teacher, p. 16.)

III. NATIONAL TUBERCULOSIS PROBLEM

A. Conditions in the nation

According to the best surveys, it is estimated that 500,000 people are ill today with tuberculosis in the United States. Approximately 200,000 are hospitalized, and the remaining 300,000 are among the persons you meet in our urban and rural communities. Many of these are under the care of physicians and, therefore, have been identified as tuberculous. Among these 300,000, approximately 150,000 have not been identified through a physical examination or a group survey. This group particularly gives the nation its real problem. Many thousands of these may be open cases of tuberculosis and may be spreading the disease without knowing that they have it.

Tuberculosis is also more prevalent among certain age groups, sexes and peoples. Likewise, it has a relationship to the socio-economic problems of the nation. It is still the disease which causes most deaths between the ages of 15 and 45, the most productive years of a person's life. In the age group

from 15 to 30, the mortality from tuberculosis is greater among women than among men.

Apparently, peoples long exposed to the disease have a tendency toward lower death rates. For example, contrast the death rate among Jews with that of Negroes and of Indians.

If all the tuberculous in the nation were identified, the present hospital facilities would be grossly inadequate to provide essential treatment.

A recent study by Mary Dempsey* indicated that 32 states need from 100 to 6,000 additional beds each to care for their share of the present estimated problem. Only seven states and the District of Columbia now meet the suggested standard of three beds per annual death.

B. Methods of solving the problem

If we ever expect to get tuberculosis under control, every person must be considered a potential case until otherwise identified. When a diagnosis of tuberculosis is made, adequate treatment and hospital or sanatorium facilities must be provided and utilized.

The job of actual case-finding is a task which should be administered by the local communities. On the national level, we must continue to attack the problem with further medical research, popular health education, and cooperation with local public health programs.

* Dempsey, Mary, "New Cases of Tuberculosis Discovered by Case-Finding Surveys," *American Review of Tuberculosis*, July, 1943, pp. 60-61.

A STUDY OF THE TUBERCULOSIS PROBLEM AND FACILITIES FOR ITS CONTROL

Year	United States Death Registration States			State of			
	Deaths from tuberculosis		New cases reported in one year per annual death (2)	Deaths from tuberculosis		New cases reported in one year per annual death (2)	Available beds per annual death (3)
	Number	Rate per 100,000 population		Number	Rate per 100,000 population		
1943	56,178 ¹	41.9 ¹	2.10				
1942	57,690	43.1	2.03				
1941	59,251	44.5	1.80				
1940	60,428	45.8	1.67				
1930	83,352	71.1	1.48				
1920	97,366	113.1					
1910	73,028	153.8					

¹ Provisional figure.

Year	County of		or City of						
	Deaths from tuberculosis		New cases reported in one year per annual death (3)	Available beds per annual death (3)	Nursing visits		Clinic visits per annual death (15)	Percentage of patients admitted to hospitals in minimal stage (20)	Patients hospitalized in one year per annual death (3)
	Number	Rate per 100,000 population			Per diagnosed case (12)	Per annual death (30)			
1943									
1942									
1941									
1940									
1930									
1920									
1910									

The numbers in parentheses in the captions represent the standards for an adequate tuberculosis control program. Consult *Appraisal Form for Local Tuberculosis Activities*, pp. 6-14, for complete explanation. The standard for the number of new cases reported in one year per annual death has recently been raised to three.

PART THREE: EDUCATIONAL TECHNIQUES

In many schools it will be found necessary to conduct a special concentrated educational program on the tuberculosis problem. The material in this section shows how to organize and conduct such an activity.

I. SPECIAL METHODS OF INSTRUCTION

A. Planning of program

Consultation of medical and educational officers, including the school health committee, to work out extent and duration of the program, responsibility of each group for its share of the program, and procedures for each day.

B. Procedures

1. General faculty meeting for the education of the school staff about the tuberculosis problem and the plans and purposes of the proposed program. Items to be included:
 - a. Brief discussion of the disease, tuberculosis (medical staff)
 - b. Discussion of the community tuberculosis problem and program (medical staff)
 - c. Significance of the disease to high school—age, sex and other differences (medical staff)
 - d. Methods of proposed control in school program (medical staff)
 - e. Outline of daily procedures (superintendent or principal)
 - f. Outline of general school program (superintendent or chairman of school health committee)
 - g. Coordination of classroom instruction with case-finding program
2. Meeting of student council to stimulate student participation
 - a. Discussion of the community problem and program
 - b. Plans for training program for selected student leaders (school health committee)
 - c. Distribution of sample literature which will be given to students
 - d. A challenge to all of these students that the success or failure of such a program depends on them (principal)
 - e. Discussion of plans for assembly
3. Assembly program
 - a. Discussion of high school tuberculosis problem and contemplated plans for control
- b. Motion-picture film or films from local or state tuberculosis association
- c. Demonstration of X-ray or tuberculin test
4. Meeting with school newspaper staff
 - a. Statement of high school tuberculosis problem
 - b. Basic material that can be used for editorials
 - c. Names of prominent people in the community who might be interviewed
 - d. Schedule of home-room assembly
 - e. Date and schedule for tuberculin-testing and X-raying
 - f. Build-up for quiz* with promise of published results during week of program
5. Home-room discussions
 - a. Have discussions led by selected and trained student leaders following assembly program.
 - b. If possible, have a representative of the health committee in the room to answer questions.
 - c. Use quiz.*
 - d. Have request slips and literature distributed to be taken home.
 - e. Emphasis should again be placed on the students' responsibility to make the program a success or a failure.
6. Parents' meeting
 - a. Explanation of community problems and program (medical staff)
 - b. Explanation of high school program (superintendent or principal)
 - c. Explanation of need of parental participation (superintendent or principal and a member of student council)
 - d. Motion-picture film or films from local or state tuberculosis association

* See page 13.

7. Plan for reporting to parents and private physicians the results of examinations.

This should include the findings of the tuberculin test and an urgent recommendation that reactors be X-rayed by their private physicians, if it is possible; if not, the health department or the tuberculosis association may be consulted regarding community facilities.

To help arouse student interest before any educational efforts are made, a quiz, prepared by the school health committee, may be given. The following set of questions illustrates the type of test given:

1. What do you think causes tuberculosis?
2. Do you think tuberculosis is communicable?
3. Do you think tuberculosis is inherited?
4. Do you think tuberculosis is curable?
5. How does the physician discover tuberculosis?
6. What do you think is the best way to cure tuberculosis?
7. What is the tuberculin test?
8. How are X-rays used in the control of tuberculosis?
9. Are the members of athletic teams in your school tuberculin-tested and X-rayed before being allowed to compete?
10. Why should tuberculin tests and X-rays be given as early as possible in the school year?

II. CLASSROOM INSTRUCTION IN HEALTH COURSES

A second technique for education of high school students about the tuberculosis problem is to make the subject matter part of a regular course of instruction in health. When this is done, the social implications of the disease and the responsibilities of various groups and individuals for its control may be developed more fully than is possible in the special program described above.

It is customary under this type of organization to incorporate definite units of work into the course as part of the regular program of instruction.

A unit on tuberculosis may be organized as follows:

A. Material for class activities

1. What is the tuberculosis problem — local, national?
 - a. Age groups affected
 - b. Mortality
 - c. Morbidity
 - d. Facilities for treatment and rehabilitation — local or in county or state
 - e. Financial burden
 - (1) On community for treatment and rehabilitation facilities
 - (2) On individual and his family as result of loss of income
2. What is the nature of the disease?
 - a. Whom does it affect?
 - b. What parts of the body are affected?
 - c. How is the disease spread?
 - (1) Human sources of infection
 - (2) Animal sources of infection
 - d. How long may the disease last?
3. What are the methods of detection and treatment?
 - a. How is tuberculosis detected?
 - (1) Case history
 - (2) Physical examination
 - (3) Laboratory tests
 - (4) Tuberculin test
 - (5) X-ray
 - b. How is tuberculosis treated?
 - (1) Preferably in sanatorium or hospital
 - (a) Hygienic regimen
 - (b) Surgical and medical aids
 - (c) Education
 - (2) Less desirably in the home
 - (3) Rehabilitation in all cases
4. How can tuberculosis be prevented?
 - a. Early detection
 - (1) Tuberculin-testing and contact-finding in 5-6 year age group
 - (2) Tuberculin-testing and case-finding in high school groups
 - (3) Pre-employment examinations
 - (4) Latest techniques in industrial and other groups
 - b. Elimination of bovine sources of infection
 - (1) Tuberculin-testing and destruction of tuberculous cattle
 - (2) Pasteurization of all milk

- c. Education of the public about the problem and the modern methods of control by
 - (1) Official health agencies including the public schools
 - (2) State and local tuberculosis associations
 - (3) The National Tuberculosis Association
- 5. How can tuberculosis be eliminated?
 - a. By employing case- and contact-finding techniques
 - b. By enforcement of control measures of bovine sources of infection
 - c. By prompt hospitalization and treatment of all active cases
 - d. By safe employment after thorough rehabilitation
 - e. By increased educational programs of
 - (1) Official health agencies
 - (2) Local, state and national tuberculosis associations
- 6. What are my personal responsibilities?
 - (a) As a high school student
 - (1) To determine my health status
 - (2) To become informed on the tuberculosis problem as it affects me
 - (3) To educate my parents about the tuberculosis problems of high school youth and the methods of control being used
 - b. As a citizen
 - (1) To become informed about the tuberculosis problem of the community
 - (2) To foster and assist community efforts to control disease

B. Source materials for students and teachers

See Bibliography, p. 16.

III. CLASSROOM INSTRUCTION AS PART OF COURSES IN BIOLOGY, SOCIAL STUDIES, HOME ECONOMICS, PHYSICAL EDUCATION, AND OTHER COURSES

A third technique is to include the material on tuberculosis control in the regular courses of instruction. When this plan of organization is being followed, coordination of the entire program of instruction units and case-finding activities must be made. The case-finding activity is logically the center of the program and should be preceded by the units of instruction in biology

and then followed closely by those in social science and home economics. The short projects — physical education, English, mathematics, shop, vocational guidance, physics, chemistry, and history — may accompany the pre-testing period or follow closely after it, depending upon the immediate significance of the project.

Biology

The instruction on tuberculosis should be part of the unit on communicable disease and methods of control. Organization of the class into committees to study and present different phases of the problem is recommended. An outline of such a unit has just been given above.

Social Studies

In social studies, the unit on tuberculosis would logically be a part of the course devoted to modern social problems. (Again, committees of students should present studies of the different phases of the problem.) The unit might be organized as follows:

Tuberculosis as a Community Problem

- A. Seriousness of problem—locally and nationally
 - 1. Mortality and morbidity by age, sex, color and financial status
 - 2. Community costs of hospitalization, rehabilitation and control
 - 3. Community costs of neglect
- B. Nature of disease
 - 1. Cause
 - 2. Methods of spread
 - 3. Effect of housing, sanitation, poverty on spread of disease
- C. Official, non-official, and private agencies for control of tuberculosis
 - 1. The fight to make tuberculosis a public health problem (New York City Health Department, 1893-97)*
 - 2. Functions of health departments in community control of communicable disease, including tuberculosis
 - 3. Functions of municipal, county or state hospitals and sanatoria in the treatment of tuberculosis

* See pages 4-7 in *The Control of Tuberculosis in the United States*, by P. P. Jacobs, listed in Bibliography, p. 16.

4. The relationship of the private physician to
 - a. Public health department
 - b. Municipal and other public sanatoria
 - c. Private hospitals and sanatoria
 - d. Home treatment of tuberculosis
 5. The functions and services of non-official health agencies
 - a. Local, state and national tuberculosis associations
 - b. Other agencies
 6. The relationship of official, non-official, and private health agencies
 - a. Historical development
 - b. Present services
 - c. Future relationships
 7. Function of a public school in community tuberculosis control
 - a. Case-finding as technique for control
 - b. Educational services
- D. Social responsibilities of private citizens
1. Agents for spread of tuberculosis
 2. Agents for control of tuberculosis
 3. Attitude and action supporting control and treatment of tuberculosis and rehabilitation of patients
7. Sanitary measures for care, preparation and service of food
- B. Home-making and home-nursing
1. Review nature of disease
 2. Study of control and treatment measures
 - a. Controlling the spread of infection
 - (1) Precautions to be used in the home
 - (2) Precautions used in hospitals and sanatoria
 3. Resistance of body to infection
 - a. Degree of contact with tuberculous individual
 - b. Fatigue; malnutrition
 - c. Rest; adequate diet; mental health
 4. Relation of diet and rest to retardation or cure
 5. Public control measures
 - a. Tuberculin-testing and X-ray programs in schools
 - b. The same—in industry
 - c. Education as a control measure
 6. Signs of illness
 7. Care of the patient at home and his environment
 8. Working together of family and patient for his recovery and their protection
- C. Personal regimen and personal health problems
1. Mental hygiene as related to general health
 2. Mental hygiene and the tuberculous patient
 - a. Personal appearance
 - b. Comfort
 - c. Leisure-time activities
 3. Schedules of healthful habits for daily living

Home Economics

In home economics, the unit on tuberculosis may be incorporated, in part, in the courses on nutrition, home-care of the sick, and personal regimen. Organization of activities would be essentially the same as in biology and in social studies.

A. Food and nutrition

1. Review nature of the disease: cause; predisposing factors—close contact, poor housing, inadequate diets; treatment—rest, food, sanatorium care
2. Relationship of national recommended dietary allowances to health*
3. Selection of an adequate diet as a preventive measure
4. Selection of an adequate diet as a curative measure
5. Protein deficiency in relation to tuberculosis
6. Vitamin deficiency in relation to tuberculosis

* Prepared by Committee on Food and Nutrition of National Research Council; available from Nutrition Division, Federal Security Agency, Washington, D. C.

Physical Education

- A. Relationship of physical activity to treatment of tuberculosis
 1. Rest and good food habits indicated, not exercise
 2. Training regimen for athletes good as preventive against tuberculosis
- B. Need for tuberculin-testing and X-raying of all students participating in athletics
- C. Athletes who have had tuberculosis

English

Famous authors, players, poets who were or are tuberculous. Discussion about these individuals, with emphasis on the fact that they achieved fame in spite of their handicap, or that their useful period of

work was shortened by the disease, may be developed in a class period during the time of the case-finding program.

Mathematics — Shop

The tables presented on page 11 offer opportunity for classes in mathematics to add considerable pertinent information on the community's standing in tuberculosis control. This will help the student to a clearer understanding of the problem.

The shop department may make these tables into exhibits suitable for display in school and community centers.

Vocational Guidance

- A. Industrial hazards predisposing to tuberculosis
- B. Industrial programs for tuberculosis control

- C. Rehabilitation program for patients whose tuberculosis has been arrested

Physics — Chemistry

- A. Discovery and significance of X-ray
- B. Uses of X-ray, fluoroscope, microfilms
- C. Chemotherapy, serotherapy, in tuberculosis

History

- A. Early historical references to tuberculosis
- B. Early methods of diagnosis
- C. Discovery of the tubercle bacillus, X-ray, etc.
- D. Contributions of various investigators to progress in treatment or control of tuberculosis

BIBLIOGRAPHY

The materials of instruction on tuberculosis are extensive in scope and variety. In addition to books, pamphlets and leaflets, there are movies, posters, teaching charts, radio scripts and transcriptions. Publications of the National Tuberculosis Association are available through state and local tuberculosis associations.

A. Books and pamphlets on administration and instruction:

HEALTH IN SCHOOLS: 20th Yearbook, American Association of School Administrators. National Education Association, Washington, D. C., 1942. \$2.00. pp. 89-105; 198-200; 273-319.

HEALTH EDUCATION: Report of the Joint Committee on Health Problems in Education. National Education Association, Washington, D. C., 1941. \$1.50. pp. 23-25; 81; 111-112.

THE CONTROL OF TUBERCULOSIS IN THE UNITED STATES, by Philip P. Jacobs. National Tuberculosis Association. Revised Ed. 1940.

THE PEOPLE AGAINST TUBERCULOSIS, by Leigh Mitchell Hodges. National Tuberculosis Association. 1942.

THE LIVES AND LOVES OF HUBER THE TUBER, by Harry A. Wilmer, M.D. National Tuberculosis Association, 1943.

REHABILITATION PROGRAMS FOR STATE & LOCAL TUBERCULOSIS ASSOCIATIONS, National Tuberculosis Association. 1943.

B. Teaching materials on tuberculosis (available from local or state tuberculosis associations)

1. Movies:
 - Behind the Shadows
 - Let My People Live (Negro)
 - Cloud in the Sky (in both Spanish and English languages)
 - On the Firing Line
 - Goodbye, Mr. Germ
 - They Do Come Back
 - Another to Conquer (Indian)
 - Sand in the Gears
 - Middletown Goes to War
 - Contacts
2. Charts:
 - Isotypes (17 charts with booklet, *Modern Man Fights Tuberculosis*, containing suggestions for their use)
 - Tuberculosis—Basic Facts in Picture Language
3. Miscellaneous aids for the teacher:
 - Discussion "Leads" for use with each movie (desirable for every student)
 - Tuberculosis Fact-Finding in Your Community (a student work sheet)
 - The Social and Economic Aspects of Tuberculosis, by H. D. Lees, M.D.

Annual reports, Tuberculosis Committee, American Student Health Association

Tuberculosis, by C. E. Lyght, M.D., Personal Growth Leaflet No. 110, NEA

A Community Approach to the Rehabilitation of the Handicapped, by V. J. Sallak

Appraisal Form for Local Tuberculosis Activities

Industrial bulletin board posters (useful in schools)

Posters, radio scripts and transcriptions

Historical aids:

- Laennec the Listener
- Robert Koch
- Roentgen's Ray
- Landmarks of Progress
- Autobiography of Edward Livingston Trudeau
- The Spirit of the Double Barred Cross (a pageant)

Bibliography: Books on Tuberculosis

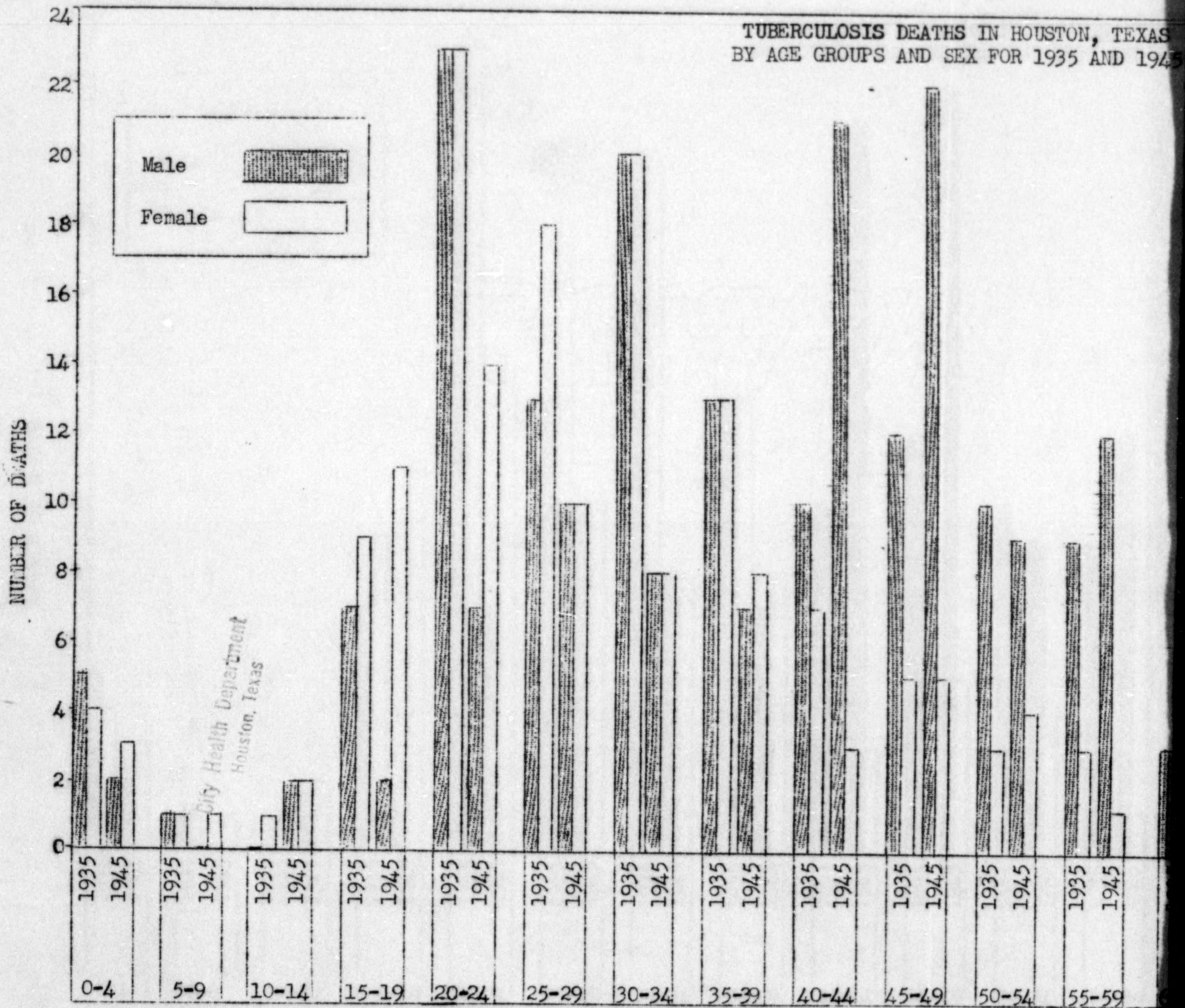
C. Educational literature for the student (available from local or state tuberculosis associations)

- How to Kill TB Germs
- How Your Body Fights TB
- Tuberculosis from 5 to 20
- We, The People Fight Tuberculosis (The Story of the Community Program)
- Why X-ray?
- Tuberculosis—Basic Facts in Picture Language
- Steps to Safety—The Tuberculin Test
- Everybody's Doing It—Get Your Chest X-ray Now
- Climate and Tuberculosis
- Air and Sunshine
- The Low-Down on TB (Negro)
- The Low-Down on Tuberculosis (White)
- Why Sleep?
- Shall I Hire Them?
- Going Home from the Sanatorium

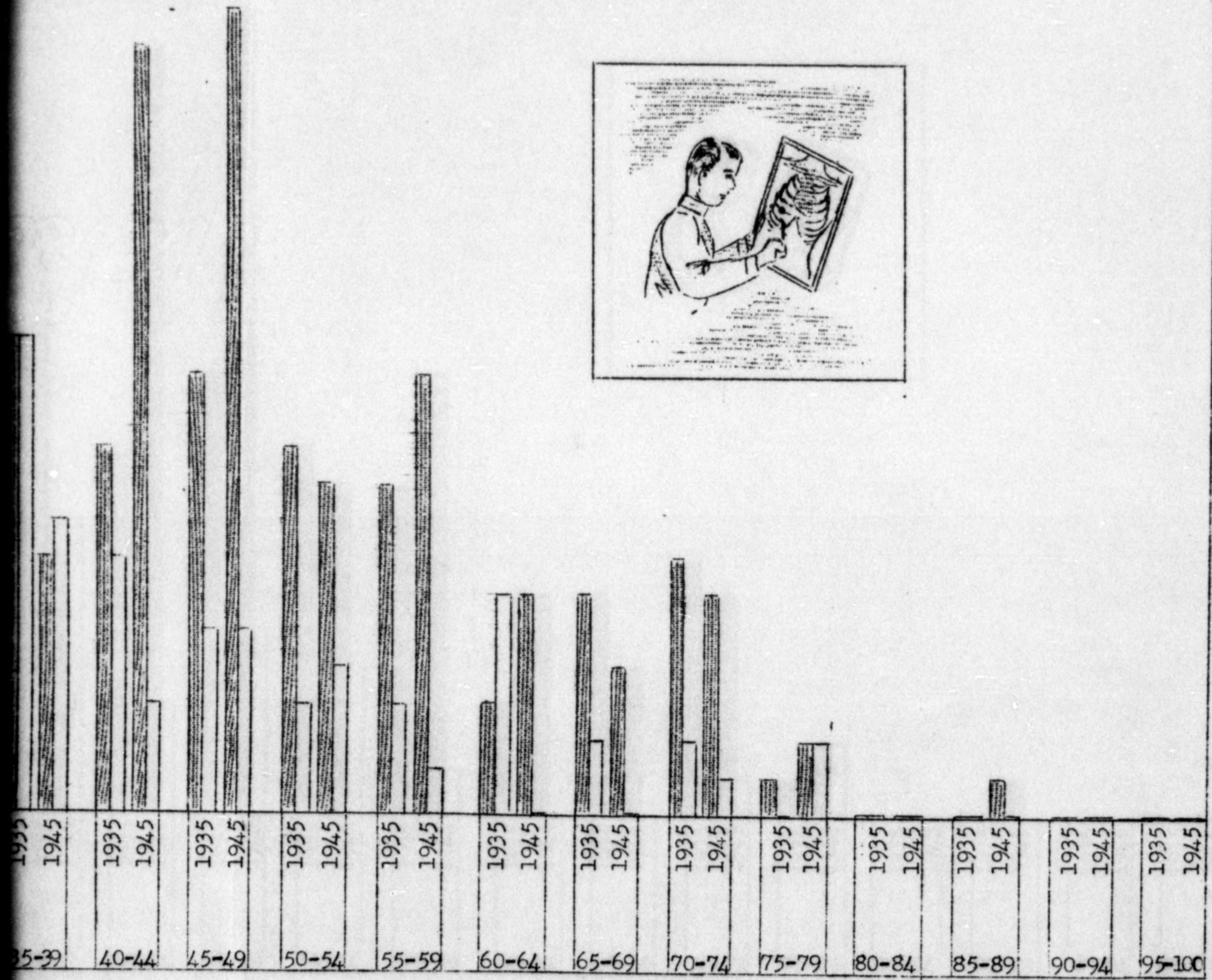
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D9



TUBERCULOSIS DEATHS IN HOUSTON, TEXAS
BY AGE GROUPS AND SEX FOR 1935 AND 1945



Dg
TB

HEALTH COMMENTATOR

WASHINGTON STATE DEPARTMENT OF HEALTH, SEATTLE

ARTHUR L. RINGLE, M.D., C.P.H., Director

HOWARD W. LUNDY, Dr.P.H., Editor

Volume 1

November, 1946

No. 2

4,000 Get Free X-Rays at Fair

Over four thousand people will know whether or not they have tuberculosis as the result of free chest X-rays given by the State mobile unit at the Puyallup Western Washington Fair in September.

A total of 4,021 X-rays were taken during the run of the fair, with 3,863 persons showing no evidence of TB. Six X-rays showed moderately advanced TB and thirteen showed minimal TB.

One hundred of the X-rays revealed questionable signs of tuberculosis. Although this proportion is unusually high, the fact that 70mm films were used for the first time may be a contributing factor. These new films are smaller than the 4x5 film and require experience in reading before complete accuracy will be reached in analysis.

People with abnormal findings who were X-rayed by the mobile unit will be notified through their county health departments. Those with no evidence of TB will receive the good news from the Tuberculosis Control Section of the State Health Department in Seattle.

Aid to Hard-of-Hearing Youngsters Is Goal Of New State-Wide Program

The spotlight of public attention is focused this week on the thousands of Washington children and adults who live in "solitary confinement" because of a hearing loss or complete deafness.

November 10 to 16 has been set aside by President Truman and Governor Wallgren as National Hearing Week,

EMIC Still Pays For Servicemen's Babies

Although new enrollments are dropping off gradually as the Army and Navy decrease in strength, the Emergency Maternity and Infant Care program, which takes the financial headaches out of fatherhood for G.I.'s, is still in effect.

In October 485 mothers signed up for doctor and hospital care, compared to 1,033 registering in October, 1945. May, 1945, saw the peak of new enrollments under EMIC, with 1,117.

The program provides full prenatal care, hospitalization and obstetric services, and doctor's supervision for the infant up to his first birthday. Wives of men

an occasion to take inventory of our remedial and educational program for these people.

Authorities estimate that about one person in ten has a hearing loss sufficiently acute to require special attention. Three million of the nation's school children have impaired hearing.

What are we in Washington doing to help these people overcome their handicap, to keep them from becoming prisoners of silence?

Happily, Washington can be numbered among the states with a program for detection and correction of children with hearing losses. Sparked by efforts of the Seattle Society for Better Hearing, one of the most active chapters of the national organization,

(Continued on Page 7)

(Continued on Page 6)

PROTECT YOURSELF AGAINST FLU!

SEE
PAGE 3

Health Workers Trade Notes At Seattle Meeting

Professional health workers from all over the State and from Canada met in Seattle last month to hear the latest methods for protecting the public health. The event was the 11th annual meeting of the Washington Public Health Association which this year featured noted speakers, panel discussions and round-table conferences.

The principal speaker of the meeting was Dr. Raymond B. Allen, president of the University of Washington and a physician himself. Many other experts discussed new discoveries and developments which will help to prevent disease and promote health, the two primary objectives of all public health work.

Those elected to lead this group of professional health workers for the coming year include the following:

President, Mr. Ed Diddams, advisory sanitarian, State Department of Health; Vice-President, Dr. H. L. McMartin, Snohomish county health officer; Secretary-Treasurer, Mrs. Evelyn Burke, director of nursing education, King County Health Department; Health Officer Section, Dr. Stanley Benner, Yakima County health officer; Public Health Nursing Section, to be appointed; Sanitarian Section, Harold Amundsen, senior sanitarian, Lewis-Pacific County Health Department; Laboratory Section, Mrs. Rachel Dirks, senior bacteriologist, Clark County-Vancouver Health Department; Health Education Section, Dr. Howard W. Lundy, head, health education section, State Department of Health.

A person may die more quickly from lack of sleep than from lack of solid foods.

Post-Mortem on Smallpox Shows Need for Better Isolation of Patients

The final chapter in last spring's smallpox epidemic, which cost the lives of 20 persons in the State, was written this week with the publication of a comprehensive report on the way one case snowballed to 65 within a few weeks, resulting in an immunization program that attracted nation-wide attention.

The report was written by Dr. W. R. Giedt, epidemiologist for the State Department of Health, for delivery before the annual convention of the American Public Health Association.

The verdict is an eloquent testimonial for the efficiency of smallpox vaccine, as well as a reminder of new dangers from disease in an air age. More than 98 per cent of the 60 smallpox cases for which information was available either (a) had never been vaccinated, (b) were vaccinated more than four years ago, or (c) were vaccinated after, not before, their exposure to smallpox.

The whole thing started when a G.I., enroute home from Japan, developed smallpox aboard an Army transport. He was promptly hospitalized at Fort Lawton, upon the ship's arrival. A civilian woman patient in the isolation unit there became exposed

to the soldier's smallpox. She was vaccinated at once—but the vaccine had little chance to do its work *after* the patient had been exposed. She was admitted to King County Hospital and put in the communicable disease ward.

Smallpox is one of the most highly contagious of all diseases. Because of inadequate isolation facilities, the smallpox spread rapidly at the hospital. Seventeen days after she was hospitalized "secondary" smallpox cases began to appear. By the time the ball stopped rolling 43 persons were definitely known to have acquired smallpox, directly or indirectly, from the first case.

The particular strain of smallpox involved was deadly. Half the cases "manifested a severe type of illness," according to Dr. Giedt, and 20 out of 65 patients died

(Continued on Page 8)

Ed Diddams, new president of the Washington State Public Health Association, and Dr. Raymond B. Allen, president of the University of Washington, talk it over.



November, 1946

HEALTH COMMENTATOR

3

Duck "Flu" This Year With Improved Vaccine, Now Available to All

You can protect yourself against the "flu" this winter, thanks to a new vaccine tested by the Army and available to the general public through private physicians.

It might be a pretty good idea, too, because public health authorities look for a great deal of influenza this winter, possibly reaching epidemic proportions. People working in cities, who are naturally subjected to crowding in buses, elevators, theaters, etc., are especially urged to take advantage of flu immunization.

The vaccine gives three out of four persons receiving it immunity against influenza for a period of four to eight months or more. It takes about a week from the time of the injection for full protection to develop within the body, and it won't stop the chills and sniffles if you have been exposed to flu germs before receiving the vaccine.

Last year there were an estimated 10,000 cases of influenza in Washington during November and December. One indication that flu is not to be taken lightly is that 200 deaths from pneumonia occurred in this same period. Pneumonia often attacks those weakened by flu.

Flu runs in cycles. The Type "A" virus occurred in epidemic proportions in many parts of the country in 1943, and since it tends to recur in two, three or four year cycles, it may strike hard this winter. Last year's cases were Type "B" influenza, it is believed, and this type will probably not recur on a large scale until 1949 or 1951.

Although "A" and "B" influenza are caused by different viruses, the net result to the victim is just about the same. Both are equally dangerous and highly contagious.

Most health departments do

not administer the flu vaccine, nor do they furnish the vaccine to private physicians. However, its use is recommended by many public health authorities.

The University of Washington Health service is campaigning to get all students and faculty members immunized, because of the danger of an epidemic and extremely crowded conditions. Of the first 4,000 injections given, only two students reported any reaction to the vaccine. Both of them reported mild flu symptoms which disappeared in a day.

Slides on Polio Care Available to Nurses

The State Health Department now has available for loan a set of 2x2 inch Kodachrome slides on the nursing care of polio patients. The series was designed to show nurses various types of treatment and also the fundamentals of good nursing, regardless of the type of treatment given.

Good bed positions, supports and normal alignment in the care of bed patients, the position of the patient while eating, the application of heat, the measurement of the patient for packs and the application of both the pin-on and lay-on types of packs are shown. A script is furnished with the slides and the whole series may be secured through your local health department or by writing directly to the Health Education Section, 1412 Smith Tower, Seattle.

SCENIC NOTE

Many people have asked us to identify the scene printed in green on page 1. No, it's not Mt. Rainier—or Spirit Lake and Mt. St. Helens. It's Glacier Peak, at the eastern edge of Snohomish County, as seen from Miner's Ridge—and just as striking a bit of scenery as some of its more famous cousins.

State Joins Cancer Fight

Falling in line with the national trend toward recognizing cancer as an important public health problem, the State Department of Health has organized a Cancer Control Section.

"The many victories of medical science and public health during the past half century have increased the length of life of the average man considerably," Dr. Arthur L. Ringle, State Director of Health, commented. "This means that the diseases of older people are assuming greater importance as health problems. Cancer, essentially a disease of older people, is now the second leading cause of death, and we have felt for some time that we should join with the medical profession and the American Cancer Society in the fight against this important enemy."

Jess B. Spielholz, M.D., heads the new section. Dr. Spielholz was formerly health officer in the Bremerton-Kitsap County Health District, and for several years was a specialist in internal medicine in private practice.

A cooperative program between the new section and the medical profession, the Washington Division of the American Cancer Society, and the University of Washington medical school is now being formulated, Dr. Spielholz said.

Guarding the Hearing of Tomorrow's Citizens

Whatcom County boasts an advanced program to detect and correct hearing difficulties

THE SPIC-AND-SPAN little town of Newhalem lies at the western edge of Whatcom County, a few miles from the foot of Seattle City Light's famed Diablo Dam. Hemmed in by densely-wooded foothills and sheer granite cliffs, it is the home of a few score employees of the power company. In past years thousands of visitors to the Dam stayed there overnight in tourist barracks.

Each year the schools are visited by a team which tests the children's hearing. In the two-room school house Newhalem children were joined this year by a gleeful group which hastily boarded the electric train at Diablo Dam to come down for the tests.

The team consists of a trained audiometer technician from the county school system and public health nurses from the county health department. Their job is to check each child scientifically to see if he

has normal hearing.

In the first test each child is given a set of earphones, over which a recording is heard. The children write the numbers they can hear and papers are quickly graded.

First graders—who can't write yet—require a little more time. The technician makes a game out of it, and each child tells her just what he can hear "the lady say over the telephone."

The children who have been checked are then carefully checked with an audiometer by the public health department. The audiometer records the exact loss of hearing.

Boys and girls with hearing difficulties are referred to a clinic at the county health department. An otologist diagnoses the hearing loss and arrangements are begun for correction under competent medical supervision.





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 e out of it, and each child
 what he can hear "the lady
 telephone."

The children who have hearing losses are then carefully checked on a "pure-tone" audiometer by the public health nurse, who records the exact loss on a graph.

Boys and girls with a severe loss are referred to a clinic administered by the county health department, where a skilled otologist diagnoses the difficulty and arrangements are begun to put the child under competent medical care.

Above: The pure-tone audiometer gives an accurate picture of both the pitch range and volume that can be heard.

Below: At the health department a thorough examination and diagnosis is followed by a conference with the parent. Arrangements are made here to obtain proper medical treatment, if it is deemed necessary.



5000 Proud Papas Boost Rural King County To Top of Birth Rate List

Rural King County holds first place in last year's stork derby, with a whopping birth rate of 34 per 1,000 population, according to statistics just completed by the Public Health Statistics Section of the State Health Department.

However, when coupled with Seattle residents, the overall King County rate was 23.6, just above the rate for the State as a whole, 21.8 per thousand.

Six other counties exceeded the State average: Clallam, 22.5; Island, 29.1; Kitsap, 27.6; Pierce, 23.4; Walla Walla, 25.2, and Yakima, 24.0.

It might be noted that many of these counties were important centers of military activity. Irvin R. Vaughn, State Registrar, pointed out that these figures are compiled according to place of usual residence, and no birth is credited to this tabulation unless parents have been residents of Washington for one year. Consequently, the high rates cannot be attributed solely to transient service couples.

The overall Washington birth rate, by residence, was a shade below the 1944 figure of 22.2, and also the record 1943 of 22.3 per thousand population.

Mothers who came to Washington to have their babies, but who were not classed as residents, accounted for 848 births. This swells the total of babies actually born here in 1945 to 45,144.

The country dwellers nosed out their city cousins with a rate of 22.7, as compared to 21.0 for those living in towns of 10,000 or more. However, they came to town to have their children, for three out of four births actually occurred in the cities. Seattle, with 14,756 deliveries, accounted for about a quarter of all births.

Among the cities, Port Angeles

won handily with a strong 27.4, followed by Walla Walla, 24.7; Longview, 24.6; Tacoma, 23.7, and Everett, 23.5. Seattle and Spokane were out of the money with 20.3 and 21.4, respectively, and Wenatchee finished last with 14.7.

Poor prospects for the diaper and rattle industries were reported from Benton County, with the lowest rate of 9.6; San Juan, 12.0; Pend d'Oreille, 13.4; Ferry, 13.5, and Wahkiakum, 15.4.

(Continued from Page 1)

the hearing problem is recognized by both school and public health authorities.

By State law, schools are now required to test all pupils' hearing at least once a year. Some of the more progressive school systems have instituted special remedial classes for children with hearing losses. They are taught lip-reading, speech correction (unable to hear their own voices, many have speech peculiarities) and are tutored to help them make up work they missed because they couldn't hear the teacher. This is done at the regular grade and high schools, so that the boys and girls are segregated from their classmates only for remedial work.

A little more than a year ago the State Health Department set up a Conservation of Hearing

Painters Protected By Plan Inspection

Through the cooperation of the Seattle Fire Department new installations of industrial paint spray booths are being made safe, not only from fire hazards, but also from a health standpoint.

Firms building spray booths are required to submit their plans to the City Fire Marshal's office to insure that the proposed construction will comply with fire protection regulations.

After they have approved the plans, the Fire Department refers the builder to the Section of Industrial and Adult Hygiene of the Department of Health so that provisions for ventilation may be checked. This eliminates the need for costly changes after construction has been completed and assures the painters adequate protection against possibly toxic fumes from the start.

The review of plans for ventilation or other protective equipment is a free service of the Section of Industrial and Adult Hygiene available to any industrial plant in Washington.

Section, in order to work out a program so that the staffs of local health departments could help in this special program.

One of the first objectives of the Section, headed by Dr. Emily A. Pratt, an otologist with broad experience in this field, is to standardize the hearing tests which all schools give. She hopes eventually that all schools will test children with the audiometer, a scientific instrument for measuring hearing capacity. After the tests, those children with marked losses will be examined by an otologist—a physician specializing in ear diseases—and medical treatment, if indicated, will be performed. If the loss persists or cannot be treated, the child will then be enrolled in remedial classes conducted by the schools.

Cleaner Labor Camps Assured Through New Inspection Program

Gone forever is the breed of logger who worked in a camp the year around, saved his money, and went to town on Christmas and the Fourth of July.

Also on the road to limbo is the rough-and-tumble, dirty, insanitary camp the old-timers used to live in. More and more of the camps are attaining standards of sanitation comparable to those the city worker expects.

There's a good reason. An ever-increasing number of workers in the logging, railroad and construction industries are family men. They work for a week or two, then go home to see the wife and children. Men like this won't tolerate insanitary conditions.

With both management and labor anxious to improve conditions in labor camps, a cooperative program to raise the sanitation standards in these camps has been developed recently. Substantial improvements have been brought about by joint action between the State Departments of Health and Labor and Industries, and local health departments.

While proper sanitation has always been an important objective of all health departments, it became apparent that the overburdened staffs of local health departments could not, in many cases, devote sufficient time to the particular problem of camp sanitation.

A plan was worked out so that an advisory sanitarian, on the staff of the State Health Department, is constantly engaged in a sanitary survey in the hundreds of camps scattered throughout the State.

When conditions permit, he is accompanied by a representative of the Department of Labor and Industries, and of the local county or district health department. These departments assist in fol-

lowing through to see that recommendations made as the result of the inspection are carried out.

(Continued from Page 1)

in the lowest four pay grades of all armed services are eligible, and Uncle Sam pays the bills. The wife may choose her doctor from any of the 1,000 Washington physicians participating, and may have her baby at any of 90 hospitals.

Veterans may also benefit under the program if they were in one of the four lowest pay grades at any time after the baby was conceived.

More information about this program may be obtained from doctors and hospitals, local health departments, veterans' information centers or the American Red Cross.

Strange! Now Where Did That Mountain Go?

Mount Rainier is one of the most temperamental stars of "Welton—A Healthy Community," a new 30-minute color film being produced for the State Health Department by the University of Washington Campus Studios.

Much of the action of the film, which portrays the activities of a typical local health department, is laid at a dairy farm near Enumclaw. Since Mt. Rainier is almost in the dairy's back yard, the script called for showing it as a scenic backdrop.

But the mountain promptly became a prima donna.

Several times the cameras were loaded into the truck and the cast alerted, only to have the trip canceled because Rainier had suddenly ducked into a bank of solid alto-cumulus.

By means of a system of daily telephoned weather reports, the scenes were finally completed. There were only about a dozen days during the entire summer when the mountain could be photographed in color.

"Welton" is scheduled for completion shortly after the first of the year.

THE BOX SCORE

October, 1946

A summary of important communicable diseases reported to the State Department of Health, together with comparative figures.

	This Month	Last Month	1 Year Ago	9-Year Median
Diphtheria.....	48	53	24	12
Scarlet Fever.....	148	46	112	124
Whooping Cough.....	77	91	93	146
Poliomyelitis.....	131	139	44	24
Epid. Meningitis.....	5	3	7	4
Typhoid Fever.....	5	5	2	7
Undulant Fever.....	10	1	6	3

(Continued from Page 2)

Thanks to widespread radio and newspaper publicity, 350,000 Seattle and King County citizens lined up at fire stations, schools, doctors' offices and health departments for vaccination. In Tacoma and Pierce County, Everett and Snohomish County, and Port Angeles and Clallam County, the story was repeated. About half the population in each of these counties was immunized—in a hurry.

Smallpox cases occurred only in King, Snohomish and Clallam Counties, with one other case reported from San Juan County. The disease attacked young and old alike, the youngest patient being three weeks old and the oldest 73 years.

Dr. Giedt's report finds evidence to support the opinion that exposed persons who do not acquire smallpox themselves may be able to transmit the disease from a sick person to another person, after a "varying but probably short period of time."

He also points out the dangers of attempting to care for smallpox patients in the general wards of hospitals, and the "extreme importance of control in all cases."

The MAIL BAG

A regular department which will answer your questions about sanitation and public health. Address your inquiries to "The Mail Bag," in care of the Health Commentator, 1412 Smith Tower, Seattle 4. If space will not permit us to answer your letter in this column, we will write you personally.

Gentlemen:

Who is responsible for preventing the dumping of sewage, the Health Department or the Pollution Control Commission?

A. W. W., Everett.

Local health departments, the State Department of Health, and the State Pollution Control Commission all have responsibilities in this field. The answer in each case depends upon the type of pollution involved.

Chapter 216 of the Session Laws of 1945 created the Pollution Control Commission, which is composed of the State Directors of Health, Fisheries, Game, Agriculture, and Conservation and Development. The law prohibits pollution of all waters within the State, gives the responsibility for enforcement to the Commission, and sets up penalties for violations. However, the law specifically states that previous regulations governing pol-

lution and sewage disposal are not repealed.

In practice, the Commission concerns itself chiefly with public sewage and industrial-waste pollution. To assist the Commission, the State Department of Health prescribes the degree of treatment and the methods of general design for treatment works. When plans are completed they are reviewed by the State Health Department and recommendations are then made to the Commission, which in turn grants final approval.

Pollution problems involving individual homes, camps, schools, resorts and small unincorporated areas are still the responsibilities of local health departments. Better consult your local health officer, Dr. H. L. McMartin of the Snohomish County Health Department. He will refer the case to the State Department of Health or the Pollution Control Commission if this is necessary.

Here's News About Your Health!

WASHINGTON STATE
DEPARTMENT OF HEALTH
1412 Smith Tower
Seattle 4

D9



You can have a share...
\$

D9



You can have a share...

≠

In Colorado's Tuberculosis Program

BY PROMOTING THE PROGRAMS OF THE TUBERCULOSIS ASSOCIATIONS AND WORKING WITH THE OFFICIAL HEALTH DEPARTMENTS IN THE ERADICATION OF TUBERCULOSIS.

How Can the Job Be Done? By:

1. Teaching that:

Tuberculosis causes more deaths than any disease between the ages of 14 to 45.
The tuberculin test indicates whether or not tuberculosis germs are present in the body.
The X-ray examination indicates whether or not a person has the disease.
Only a physician can tell whether or not a person has tuberculosis.
Early discovery means early recovery.
Tuberculosis is a communicable disease.
Tuberculosis **can be** eradicated.

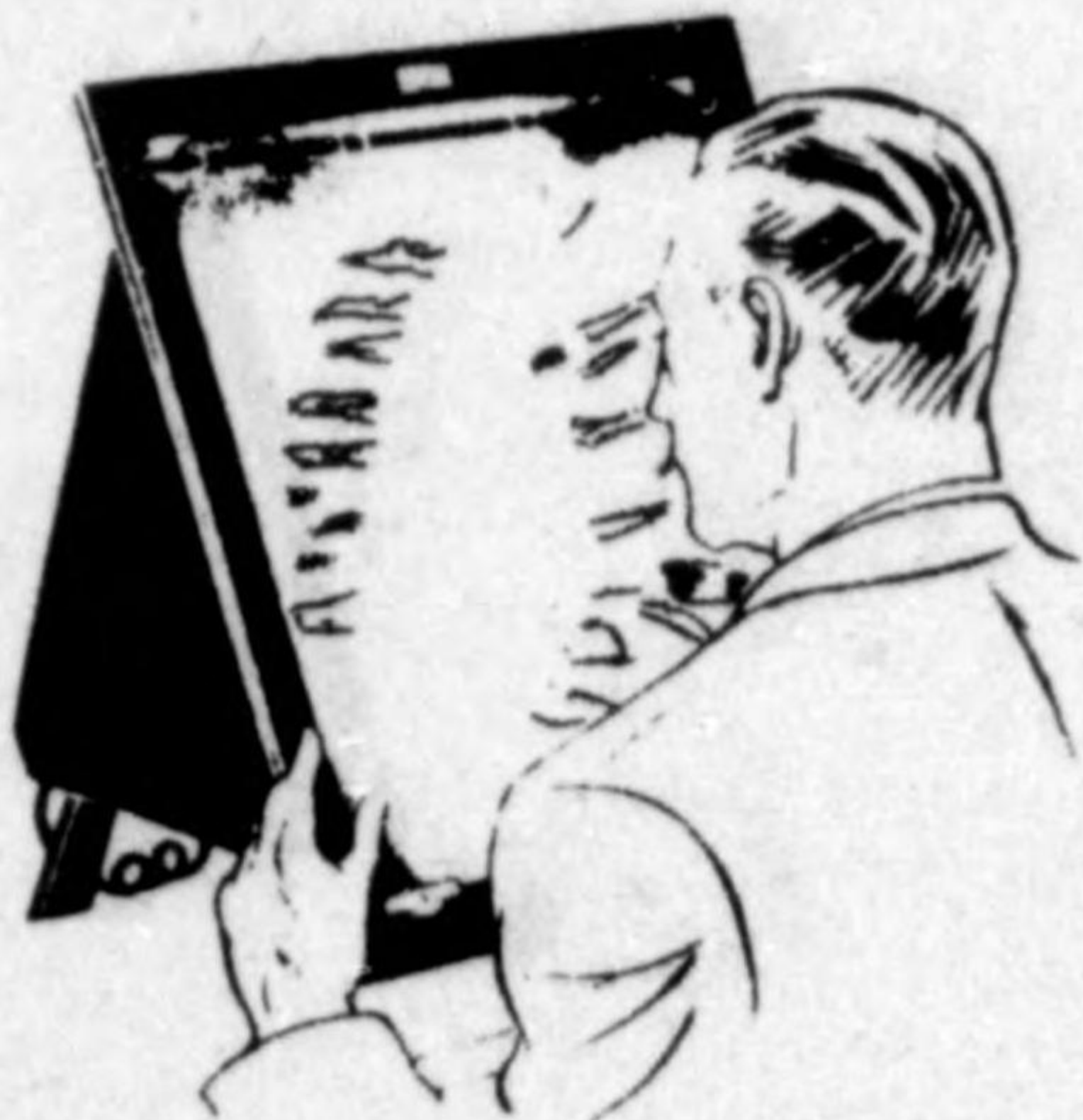
2. Chest X-raying the entire population, taking the so-called susceptible groups first.



The State Division of Public Health and the Colorado Tuberculosis Association purchased a mobile X-ray unit and are sharing the cost of maintenance in order that the entire state may be toured and that all adolescents and adults may be offered a free chest X-ray.

Over forty thousand persons have been X-rayed with small films during the past year. One percent of those X-rayed have been found to have active tuberculosis. Many of these did not know they had the disease. It will take several years for the unit to cover every county in the state.

3. Periodic examination of active and inactive cases.



County Medical Societies cooperate with the Colorado Division of Public Health and the Tuberculosis Associations in holding chest clinics for persons referred through the tuberculin tests or X-raying, or because they are known contacts to someone having the disease.

Clinics were held in 31 counties last year. Over 5,000 persons were given X-rays for diagnosis, and 2,600 were given chest examinations. Mass X-raying will increase the need of these clinics.

The cost is shared by the State Division of Public Health and the Tuberculosis Christmas Seal funds.

4. Prompt and adequate hospital and sanatorium treatment of all active cases.

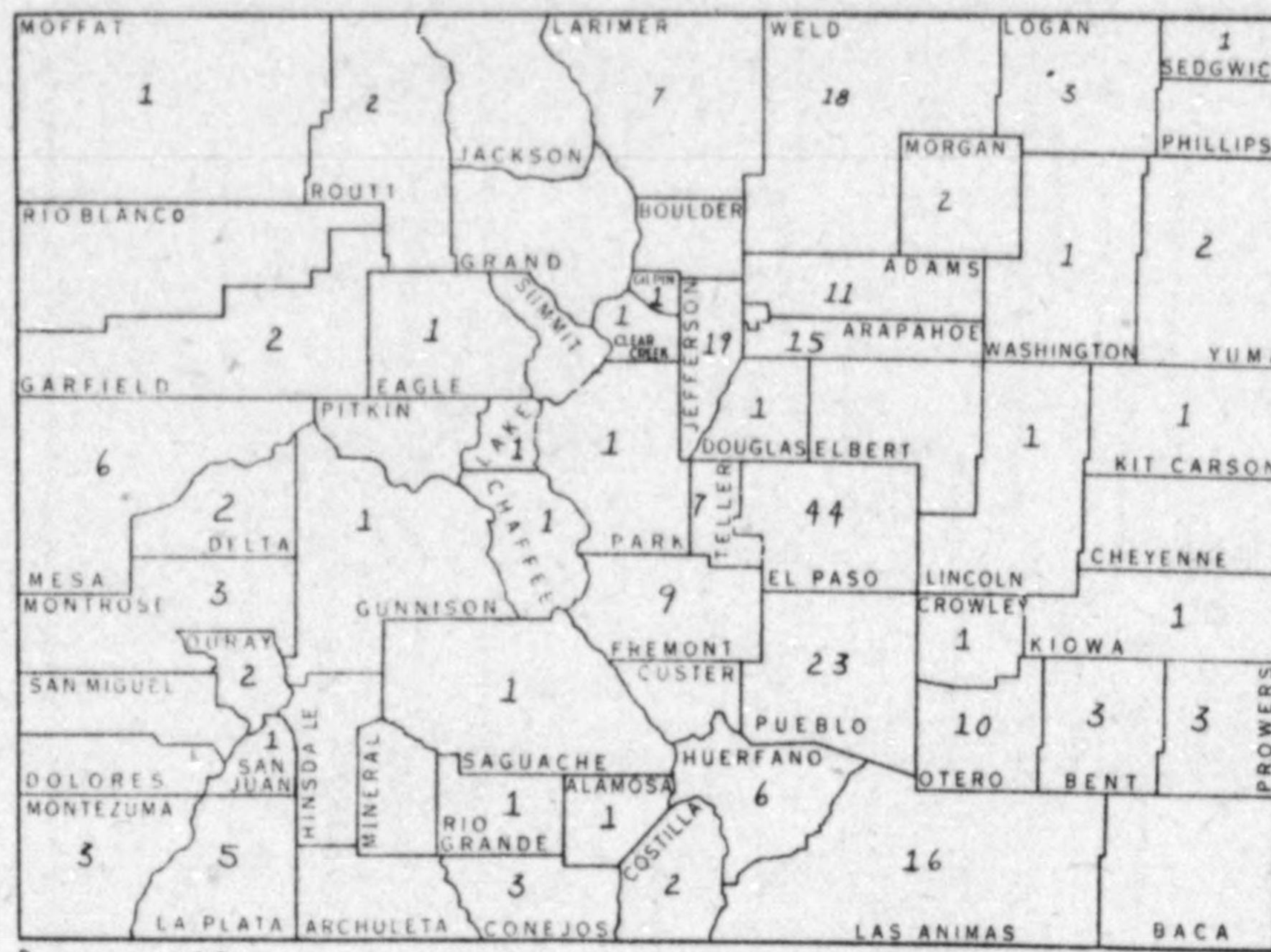


Colorado residents of three years may secure treatment by applying to the County Welfare Departments. The cost is shared by the County and the State.

Sanatorium care is purchased from private sanatoria at \$4.00 a day. The State appropriation limits the cases to about 150 at any one time.

To isolate and treat tuberculosis patients, public authorities should provide a minimum of two and a half beds for each annual death. Only 5% of persons with tuberculosis can finance their own care.

An average of 413 Colorado residents died from tuberculosis each year, during the past five years. Two and a half beds per death would necessitate 1132 beds, but public and private agencies have been providing approximately 350 for Colorado residents.



Denver - 155

Average number of tuberculosis deaths 1940-1944.

5. Rehabilitation of patients during and after hospitalization.

There are over 1200 persons being treated in 19 tuberculosis sanatoria in Colorado, and in addition about 1800 war service veterans in Federal facilities.

Rehabilitation has two purposes: to prepare the bed patient while in the sanatorium for resumption of normal life when he is discharged; to counsel with the individual discharged, helping him to secure either immediate suitable employment or further formal training.

The Colorado Tuberculosis Association employs a rehabilitation agent to work within the sanatoria and to cooperate with the State Division of Rehabilitation. The State Division will have funds to provide counseling and guidance, training fees and maintenance for physically handicapped persons. The Veterans Administration is caring for service men and women.

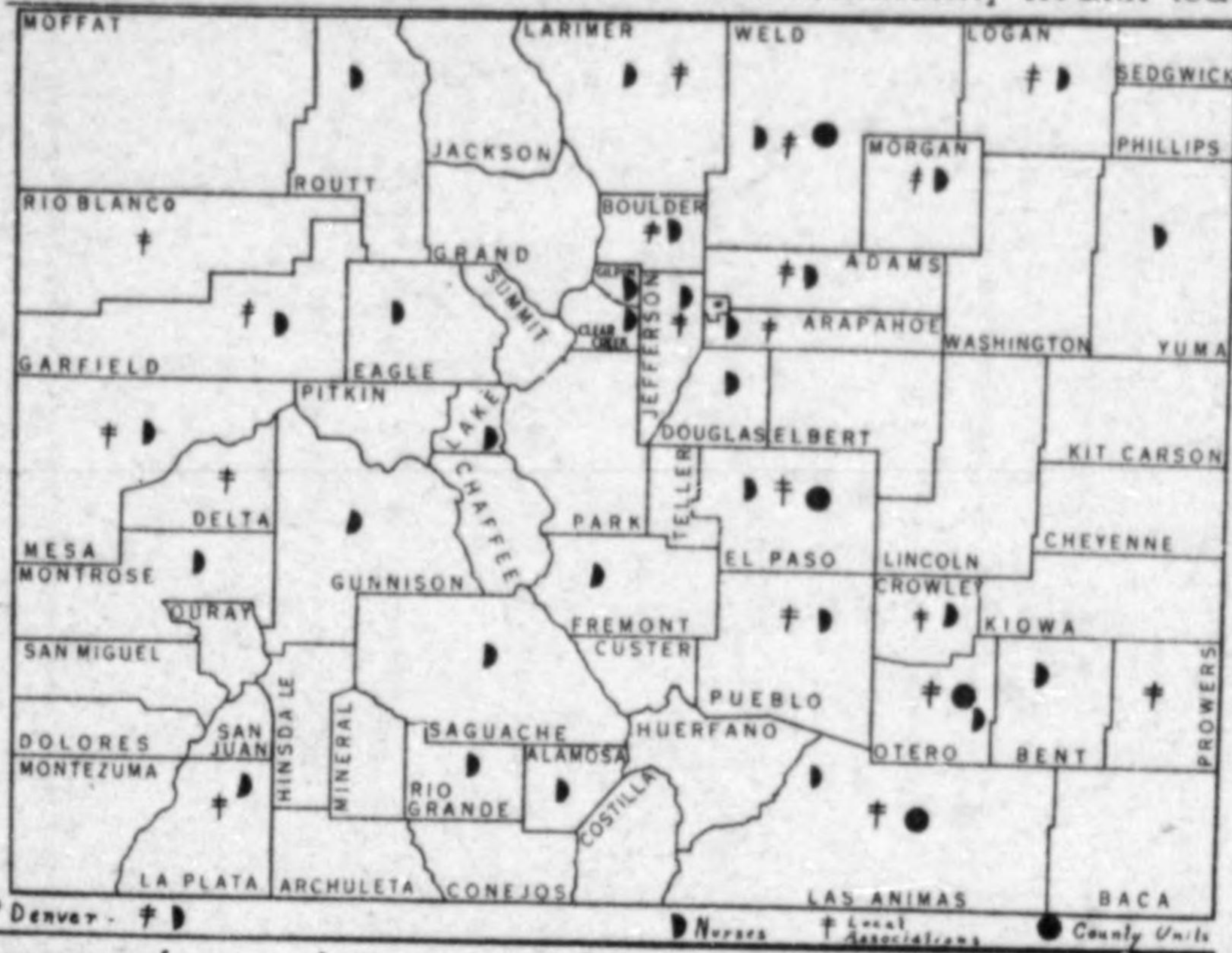
This program needs community understanding and sympathy. Two splendid teaching units on rehabilitation are available, "Rehabilitation" for high schools, and "Together We Build," for elementary schools.

6. Intensive Health Education in the Schools and in the Community.

Colorado schools have cooperated in the anti-tuberculosis campaign and last year used over 90,000 pamphlets as supplementary teaching material. Pamphlets are available without charge. Newspaper articles, radio transcriptions, motion picture films, ready made talks and exhibits are available for the use of schools or community groups.

7. Public Health Nursing and Completely Staffed County Health Units.

The public health nurse is a home and community health teacher. Her services are essential in the control



of tuberculosis and other communicable diseases in demonstrating the techniques for home care, interpreting the physician's instructions and explaining methods of treatment. There are 27 counties having public health nurses in Colorado and 20 school districts employing nurses, whose salaries are paid from tax funds. Tuberculosis Christmas Seal funds are used in some counties to supplement funds or provide public health nursing services.

The ideal machinery for adequate health services is a county or district health department with a full-time public health trained officer in charge, a sanitarian, a clerk and one public health nurse for each 5,000 population.

There are four such units in Colorado. Federal and State funds are available on a matching basis for this purpose.

8. Interested and aggressive citizens' groups banded together in a voluntary health agency.



There are 22 local tuberculosis and health associations in Colorado whose purposes are: to study the tuberculosis and public health needs in a community, to demonstrate how those needs may be met, and to encourage the public or tax-supported agency to assume responsibility for adequate public health activities.

These local associations and 147 other organizations sponsor the sale of Tuberculosis Christmas Seals and participate in the planning for the expenditure of these funds. Schools throughout the state participate in the sale of Seals or Bangle Pins.

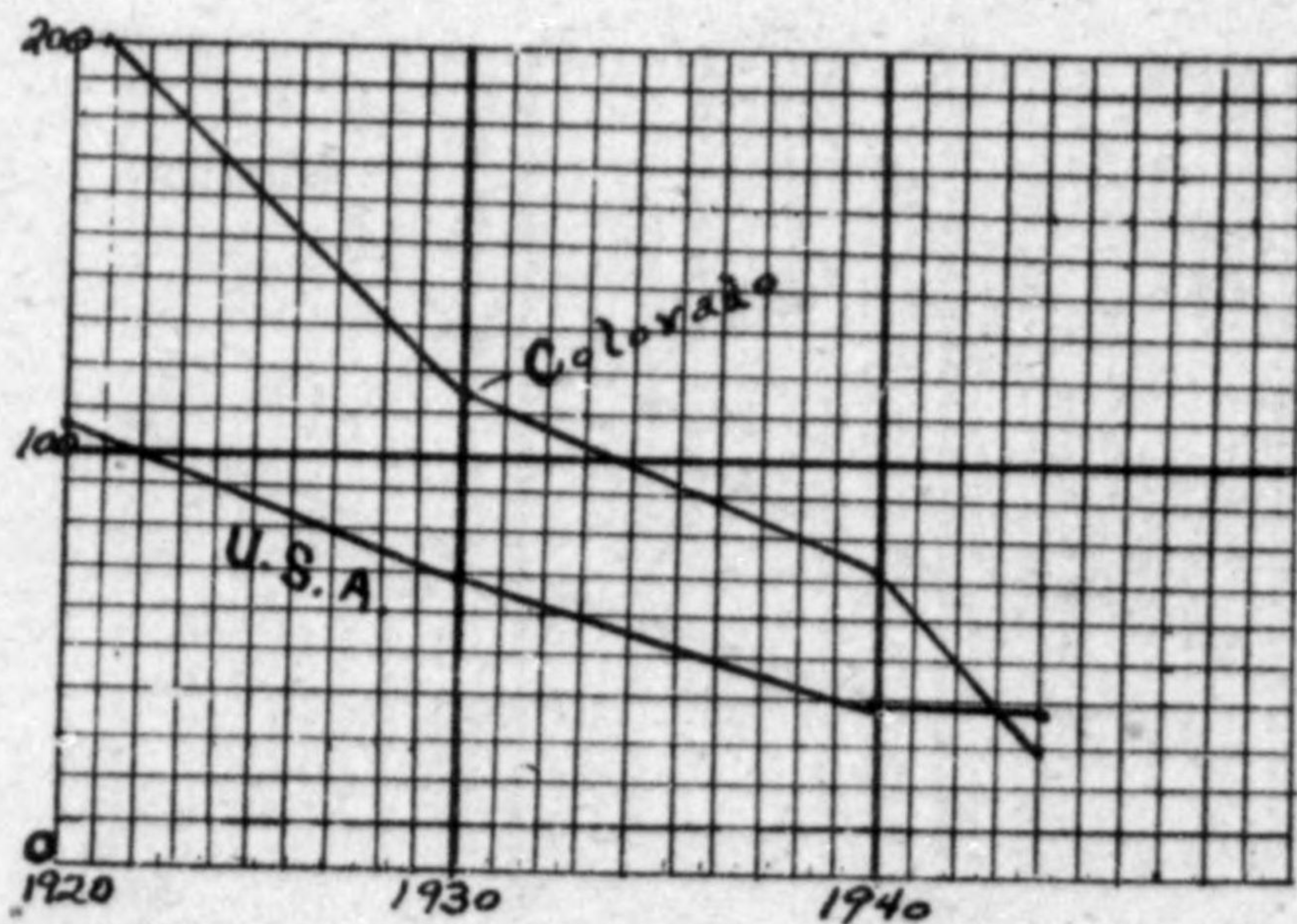
Tell These Facts in your Community:

There is a downward trend in tuberculosis deaths in Colorado and the United States.

There is an upward trend in the war-torn countries of the world. Tuberculosis spreads like fire.

Take part in the Tuberculosis Campaign.

Keep the death rate going down!



T. B. death rates per 100,000 population.

Prepared by
THE COLORADO TUBERCULOSIS ASSOCIATION

in cooperation with your
Local Tuberculosis Associations.

612 Mack Building
DENVER

August 1945

D9

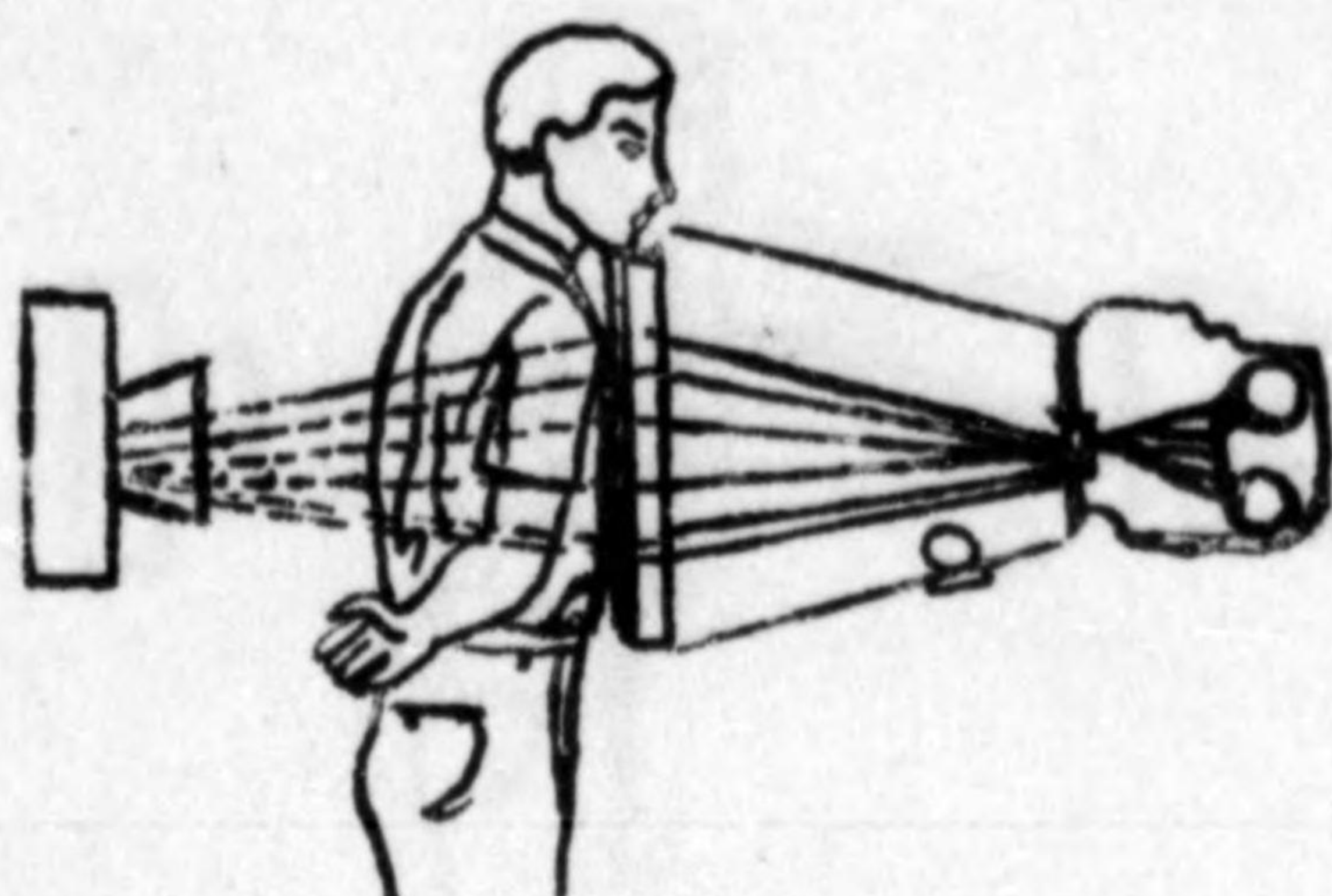
CITY OF CLEVELAND

NEWS RELEASE

MAY 18, 1946

DIVISION OF HEALTH

FINDING TUBERCULOSIS THROUGH X-RAY



Public health agencies in Cuyahoga County and an X-Ray manufacturing company are bringing to Cleveland an exhibition of the Free Mass Chest X-Ray survey work in this area, at the Mid America Exposition to be held at the Cleveland Auditorium, May 23, to June 2. Miniature x-ray film apparatus, one of the newest and most effective weapons in the constant fight against tuberculosis, will be on display. This unit is capable of making one hundred x-rays an hour.

The X-Ray Survey in Cuyahoga County is one of the most comprehensive case-finding programs in the nation. It is sponsored jointly by the Cuyahoga County Tuberculosis Clinic, under the direction of the six Health Districts of Cuyahoga County, the U. S. Public Health Service, and the Anti-Tuberculosis League. This type of program is an example of excellent cooperation between a voluntary health agency and the official agencies.

ANALYSIS OF THE SURVEY RESULTS:

Over 170,000 county residents, including 135,000 industrial workers have been given free chest examinations. A study of 100,000 of these examinations made in seventy-two representative plants--manufacturing, automotive, governmental agencies, department stores, etc., revealed that 1586 persons had tuberculosis (1.6 per cent), of these:

- 1) 71 per cent were in the minimal stage
- 2) 26 per cent were in the moderately advanced stage
- 3) 3 per cent were in the far advanced stage
- 4) 89 per cent were new cases
- 5) 11 per cent were known to official health agencies
- 6) The prevalence rate increased with advancing age

This x-ray service is offered to all plants and businesses in the county. Arrangements may be made by contacting the County Tuberculosis Clinic, 206 High Avenue, Cherry 6046, or the Anti-Tuberculosis League, 1900 Euclid Avenue, PROspect 5710.

Tuberculosis is a communicable disease caused by infection with the tubercle bacillus. It is spread through close contact with an infected person. Children are particularly susceptible. *REMEMBER, THIS DISEASE IS CURABLE WHEN IT IS DISCOVERED AND TREATED IN ITS EARLY STAGES.* A chest x-ray is the best way to discover early tuberculosis.

In addition to the County Tuberculosis Clinic, chest x-rays are made at these two public clinics: Lakewood Hospital Clinic, 14519 Detroit Avenue, and Division of Health Center #2, 2500 E. 35th Street.

Bureau of Health Education

Vol. 3 No. 20

CURRENT DISEASE STATISTICS REPORTED

	WEEK END. MAY 11	WEEK END. MAY 4	ONE YEAR AGO		WEEK END. MAY 11	WEEK END. MAY 4	ONE YEAR AGO
Pneumonia	14	32	12	Gonorrhea	64	30	38
Scarlet Fever	48	54	63	Syphilis	79	50	33
Meningitis	1	1	2	Whooping Cough	13	23	32
Measles	106	141	9	Tuberculosis	24	26	24
Diphtheria	1	0	0	Rheumatic Fever	1	0	0

TOTAL Communicable disease cases reported 512
 TOTAL Deaths from all causes (except stillborn) . . 220

(PLEASE POST ON BULLETIN BOARD)

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TUBERCULOSIS ABSTRACTS

A Review for Physicians

ISSUED MONTHLY BY THE NATIONAL TUBERCULOSIS ASSOCIATION

Vol. XX

January, 1947

No. 1

PULMONARY tuberculosis is a disease of uncertainty, with periods of quiescence and of reactivation. While many individuals recover spontaneously, in others the disease may progress notwithstanding all manner of treatment. For many, recovery depends upon the knowledge and the facilities for properly adjusting the mode of life to the disease. This adjustment is best carried out under the watchful eye of the physician.

THE IMPORTANCE OF POSTSANATORIUM CARE OF THE TUBERCULOUS

One of the great dangers to the individual with tuberculosis is that the disease may advance considerably without the patient's being aware of it. For this reason it is essential that the pulmonary condition be observed periodically by means of properly taken X-ray films.

The education of the patient is one of the principal aims of sanatorium care. The knowledge of the disease, the reasons for making adjustments in living, working and in environment, the patient's part in recovery and its maintenance, all furnish the background for his care after leaving the sanatorium. Even after discharge, his disease is still a serious potential danger to himself and to his associates.

Early in sanatorium treatment, if it is possible, it must be determined to what extent the patient will be able to return to his former work and life. If he cannot assume the so-called "normal life," efforts should be made to fit him for work suitable to his condition. Recreational therapy, occupational therapy, rehabilitation and the establishment of work tolerance should go hand in hand with the general treatment. Ideally the sanatorium should conduct its physically able patients through all the stages of rehabilitation until a work tolerance of eight hours has been reached. Others should be brought to their maximum work tolerance and be put on part-time work.

The two most satisfactory guides for determining the patient's condition are the X-ray film and the patient's temperature. Of these, serial X-ray films tell us more completely the dynamic state of the disease. When the X-ray films show marked changes for better or worse, the disease is active, retrogressively or progressively, and rest in bed is

indicated. Such is the case, too, when elevation of temperature not due to other causes is present or there is loss of weight, loss of appetite, or fatigue. To determine the status of the disease, the patient should take his temperature and pulse at about 4:00 p.m. and 8:00 p.m., and keep a record of it as well as of any toxic symptoms. At least once in six weeks he should have an X-ray examination of his chest. In old chronic disease the interval may be lengthened. With such a record the physician is in a position to judge the reaction of the patient to his disease and to modify treatment as needed.

Each patient is an individual and requires individual treatment. As a general rule, after the X-ray films have revealed a practically stationary lesion for several months, and there are no toxic symptoms, the patient may become partly ambulatory. Attention should be paid to the state of his nutrition, and he should avoid overheated stuffy rooms at all times.

Life in a sanatorium is much less exacting than life at home. To have attained an arrest of the disease in the sanatorium does not mean that the arrest will continue under adverse environmental and nutritional conditions outside.

Essentially, tuberculosis is a chronic disease; in such a disease education in how to live with it and remain well is of extreme importance. Continuous readjustments should be made by a physician who knows the picture as a whole. To be successful, the treatment of tuberculosis must go on long after discharge from the sanatorium.

What the sanatorium does or can do for a patient is briefly outlined because postsanatorium care and complete rehabilitation are but an exten-

sion of the sanatorium activities. Vigilance should be the keynote of this extended period, vigilance on the part of the patient and on the part of his physician.

One can give no fixed procedure for subsequent observations of the discharged sanatorium patient. For those whose disease is arrested an X-ray examination every six months for two years probably would be sufficient, providing the patient feels well and has no symptoms. Those discharged as apparently arrested probably should have X-ray examinations every three months for one year and after that at longer intervals if all goes well. At the time the X-ray examination is made there should be a consultation with the tuberculosis physician during which advisable adjustments in the routine of the patient may be recommended.

For many years the Trudeau Sanatorium has made an effort to find out what happens to its discharged patients. Once each year, in the anniversary month of his discharge, the patient is sent a blank to fill in. In addition to a request for notice of change in address the patient is asked about his health in detail, his work and his earning capacity. This inquiry reminds the patient of the importance of a check-up of his condition. Replies are received from about 90% of former patients.

In this institution the sanatorium staff is always glad to advise the patient when requested and they welcome opportunities to cooperate with out-

side physicians. The staff gladly examines the patient's chest films at the request of his physician and he is told that he may return to the sanatorium at any time for a check-up. Such a check-up affords an opportunity for the attending physician to utilize the specialized services of the sanatorium staff which is more important if he is not specially trained in tuberculosis. It is the essence of teamwork that the physician attending the patient be kept fully informed about the findings and recommendations of the sanatorium staff.

The treatment of tuberculosis should be carried on over many years, even if there has been an apparent restoration of health. A knowledge of tuberculosis and its many and varied behaviors is needed by him who would carry out such treatment with skill. It must be recognized that in all cases the X-ray gives the most accurate estimate of what is going on in the lungs. The sanatorium lays the preliminary groundwork in education and provides satisfactory environmental and nutritional standards, but the treatment must go on long after the patient has been discharged. Prevention of relapse is of greater importance than treatment after relapse has occurred.

The Importance of Postsanatorium Care of the Tuberculous, Fred H. Heise, M.D., American Review of Tuberculosis, October-November, 1946.

† THE STORY OF THE CHRISTMAS SEAL

THE Christmas Seal was born in Denmark . . . the birthplace, too, of the tender fairy tales of Hans Christian Andersen.

It was a busy afternoon just before Christmas in 1903 and holiday letters and packages were pouring in to the post office in Copenhagen. Einar Holboell, postal clerk, expertly handled the mail, lovingly sorted it and sent it on to its happy destination. Like all Danes he knew the Andersen tales and he thrilled to the task of spreading joy to boys and girls and grown-ups in his beloved Denmark. As he worked he pondered on an idea which was destined for a great future.



Why, he thought, wouldn't it be a good idea if each letter or package carried another penny stamp the sale of which would swell a fund to build hospitals for children. There are so many children, he mused, and so many who are ill. It would cost each giver so little to share in giving this great gift to those sad little people. Everybody could help. The stamps could be bright and cheery and everyone who bought them or who received them on their Christmas mail would be made happier. He liked the thought and he smiled as he worked. He just had to tell someone and so the word got around and before long the post office hummed with talk about the Christmas stamps. The clerks could not resist telling the stamp customers and with so many people hearing about it something was bound to happen.

The idea was soon presented to King Christian who immediately warmed to the thought. Not only should Holboell's idea be tried but the King himself would authorize the Seal and it should bear the likeness of his beloved Queen. More than 4,000,000 Seals were sold in the Copenhagen post office that year of the first Seal Sale, which opened December 6, 1904.

Einar Holboell died in 1927, but he lived to see a tuberculosis sanatorium, bigger and finer than anything he had dreamed, three Christmas Stamp Homes for boys and girls, a children's sanatorium in Greenland, and the establishment of several "funds" for war sufferers and hungry youngsters, all made possible by the Christmas Seal he had originated.

He lived to see the idea travel round the world with Christmas Seals sold in Austria, Argentina, Australia, Brazil, Canada, French-Indo-China, Finland, Sweden, France, Italy, England, India, Korea, all the states of the United States . . . 45 countries had used Christmas Seals by 1927. Mexico was added to the list in 1943 when it held its first Seal Sale. The idea, born in Denmark, was supplying funds all over the world to carry on the fight against tuberculosis.

In 1904 the Danish Christmas Seals were appearing on letters to people in America. One of these caught the attention of Jacob Riis whom Theodore Roosevelt called "America's most useful citizen." In the July, 1907, issue of *The Outlook*, Riis published an article "The Christmas Stamp," urging the adoption of the idea in America as a means of

"setting everybody thinking of a great wrong that can be righted through everybody's thinking of it."

He wrote:

"Nothing in all the world is better proven today than that tuberculosis is a preventable disease and therefore needless . . . yet it goes on year after year killing an army of 150,000 and desolating countless homes in which half a million men and women are dragging themselves to graves dug by this single enemy.

"Perhaps I feel strongly about it and no wonder. It killed six of my brothers and I guess I know! That was in the days when there was no help for it. There is now!"

"Why," asked Riis, "should not the idea be adopted here?"

The article stressed one point which has become the keynote of the work of tuberculosis associations in America. Riis said:

"The Christmas Stamps should be sold . . . not for the purpose of building a hospital . . . let each state or town build its own . . . but for the purpose of rousing up and educating people on this most important matter. It is because they do not know a few amazingly simple things that people die of tuberculosis."

On that idea the "people's war against tuberculosis" is based. Teach people how to prevent the disease, demonstrate ways to meet the problem within the community!

But, in 1907, most people who read the Riis article thought the problem much too great to be affected by so small a thing as a penny stamp. "It's a good story," they said, "but so are other stories of heroic but futile effort."

That year, tuberculosis killed 156,000 people in America. "How can this killer be stopped except by a miracle?" people asked. A penny stamp was far from a miracle. A few doctors were interested in the problem, a few hospitals had been established, a few people were being cared for in these hospitals . . . it was all too late and too little.

Late in the Autumn of 1907, Emily Bissell, a young public health worker in Wilmington, Delaware, became concerned about the fate of a little sanatorium on the Brandywine River. She was told it would have to close because there were no funds to keep it open.

"It must not close," she insisted, "I will do something!" But the people of Delaware who could have helped her were not interested.

"It only needs \$300," she repeated over and over, and the reply was always the same: "Better use the money for something less hopeless. You can't cure those people."

In her blackest moment, Emily Bissell recalled the Jacob Riis article. The penny stamp was the answer to her problem! She sat down immediately and sketched the design of America's first Christmas Seal . . . a wreath of holly with the words "Merry Christmas" in the circle.

Next day when she tried to interest her friends, she faced the wall of indifference to the project. Right then the idea which has persisted all these years was epitomized in Delaware, for it was the "little people" who helped Emily Bissell. The printer, to whom she took the design agreed to print the stamps and wait for his pay. The postmaster and the postal clerks said she might sell her stamps to be put on letters, only of course she must tell folks the stamps would not carry mail. It was the printers, the postal clerks and the people who could only buy a few pennies worth of Seals who gave impetus to the first Christmas Seal Sale in America.

The printer turned out 50,000 of the stamps and Emily Bissell and her friends began making the rounds to encourage the sale. People in Delaware began to hear about tuberculosis. They learned that little was being done about it and among those first few who bought the Seals it did not seem like a futile effort. They were sure it would lead to something being done about all those sick people.

A Christmas Seal table was set up in the Wilmington post office and the first Christmas Seal Sale in America was under way December 16, 1907. After a few days the progress report, however, was not encouraging. Too many people passed by without buying. The sale was going badly and Christmas was two weeks away!





Type No. 1

1907
EMILY P. BISSELL



Type No. 2



1908
HOWARD PYLE



1909
CARL WINGATE



1910
MRS. GUION THOMPSON



1911
ANTON RUDERT



1912
JOHN H. ZEH



1913
CHARLES JAY BUDD



1914
BENJAMIN S. NASH



1915
BENJAMIN S. NASH



1916
THOMAS M. CLELAND



1917
THOMAS M. CLELAND



1918
CHARLES A. WINTER



1919
ERNEST HAMLIN BAKER



1920
ERNEST HAMLIN BAKER



1921
GEORGE V. CURTIS



1922
THOMAS M. CLELAND

The National Tuberculosis Association, with affiliated associations in all states and most cities, carries on a campaign for
Collectors and others interested may receive further information by addressing the



Type No. 2



1923
RUDOLPH RUZICKA



1924
GEORGE V. CURTIS



1925
ROBERT G. EBERHARD



1910
MRS. GUION THOMPSON



1911
ANTON RUDERT



1928
JOHN W. EVANS



1929
GEORGE V. CURTIS



1930
JOHN W. EVANS



1914
BENJAMIN S. NASH



1933
HANS AXEL WALLEEN



1934
HERMAN D. GIESEN



1935
ERNEST HAMLIN BAKER



1918
CHARLES A. WINTER



1919
ERNEST HAMLIN BAKER



1938
LLOYD COE



1939
ROCKWELL KENT



1940
FELIX MARTINI



1922
THOMAS M. CLELAND



1943
ANDRE DUGO



1944
SPENCE WILDEY



1945
PARK PHIPPS

affiliated associations in all states and most cities, carries on a campaign for the control of tuberculosis. The work is financed through the annual Christmas Seal S
others interested may receive further information by addressing the National Tuberculosis Association, 1790 Broadway, New York 19, N. Y.



1924
GEORGE V. CURTIS



1925
ROBERT G. EBERHARD



1926
GEORGE V. CURTIS



1927
JOHN W. EVANS



1929
GEORGE V. CURTIS



1930
JOHN W. EVANS



1931
JOHN W. EVANS



1932
EDWARD F. VOLKMAN



1934
HERMAN D. GIESEN



1935
ERNEST HAMLIN BAKER



1936
WALTER I. SASSE



1937
A. ROBERT NELSON



1939
ROCKWELL KENT



1940
FELIX MARTINI



1941
STEVAN DOHANOS



1942
DALE NICHOLS



1944
SPENCE WILDEY



1945
PARK PHIPPS



1946
MARY LOUISE ESTES
& LLOYD COE



1947

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Association, 1790 Broadway, New York 19, N. Y.

Then the tireless Miss Bissell went to Philadelphia to see the editors of the *North American*, the city's leading newspaper. For some time this paper had been trying to stir up people to "do something" about tuberculosis, so Miss Bissell thought the Sunday editor would be a good listener.

However, Sunday editors are busy people; he listened with half of his mind while the other half was busy with the details of getting his paper ready. When she stopped talking he looked a bit startled, but the answer was "no." He couldn't see coupling Merry Christmas with tuberculosis. In later years Dr. S. A. Knopf, one of the founders of the National Tuberculosis Association, said: "If one were to recite the various influences and factors that have contributed most to the success of the campaign against tuberculosis in the United States, he could not help but place at the head of the list the Tuberculosis Christmas Seal." And a recent writer has said: "When some future historian tells how this plague was laid on the shelf alongside smallpox, typhoid and yellow fever, he will have to say it was killed by Merry Christmas!" Those little Christmas stamps have been the ammunition with which the "people's war against tuberculosis" has been fought.

By the time Emily Bissell finished her conference in the editorial room she was taking that disappointment in her stride. On the way out she decided to stop by a columnist's desk, "just to see what an optimist looks like," she explained to the writer of "The Optimist"* column. Could he do anything for her? No, she had come to ask a favor of the Sunday editor. The "Optimist" inquired about the favor and she showed him the Christmas Seal. Snatching it . . . he'd be back in a minute . . . he took the stairs two at a time and arrived out of breath at the office of Editor E. A. VanValkenburg to shout: "Here's a way to wipe out tuberculosis!"

The scene in that editorial office was one of those which seldom happen but when they do occur the result makes history. Editor VanValkenburg caught the enthusiasm of the Optimist. "It's the human interest story of 1907," he told his men. "Play it up. Use it on the front pages. Buy 50,000 Seals. Give Emily Bissell the newspaper for the holidays."

A few weeks later Miss Bissell telephoned the *North American* to say: "It seems impossible but we have just counted up and find that we have raised \$3000." Americans had given ten times the quota set for the Christmas Seal Sale.

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The first nation-wide Christmas Seal Sale was in 1908 and netted \$135,000. Howard Pyle designed the Seal that year. Each year the Seal has been designed by some well-known artist and the sale conducted by the tuberculosis associations of the United States. Receipts from the sale have gone up year by year. In 1944 close to \$15,000,000 was raised.

In 1904, the year after Holboell proposed his novel idea, the National Association for the Study and Prevention of Tuberculosis (now the National Tuberculosis Association) was organized in Atlantic City, by a group of doctors and laymen. The

stated objectives of the organization were: To study tuberculosis in all its forms; to spread knowledge as to its causes, treatment and prevention.

During the first years the National Tuberculosis Association cooperated with the American Red Cross in carrying on the Seal Sale and until 1919 the Seal carried the symbol of the Red Cross. In 1919, there first appeared the double-barred cross, an adaptation of the Lorraine Cross, which is the official emblem of the tuberculosis associations. Since that time it has appeared on all Christmas Seals. Tuberculosis associations are carrying on work in all the States and in the Territories of Alaska and Hawaii, Puerto Rico and the Philippines. Of contributions made, 95 per cent remains in the State where it is collected to aid in tuberculosis control work; 5 per cent goes to the National Tuberculosis Association, which carries on a medical research program and aids in many ways with the work in the various states.



The "miracle" which people of 1907 thought was the only way to conquer tuberculosis has not yet been discovered. But the national death rate from the disease has been beaten down from 174 per 100,000 population in 1907 to 43 per 100,000 in 1943. "Knowledge is power," and as the people of America have come to know that tuberculosis is curable, preventable and can be conquered, so nearer and nearer is the time when it will be conquered.

The annals of tuberculosis control are studded with names of famous men and women: Robert Koch, who discovered the cause of tuberculosis—the tubercle bacillus; William Konrad Roentgen, who discovered the X-ray which has become a mighty factor in the diagnosis of tuberculosis; Dr. Edward Livingston Trudeau, who established one of the early tuberculosis sanatoria in America; Dr. Hermann M. Biggs, whose early contributions to public health work were outstanding; Dr. William H. Welch, Sir William Osler, Dr. Lawrence F. Flick, who with Dr. Knopf, Dr. Biggs, and others helped to organize the tuberculosis movement; Dr. Florence Seibert, cited by the American Association of University Women for her research on the tuberculin test . . . all these and many others, but none more deserving of honor than the small unknown newsboy who, in 1907, reached up to place his penny on the Christmas Seal counter with the demand, "Gimme one, me sister's got it."

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We did . . . We, The People.

Revised by permission from a booklet of the same title, published by the Oregon Tuberculosis Association, Portland, Oregon.

* Leigh Mitchell Hodges, author of "The People Against Tuberculosis"

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33

Plans & questions relating to
Construction of T.B Sanatorium

結核療養所建設ニ關スル諸問題

by Dr. Hideojiro Haruki (metropolitan
sanatorium)

醫學博士 春木秀次郎

東京市療養所

結核第十六卷第六號別刷

(昭和十三年六月二十四日發行)

2. 圖書室
 3. 手術室
 4. 「レントゲン」室
 5. 日光浴室及空氣浴室
 6. 人工光線療法室
- 第十章 慰安室及職業療法室
1. 慰安室

2. 「ラヂオ」ノ問題
 3. 職業療法室
- 第十一章 食餌調理室
- 第十二章 看護婦寄宿舍
- 第十三章 暖房設備
- 第十四章 研究室
- 附 アメリカ療養所協會ノ結核療養所評價方式

第一章 療養所ノ位置選定

1. 氣候的要素

療養所運動 Sanatorium Movement ノ搖籃期ニハ高原、山地、海岸等ノ氣候ガ特殊ナ治病的作用ヲ有スルモノデアルト云フ意見ガ一般ニ行ハレテ居タ。又米國ニ於テハ「寒サ」ガ結核ニ對シテ治病的效果ガアルト通俗的ニ信ゼラレテ居ル。之ハ米國ノ「サナトリウム」療法ノ偉大ナル開拓者デアルトツルード一氏 Edward Livingston Trudeau ノ療養所ガ氣候寒冷ナルサラナック・レーク Saranack Lake ニ在ルガ爲デアアル。同氏ハ當時不治ノ病ト信ゼラレテ居タ肺結核ニ自ラ罹ツタ時、彼ハ自分ノ最後ノ短イ餘生ヲ平和ナ曠原ノ中ニ過サウト決心シテアデロンダックス Adirondacks ノ森林ト曠原ノ中ニ身ヲ横ヘタガ彼ノ健康ハ驚ク可キ恢復ヲナシタ。彼ハ自ラガ醫師ナルガ爲ニ同地方ノサラナック・レーク Saranack Lake ノ邊リニ小數ノ「コテージ」cottage ヲ建テ、肺結核患者ノ治療ヲ始メ、之ガ今日ノ有名ナルツルード一療養所 Trudeau Sanatorium ニ迄發達シタノデアアル。

此療養所ニ於テツルード一氏ノ勝レタル指導方針ニヨツテ治癒シタル患者ハ同所滞在中ノ「寒サ」ガ深キ印象トシテ残り、「寒サ」ヲ治病ノ重大ナル要素ト思惟スルニ至ツタノデアアル。

然シナガラ今日ノ醫學的見地ヨリスレバ結核ヲ治癒セシメル特殊氣候ハ存在シナイシ、又如何ナル氣候ノ許ニ於テモ結核ハ治癒スルモノデアアル。

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Plans & questions relating to
Construction of T.B Sanatorium

結核療養所建設ニ關スル諸問題

by Dr. Hideojiro Haruki (metropolitan
sanatorium)

醫學博士

春木秀次郎

東京市療養所

結核第十六卷第六號別刷

(昭和十三年六月二十四日發行)

結核療養所建設ニ關スル諸問題

東京市療養所

醫學博士 春木秀次郎

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第一章 療養所ノ位置選定

1. 氣候的要素

療養所運動 Sanatorium Movement ノ搖籃期ニハ高原、山地、海岸等ノ氣候ガ特殊ナ治病的作用ヲ有スルモノデアルト云フ意見ガ一般ニ行ハレテ居タ。又米國ニ於テハ「寒サ」ガ結核ニ對シテ治病の效果ガアルト通俗的ニ信ゼラレテ居ル。之ハ米國ノ「サナトリウム」療法ノ偉大ナル開拓者デアルトツルードー氏 Edward Livingston Trudeau ノ療養所ガ氣候寒冷ナルサラナック・レーク Saranack Lake ニ在ルガ爲デアアル。同氏ハ當時不治ノ病ト信ゼラレテ居タ肺結核ニ自ラ罹ツタ時、彼ハ自分ノ最後ノ短イ餘生ヲ平和ナ曠原ノ中ニ過サウト決心シテアヂロンドックス Adirondacks ノ森林ト曠原ノ中ニ身ヲ横ヘタガ彼ノ健康ハ驚ク可キ恢復ヲナシタ。彼ハ自ラガ醫師ナルガ爲ニ同地方ノサラナック・レーク Saranack Lake ノ邊リニ小數ノ「コテージ」 cottage ヲ建テ、肺結核患者ノ治療ヲ始メ、之ガ今日ノ有名ナルツルードー療養所 Trudeau Sanatorium ニ迄發達シタノデアアル。

此療養所ニ於テツルードー氏ノ勝レタル指導方針ニヨツテ治癒シタル患者ハ同所滞在中ノ「寒サ」ガ深キ印象トシテ残り、「寒サ」ヲ治病ノ重大ナル要素ト思惟スルニ至ツタノデアアル。然シナガラ今日ノ醫學的見地ヨリスレバ結核ヲ治癒セシメル特殊氣候ハ存在シナイシ、又如何ナル氣候ノ許ニ於テモ結核ハ治癒スルモノデアアル。

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私ハ療養所ノ位置選定上氣候ヲ無視スルト云フノデハナイガ、氣候的要素ヲ過大視シテ幾多ノ必要ナル他ノ要素ヲ犠牲ニセントスル過去ノ誤レル意見ヲ是正シナケレバナラナイト思フ。譬ヘバ東京市立療養所ヲ高燥ナル信州ノ高原ニ建設スレバ氣候的要素ハ東京附邊ヨリ遙カニ勝レテ居ルデアラウ。乍併當初ヨリ建築費ノ嵩ム爲ニ、必要ナル設備ノ少カラザル部分ヲ削除シナケレバナラナイ事ニナルデアラウ。或ヒハ日常ノ物資供給上等カラモ經常費ノ膨大ヲ來シ診療上幾多ノ不便ト犠牲ヲ忍バナケレバナラナイ事ニ立チ至ルデアラウ。

以上ノ如ク療養所ノ土地選定上、氣候第一主義ヲ持スル事ハヨクナイガ、療養ニ適スル氣候ト云フモノハ存在スル、或ヒハ消極的ニ云ヘバ、氣候上ノ障礙ノナイ事ハ望マシイ事デアル。即チ地質ガ乾燥シ、空氣ノ濕度ノ少イ處ガヨイ、從テ霧ノ多イ處ハヨクナイ。又療養所ハ風カラ防禦セラレテ居ラナケレバナラナイ。防風林ハ濶葉樹ヨリ松林ガヨイ。松ハ日本デモ外國デモ結核ヲ癒スル作用ガアルト云ハレ、或ヒハ何か有效成分ヲ空中ニ發散セルデハナイカト迄民間デ云ハレテ居ル。サウ云フ事ハナイガ一般ニ松林ノ在ル處ハ地味ガ乾燥シテ居ル故ニ療養地ニ適シテ居ルト云ヘル譯デアル。

2. 交通

都市ニ餘リ便利ガヨイト家族、友人等ノ訪問ガ頻繁過ギル爲ニ病人ノ療養生活ニ害ガアルト云フ理由デ態ト遠方ニ置ク方ガヨイト云フ人モアル。譬ヘバブランデンブルグ結核病院 Brandenburg-Tuberkulose-Krankenhaus ノ醫長ロロフ氏 Roloff ノ意見ノ如キデアル。然シ今日デハ一般ニ療養所ハ之ヲ利用スル住民ノ中心ヨリ交通ノ便ガヨイ處ニ置ク可キデアルト云フ事ニナツテ居ル。之ハ勿論都心ヨリノ距離バカリヲ意味スルモノデナイ。近距離ニ在ツテモ道路ガ悪カツタリ、途中ニ急坂ガアツタリシテハ不便デアル。之ニ反シテ比較的遠距離ニ在ツテモ、頻繁ニ通フ汽車ヤ電車ノ停車場カラ容易ニ

行ケル處ナラバ適當デアル。猶其上ニ患者及ビ家族ノ交通費ト云フ事モ考慮ニ入レル可キデアル。

交通不便ナ處デハ既ニ述ベタ如ク建築費モ高價トナリ、日常ノ物資供給モ不便デアル上ニ特別ナル場合ニ都市ヨリ各科ノ専門家ヲ招致スルニモ困難ガ伴フ(療養所ニ各科ノ専門家ヲ常任トシテ置ク事ハ殆ド不可能デアル)。又病氣ノ性質上他ノ病院ニ移ス事モ遠隔ノ地デハ不便デアル。

殊ニ重症ノ患者ニトツテハ家族ノ訪問ガ非常ナ慰安ニナルモノデアル。ロンドンデハ輕症結核患者ハ郊外ノ療養所ニ入レルガ、治癒ノ望ミ無キ重症患者ハ家族ノ訪問ヲ容易ナラシメルタメニ近クノ一般病院ニ入院セシメル事ニナツテ居ル。

又結核相談所ノ看護婦ガ病院内ノ患者ト其家庭ヤ或ヒハ務メ先キ、或ヒハ疾病保險等トノ聯絡ヲ取ル場合ニモ都市ニ近イ方ガヨイ。

以上ノ點カラ「交通ノ便利」ト云フ事ハ療養所ノ位置選定上非常ニ重大ナル意味ヲ有シテ居ル。柏林市立結核病院 Städtisches Tuberkulose Krankenhaus der Stadt Berlin ハ柏林市ヨリ汽車デ約1時間ノ距離ニ在ルベーツ・ゾンマーフェルト驛 Beetz-Sommerfeld ノ近クニ在リ、フランスノ巴里及ビセーヌ縣ニ屬スルフランコンビル療養所 Sanatorium Franconville モ巴里カラ1時間位ノ驛ノ附近ニ在ル。

以上ハ一般的結核療養所ニ就イテデアルガ、輕症患者ノミヲ收容スル特殊療養所ハソノ目的如何ニヨツテハ遠隔ノ地ニ置ク事モアル。

3. 地勢

療養所ノ位置ハ小高イ丘ガヨイ。之ハ排水ガ容易ニ行ハレテ地面ガ乾燥スルカラデアル。自然傾斜ニヨル排水ガ不可能デアル處デハ療養所内ヨリ生ズル莫大量ノ汚水ヲ動力ニヨツテ排出シナケレバナラナイノデ此經常費ガ相當多額ニ上ル。此點ハ大療養所建設ニ當ツテハ特ニ注意シナケレバナラナイ。

勿論建築ヲスルタメニ十分ノ平面或ヒハ輕度ノ傾斜面ヲ必要トスルガ此傾斜ハ南方或ヒハ東南方ニ面シテ居ラナケレバナラナイ。地面ノ北部即チ主要建築ノ背面ニハ防風林が必要デアル。若シ南西風ノ多イ處ナラバ西方或ヒハ西西南ノ方向ニ防風林ガアレバ更ニ適當デアル。防風林ハ松或ヒハ其他ノ常盤木ガヨイ。此外ニ患者ノ散步道ヲ十分ニ取ル地面ヲ要スル。此散步道モ療養所員ノ監視ガ十分行届ク處デナクテハナラナイ。

4. 周圍(環境)

工場地帯ノ近クハ其喧噪ト煤煙ニヨツテ不適當デアルガ、相當離レテ居ツテモ平均風向 The Direction of Prevailing winds ニヨツテハ不適當トナル。

塵埃ノ多イト云フ事ハ療養上最モ障碍ガ多イ、東京近郊ノ畑地ハ時ニ砂塵濛々トシテ療養上大ナル障碍ヲ與ヘル。殊ニ早春霜解ケ後デ地肌ノ露レテ居ル時季ニ最モ甚シイ。此事實ハ東京近郊ニ療養所敷地ヲ定ムル上ニ最大ノ注意ヲ要スル。

交通量ノ多イ舗製シナイ道路ガ近クヲ走ツテ居ル事モヨクナイ。

環境ノヨイト云フ事ガ結核患者ノ治療上重要デアルノハ疑ヒノナイ事デアル。結核患者ハ數ヶ月乃至數年間周圍ノ景色ヲ療養所内カラ眺メナケレバナラナイ。此點カラ周圍ノ自然ノ風物ノ勝レテ居ル事ガ大切デアル。從來ノ如ク療養所ヲツクルニ單ニ建築物ノミヲ主眼トシナイデ造園ニモ相當ノ費用ヲ別ツ事ヲ忘レテハナラナイ。即チ自然美ヲ保持シ、更ニ之ヲ極度迄美化スル爲公園式 Parking Scheme ニ、芝生、花壇、散歩道樹木ノ配置ニ留意シナケレバナラナイ。就中地面ノ大部分ヲ芝生デ覆フ事ハ美觀ノ上カラモ、病人ノ眼ヲ慰メル點カラモ或ヒハ埃ノ立タナイ點カラモ最モ望マシイ事デアル。私ハ柏林市立結核病院 Städtisches Tuberkulose-Krankenhaus der Stadt Berlin、巴里郊外ノフランコンビル療養所 Sanatorium Franco-

nville、或ヒハ倫敦ノクキーン・メリー病院 Queen Marys Hospital 等ヲ訪レタ時其庭園ノ美シサニ驚嘆シ我國ノ病院ニ比シテ非常ナ懸隔ノアル事ヲ感ジタ。殊ニクキーン・メリー病院ノ



柏林市立結核病院



クキーン・メリー病院(ロンドン)

醫師ノ話ニヨレバ早春ノ頃ニハ友人ガ病院ノ心地ヨイ庭園ノ美ヲ見ル爲ニ態々遠方ヨリ訪問スルサウデアル。私ノ訪レタノハ12月下旬デ樹木ハ大部分落葉シテ居タガ、ソレデモ緑ナ芝生ノ緩傾斜面ニ赤イ煉瓦ノ病舎ガ點綴シテ居ル風景ハ實ニ心地ヨイ感ジヲ與ヘラレタ。

5. 療養所敷地ノ評價ニ就テ

療養所ノ敷地ヲ選定スル場合ニ各要素ノ有スル重要性ノ多寡ニヨル種々ナル比較價値ノ總和ヲ參考トスル事ガ行ハレテキル。

次ノ表ハ米國ニ於ケル病院協會ノ技術者カラ示サレタモノデ或程度ノ參考トスル事ガ出來ル。

要素	比較價値
1. 交通	20點
2. 周圍ノ發展性	12 ..
3. 建築面積	20 ..

4. 景觀	8 ..
5. 北方ノ遮蔽	8 ..
6. 周圍改造ノ容易サ	12 ..
7. 地勢	10 ..
8. 上水、下水、動力ノ利用	10 ..
計	100 ..

例

1. 交通	90×20=1800
2. 周圍ノ發展性	95×12=1140
3. 建築面積	85×20=1700
4. 景觀	98×8=784
5. 北方ノ遮蔽	70×8=560
6. 周圍改造ノ容易サ	85×12=1020
7. 地勢	90×10=900
8. 上水、下水、動力ノ利用	75×10=750

評價 $\frac{8654}{100} = 86.54$

第二章 療養所ノ建築ガ周圍ノ地價ニ及ボス影響—設置ニ對スル住民ノ反對

結核療養所ノ設置ニヨツテ周圍ノ地價ニ如何ナル影響ガアルカト云フ事ハ決定スルニ困難ナ問題デアアルガ、アメリカニ於テハ療養所近邊ノ地價上昇ヲ認メテ居ル。嘗テ米國結核協會 National Tuberculosis Association ガ此問題ニ關シテ廣ク質問ヲ發シテ回答ヲ求メタ處大多數ニ於テ地價ノ上昇ヲ報告シ其理由トシテ次ノ點ガ擧ゲラレテ居ル。

1. 療養所ハ多クノ人ト多クノ金錢ヲ齎ス産業デアアル故ニ其土地ノ商業ガ盛ニナル。先年米國ニ於テ多數ノ州立療養所 State Sanatorium ヲ建テル際ニ周圍住民ノ反對ニ遇ツテ非常ニ困難シタガ療養所ヲ建テタ後ニハ却テ地價ガ上昇シタ事實ガアル。

2. 療養所ノ建築及ビ其庭園ガ眼ニ魅惑的デアツテ恐怖心等ハ起サナイ。隨ツテ其周圍ガ住宅地トシテ發展スル場合ガ少クナイ。其一例ヲ云ヘバイリノイス Illinois ニ於テ或有名ナル療養所ヲ建設セントシタ時、周圍ノ土地ノ所有者ハ之ヲ阻止スル爲ニ法廷デ争ツタガ、療養所建築後數年ニシテ周圍ハ一流ノ住宅地トナリ、住宅

ガ餘リニ療養所ニ近接シテ建テラレントスル趨勢ニナツタガ爲ニ療養所ハ自己防衛上周圍ニ更ニ10「エーカー」Acres ノ土地ヲ要求スルノ止ムナキニ至ツタ。

斯ノ如ク療養所ノ建物及ビ庭園ヲ美化スル事ハ長時日滞在スル患者ノ治療上極メテ必要ナル點ハ既述セル如クデアアルガ、更ニ其土地ノ風致ヲ増ス如キ設計ヲスレバ、周圍ノ住民ニ親シミ易キ感ヲ與ヘ入院患者及ビ訪レル家族ニ對シテ白眼視スル如キ態度ヲ改メルデアラウ。以前ニヨク見ラレタ傳染病隔離舎ノ如キ建築ハ今日人道土許ス可キモノデハナイ。

療養所設置ニ對スル反對

反對ノ理由ハ大體ニ於テ次ノ3デアアル。

1. 周圍ノ住民ニ健康上ノ害ヲ與ヘル
2. 周圍ノ地價ノ下落
3. 周圍ノ住民ニ對スル不快感

米國ニ於ケル療養所設置反對ノ訴訟ニ對スル法廷ノ判決ハ米國結核協會 National Tuberculosis Association ニ蒐集シテアル。其1例ヲ掲グレバニウオルレアン市 City of New Orleans

が結核病院ヲ建設セントスルニ對スル反對理由ハ近邊ノ住民ノ健康ヲ害スルト云フ點デアツタ。

之ニ對スル判決要旨ハ次ノ如クデアル。

適當ニ管理經營セラレル結核療養所ハ近隣ノ住民ニ危險ヲ及ボス事ナシ、而シテ問題トナレル

療養所ノ管理經營ガ完全ナル事ハ確實ニ承認セラレル。若シ1例ニテモ訴訟者或ヒハ其家族ノ健康ヲ害シタト云フ事ガ證明セラレル、ナラバ始メテ法廷上ノ問題トナルデアラウ。此訴訟ガ單ニ建設セラレントスル結核療養所ノ危險性ノ豫想上ニ立ツ限リ根據ナキモノデアル。

第三章 必要ナル病牀數

結核病牀數ト結核死亡率トガ密接ナル關係ニアル事ハ既ニローベルト・コッホ博士 Dr. Robert Koch (1843—1910) ノ時代カラ知ラレテ居ツタ。即チ多クノ統計カラ見テ結核病牀數ノ多イ國デハ結核死亡率低ク、又死亡率ノ減少モ著明デアル。然ラバ國家或ヒハ市町村ヲ對象トシテ幾何ノ結核病牀數ガ必要デアルカ、何ヲ標準トシテ之ヲ定ムルカ。

1. 1年間ニ死亡スル患者數ト同數ノ病牀

之ハ世界各國ノ標準トセラレテ居ルガ、何故ニ死亡數ト同數ノ病牀ガ必要デアルカト云フ事ニ就イテハ確實ナル論據ハナイ。結核ノ仕事ガヨク發達シタ處デハ患者ヲ早期ニ發見シテ多數療養所ニ入レルカラ此標準デハ病牀數ガ不足スルシ、又反對ニ結核豫防ノ仕事ガ十分ノ活動ヲシナイ處デハカ、ル病牀數ヲ用意シテモ空牀ガ出來ルデアラウ。ニウヨーク市ノ1935年ニ於ケル結核病牀數ハ5,244、結核死亡數4,088デ病牀、死亡數比ハ1.07デアルガ500人ノ未收容患者ガアツテ病牀數不足ヲ示シテ居ル。デトロイト市 City of Detroit ハ150萬ノ人口ヲ有シ結核死亡數、年992ニ對シ結核病牀數2,387ヲ有シ其比率ハ2倍半以上デアル。又米國デハ白人ニ對シテハ1年間ノ死亡「1」ニ對シテ病牀「1」デアルガ黑人ニ對シテハ死亡「3」ニ對シテ病牀「1」デアル。何故カト云フニ黑人ノ死亡率ハ白人ノ3倍デアルカラト云ツテ居ル。此事ハ米國結核協會發行ノキッドナー Dr. Kidner 著 Planning a Tuberculosis Sanatorium ニ記載シテアルガ、之ハ黑人ニ對スル甚ダシキ差別待遇ノ顯レデアルト云フ外、疫學的ノ意義ハナ

イ。

2. 開放性結核患者數ヲ標準トスル法

開放性結核患者ノ數ヲ直接知ルト云フ事ハ届出制度ノアル國デモ、中々精確ナ數ガ得ラレナイ。隨ツテ同患者數ヲ測定スルニ死亡數ニ生存年數ヲ乘ズルト云フ方法ガ行ハレテ居ル。然シ此生存期間ヲ定メル事ガ又中々困難デアル。何故ト云フニ第1ニ「何時カラ病氣ガ始ツタカ」ト云フ事ガ明瞭デナイ。其外生存期間ハ各人ノ身體的及ビ社會的特殊性 Anthropologischer Standpunkt ニヨツテモ異ルモノデアルカラデアル。

著名ナ學者ノ生存期間ニ關スル發表ハ次ノ如クデアル。

Goldschmidt	2年
Cornet	2—3年
Siegfried	2年以上
Braeuning	3.1—3.5年
Britton	3.5年
Harms	4.2年
Dettweiler und Simon	7年
Rehberg	3年
Keyser-Petersen	3.4年

最近ノウルリッチー博士ノ發表(1936年)ヲ見ルニ同氏ノ臨牀的經驗ヨリ算定スルト4年トナルガ同氏ガシャロツテンプルグ Charlottenburg ノ結核相談所ノ材料ニヨツテ同地區ノ患者ニ就テ計算シタノハ5年トナル。然シ同氏モシャロツテンプルグノ統計ハ一般的ノ意義ガ少イト云ツテ居ル。

以上ノ統計カラ見ルト死亡數カラ開放性患者數

ヲ計算スル場合ニハ極端ナル數ヲ除イテモ少ク
トモ2.5—4.0ノ相乗係數ノ差異ニヨル大ナル
誤差ガ生ズル譯デアリ。

3. 收容ス可キ結核患者數ヲ實際的
基礎ノ上ニ立ツテ計算スル方法

此方法デ計算シタモノデ今日獨逸ニ於テ病牀數
計算上重要ナル參考資料ニナツテ居ルモノ、一
ツニブローニング博士 Dr. Braeuningノ調
査ガアル。之ハ1927年12月中旬ニステッチン
Stettinノ住民デ結核ノ爲ニ入院シテ居ルモノ
ト入院許可ヲ待ツテ居ルモノ、數カラ必要病牀
數ヲ計算シタガ、之ニヨルト住民10萬ニ對シ
テ肺結核病牀95ヲ要スル事ニナリ、其中62牀
ガ成人肺結核患者用ノモノデ、之ヲ更ニ内譯ス
ルト次ノ如クニナル。

- 9人 隔離所 Siechenheim
- 19人 一般病院 Allgemeines Krankenhaus
- 34人 結核療養所及結核病院 Tuberkulose Sanatorium und Krankenhaus

又傳染源トシテ最モ危險ナ重症患者ノ最後4ヶ
月間ヲ收容スルトスレバ死亡數ノ3分ノ1ノ病
牀ヲ要シ、人口10萬ニ對シテ80—90ノ死亡數
ヲ有スル處デハ同數人口ニ對シテ26—30牀ノ
割合トナル。

以上ノブローニング氏ノ計算即チ人口10萬ニ
對シテ95牀ヲ要スルト云フ計算ニヨレバ獨逸
ニ於テハ非常ナル病牀數ノ不足ガアルト云フ事
ニナル。

然シ此數ハ地方的ニ少カラザル差異ノアルモノ
デステッチンニ於テ得タル數ヨリ獨逸全體ノ病
牀數ヲ計算スル點ニ於テ、反對スル學者ガ少ク
ナイ。

譬ヘバケーザーペターセン氏 Keyser-Petersen
ガチューリングゲン Thüringenニ於テブローニン
グ氏ト同様ナル方法デ必要病牀數ヲ計算シタモ
ノハ次ノ如キ結果ニナツテ居ル。

1929年12月12日現在

- 121人 チューリングゲン病院 Thüringer.Krankenhaus

- 52人 エナ結核「クリニック」 Tuberkulose-Klinik, Jena
 - 109人 エルンゼー結核病院 Tuberkulose-Krankenhaus, Ernsee
 - 290人 チューリングゲン治療所 Thüringer-Heilstätte
 - 26人 他國ノ治療所
 - 45人 入院許可ヲ待ツテ居ル患者
- 計643人

即チ643牀ガ必要デ人口10萬ニ對シテ40デア
ル、同地方ニ於ケル同年ノ結核死亡數ハ10萬
ニツキ76デアリ。

又ヘルム氏 Dr. Helmsハ1928年11月ヨリ
1929年5月迄ノ間ニ數多ノ結核治療所 Lungenheilstättenノ病牀ノ状態ヲ調査シタガ次ノ如
キ空牀數ガアツタ。

年月日	空牀百分率(%)	
1928年11月15日	8.5	16.6
1929年2月28日	13.3	22.2
1929年5月15日	11.7	13.4

右側ハ125ノ小兒結核治療所ニ就イテ調査シタ
數デアリ。

此ヘルム氏ノ調査ニヨル「多數ノ空牀」ハ如何ニ
説明ス可キカト云フニ、次ノ如キ理由ガ擧ゲラ
レテ居ル。

(1) 結核治療所 Lungenheilstättenニ收容ス
可キ患者ノ嚴選、結核治療所ニハ以前ハ多數ノ
非活動性結核患者即チ入院治療ノ必要ナキ者ガ
收容セラレテ居タ、ウルリッヂー氏ノ算定ニヨ
ルト約30%ニ達シテ居タ、是等ノ患者ハ治療所
ヨリ退院セシメラレタ。

(2) 地方保險所、Landesversicherungsanstalt
中今日モ猶被保險者中ノ輕症患者ノミヲ選ンデ
治療所ニ入院セシメテ居ル者ガ少クナイ。又患
者自身モ3ヶ月療養 Dreimonatskurト云フ「考
ヘ」ヲ捨テナイデ早く退院スル。

(3) 各地區ニ於ケル結核病牀數ニ大ナル懸隔ガ
アル點。

(4) 結核死亡數ノ減退。

(5) 一般病院ニ於ケル結核科ノ活動。

(6) 經濟的關係殊ニ中流階級ノ困窮。以上ノ中(1)、(4)、(5)ハ結核豫防ノ進歩ヲ示スモノデアラガ(2)、(3)、(6)ハ結核豫防ノ發展途上ニ於ケル大ナル障礙デアル。殊ニ疾病保險ニ加入セザル中流階級ノ救濟ノ如キハ獨逸ニ於テモ保健上殘サレタル大キナ問題デアラウ。

4. 人口1000ニ就テ1牀

之ハ甚ダ難駁ナル計算デアラガ米國ノ一部デ行ハレテ居ル。

東京市ノ場合

東京市デハ幾何ノ結核病牀ヲ必要トスルカ、最モ普通ノ計算法即チ1年ノ死亡1ニ對シテ1牀トスレバ約11,700牀ヲ要スル事トナル(東京市ニ於ケル昭和10年度ノ結核死亡數ハ11,672デアアル)。之以外ニ結核デ死亡シナガラ他ノ病名デ届出ラレタモノガ相當數アルデアラウ、ガ、又一面ニ於テハ結核死亡者中ニハ必ズシモ東京市ガ世話ヲスル必要ノナイモノモ含マレテ居ル。

又ブロイニング及ヘルム等ノナセル如ク實際的ノ基礎ノ上ニ立テル計算即チ現在ノ病牀數及ビ入所ヲ待ツ患者數ニヨツテ計算スレバ

東京市療養所病牀	1,170
委託病牀	830
入所許可ヲ待ツ患者數	2,405
計	4,405牀

猶病牀増加ニ伴ツテ入所シ易クナルタメニ希望者ガ増加スル事ヲ考慮ニ入レテ先ヅ5,000牀ガ東京市トシテ緊急必要ナル成人結核患者ニ對スル市設病牀數デアル。而シテ健康相談所ノ活動ガ充實スルト共ニ必要病牀數ガ漸次増加スル事ハ既ニ述ベタ如クデアル。

小兒病牀數

アメリカ結核協會 National Tuberculosis Association ノ計算ニヨレバ全病牀數ノ15%ヲ要スル、猶此外ニ小兒保養所 Preventorium Kinderkuranstalt ノ必要ガアル。

第四章 療養所ノ大キサニ就テ

獨立セル結核療養所デ病牀數100—150牀以下デハ經營ガ非常ニ高價ニナリ、經濟上不適當デアアル。カ、ル場合ニハ寧ロ既設病院ヲ擴張シテ之ニ附屬セシメタ方ガ經濟上ヨイ。

經濟的ニ見テ最モヨイノハ300牀以上デアアル。大キサノ限度ニツイテハ種々ニ言ハレテ居ル。柏林市立結核療養所ハ460牀、セーナ縣立結核療養所ハ540牀ヲ有スル。

大ロンドン市ノ有スル結核患者收容機關ノ大キナモノデモ300牀内外ノ病牀數デアアル。然シ伊太利ニハ1,000牀以上ノ療養所ガアル。米國ハ大療養所ヲ有シテ居ルガ、ソレデモ1000牀以

上ノ病牀ヲ有スルモノハ數フル程シカナイ。

City of Chicago, Municipal Tuberculosis Sanatorium	1,206
Sie View Hospital	1,446
Pensylvania State Sanatorium for Tuberculosis	1,035
Olive View Sanatorium	917

アメリカニ於テモ大體500—600牀位ガ經營上及ビ經濟上カラ見テ最モ適當デアルト云フ意見ガ多イ。然シ一方デハオリーヴ・ビュー療養所ノ院長ノ如クイクラ病院ヲ擴張シテモ經營上何等ノ支障ヲ來サナイト云ツテ居ル人モアル。

第五章 療養所設計ノ一般方針

1. ゴールドウォーター氏 Dr. Goldwater

ノ言葉

ニウヨーク市ノ病院局長 Commissioner of Department of Hospital, City of New York

ゴールドウォーター氏 Dr. Goldwater ハ病院設計者トシテ米國ニ於ケル第1人者ノミナラズ他國ノ病院設計ノ顧問マデシテ居ル人デアアル。同氏ノ談話中療養所設計ノ一般方針中二ツノ最

モ興味ヲ引イタ事ガアツタ。一ツハ設計ノ中最モ重要ナルハ勤務上看護婦ノ歩マナクテハナラナイ距離ヲ出來ルダケ短クシ、出來ルダケ便利ニ勤ケルヤウニスル事デアアル。

第二ハ病室或ハ其他ノ室ヲツクツタ後デ其中ニ置ク諸器具機械ヲ注文スル事ガ一般ニ行ハレテ居ルガ、之ハ逆デアツテ、器具機械ノ大キサ、置ク場所ヲ先ヅ定メテカラ室ノ大キサヲ設計ス可キデアアル。

2. 療養所構造ノ變遷

療養所運動 Sanatorium Movement ノ初期ニハ非常ナ薄弱ナ建築ガ用キラレ、丸木小屋式 Shack ノモノガ多く、此方ガ療養上適當デアアルヤウニ思ツテ居タガ、今日デハカウ云フ式ハ用キラレナクナツタ。最近ニ於ケル主要ナ變遷ヲ舉グレバ、

(1) 患者ノ居心地ヲヨクスル事、comfortable 及ビ出來ルダケ群居ヲ避ケル事デアアル、即チ以前ハ大キナ室ニ澤山ノ患者ヲ一緒ニ入レテ居ツタガ現在デハカ、ル事ヲシナイデ、出來ルダケ個室ノ數ヲ多クスル、即チ Privacy ヲ重ンズルヤウニナツタ。

(2) 以前ニハ療養所ト云ヘバ休養、新鮮ナル空氣、適當ナル榮養ト云フ事ノミデ足レリトシテ居タガ現在デハ種々ナル新治療法ニヨツテ積極的ニ病氣ノ治癒ヲ企テル事ガ追加セラレタ。此點ガ昔ノ療養所ト今日ノ療養所トノ間ニ大ナル構造上ノ差異ヲ來シタ原因デアアル。今日ノ療養所及結核病院ハ最新式ノ一般病院 General Hospital ト殆ンド異ル處ガナイ、只之ニ加フルニ大氣療法 Open Air Treatment ニ適スルヤウニスレバヨイ。

(3) 病室ノ耐火性ヲ重要視スルヤウニナツタ。之ハ重症患者ヲ收容スル大療養所ニ於テ特ニ必要デアアル。若シ止ムヲ得ズ木造建築ニ患者ヲ置ク場合ニハ重症患者ハ必ズ二階以上ニ置イテハナラナイ。

3. 病棟ノ方向

長イ建築ヲ眞南ニ向ケルト日光ニ面スル長イ一

面ヲ有スルト共ニ日光ノ照射ヲ受ケナイ同ジ長サノ面ヲ生ズル、建物ノ方向並ビニ外形トシテハ各面ガ出來ルダケ長イ間日光ヲ受ケル事ガ望マシイ。

又日本ノ如キ亞熱帶ノ處デハ耐エ難イ夏ノ午後ノ暑サヲ避ケル爲ニ東南南ニ向ケタ方ガヨイ。猶其上ニ建物ノ方向ヲ定メル上ニ參考トシナケレバナラナイノハ其土地ニ於ケル平均風向 The Direction of Prevailing Winds 及ビ何レノ方向ノ風ノ時ニ雨が最も多イカト云フ事デアアル。

4. 流線式 Flow Lines

之ハ型ノ上ノ流線型デハナク療養所ノ仕事、機能ガ摩擦抵抗ナク行ハレルヤウニ建物ヲ設計配置スル意味デアアル。故ニ建築家ハ如何ナル状態デ患者ガ入院スルカ、或ヒハ療養所内デ行ハレル治療ノ性質、食餌分配、消毒、洗濯ノ方法、病室ト事務關係方面トノ聯絡等ニツイテ詳細ニ知ツテ居ラナケレバナラナイ。

5. 木造カ鐵筋「コンクリート」カ

既ニ述ベタル如ク新式ノ療養所ハ其構造ニ於テ一般病院ニ非常ニ近イモノトナツタ。今日一般病院ヲ「コンクリート」デ建築スルト同様ニ療養所モ「コンクリート」建築ニス可キデアアル。

其理由ハ、

(1) 耐火性ノ絶對的必要。重症患者ヲ多數收容スル木造療養所デ失火シタ場合ニハ之ヲ救助スル方法ハ絶望ニ近イ。之ガ耐火性建築ノ必要ナル第一ノ理由デアアル。

(2) 日常ノ能率ノ増進。必要ナル建築ヲ高層耐火性トシテ近接セシムル事ハ散亂セル木造建築ニ比シテ日常勤務者ノ能率ニ於テ非常ナル差異ガアル事ハ云フマデモナイ、二ツノ病舎ヲ平面的ニ建テル場合ニハ其間ニ相當大ナル距離ヲ置カナクテハナラナイガ、之ヲ高層建築トシテ上ニ重ネル時ハ僅カニ天井ノ高サニテ足り、今日ノ如ク「エレベーター」ノ發達セル時代ニ於テハ勤務者ノ歩行距離ヲ著シク短縮スル事ガ出來ル。之ハ醫療看護ノ上ノミナラズ、譬ヘバ中央食物調理室ヨリ長イ廊下ヲ傳ハリテ各舎ニ食品

ヲ運搬スル如キ不便ヲ避ケル事ガ出來ル。
 (3) 經常費ノ節約。既述セル如ク散在セル木造病舎建築ニ比シテ高層建築ガ勤務者ノ能率ノ上ニ於テ著シク勝レテ居ル故ニ、後者ニ於テハ人件費ヲ大ニ節約スル事ガ出來ル。又蒸氣或ハ熱湯送管モ散在性病舎ノ場合ニハ非常ニ長クナリ、途中熱ヲ失フ事ガ莫大デアアル。
 最後ニ殘サレタ問題ハ「コンクリート」建築ガ湿度ノ高イ我風土ニ適スルカ否カト云フ點デアアル。室内ノ温度湿度ヲ常ニ一定シテ置ク、所謂 Air Conditioning ノ設備ガ完全デアレバ論ハナイ。然シカ、ル設備ノナイ「コンクリート」建築ニ於テハ春季比熱ノ高イ「コンクリート」ガ未ダ十分温メラレナイ時ニ濕氣ヲ含ム暖イ南風ニ接觸スルト表面ニ水滴ガ凝結スル、殊ニ壁ガ水

ヲ吸收シナイ性質ノ場合ニハ此現象ガ特ニ著明デアアル。日本古來ノ壁ハ水分ヲ吸收スルカラ露ヲ置ク事ガ比較的少イ、ホーエン・クルーグ結核病院ノ「ベランダ」ノ天井ハ水滴ヲ生ジナイ爲ニ水分ヲ吸收スル塗料ガ用キテアル。カ、ル塗料ヲ使用スル事モヨイ。
 空氣ノ乾燥ト云フ事ガ結核患者ニ好影響ガアル故ニ、カ、ル湿度ノ高イ病室ニ居ルト云フ事ハ確カニヨクナイ、此「コンクリート」建築ノ日本風土ニ對スル適合性ハ大ニ研究ノ必要ガアルト思フ。然シカ、ル状態ニナル事ハ東京近傍ニ於テハ1年ノ中ニ算フル程シカナイ故ニ此僅少ナル缺點ヲ以テ他ノ大ナル優越性ヲ抹殺スル事ハ出來ナイ。

第六章 病室

療養所ニ入院スルノハ家庭デ出來ナイ醫療ヲ受ケル爲ノミデハナイ、療養所ニ居ルト云フ事ソレ自體ガ治療の意味ガアル。療養所デハ不安トカ興奮トカハ極度ニ避ケ、安靜ト、居心地ヨサトヲ與ヘラレル。古來病人ガ佛閣ニ「御籠リ」ヲシタノハ同ジ意味ニ於テ治病的ニ働イタノデアラウ、若シ療養所ノ設備、運用ガ患者ヲ刺戟、興奮セシメテ其精神状態ヲ亂ス如キ事アラバ入院ガ却テ患者ニ害ヲ與ヘル。故ニ是等ノ有害要素ヲ除去シテ療養所ノ機能ヲ發揮セシムル爲ニハ醫師ヤ看護婦ガ是等ノ點ニ非常ニ留意シナケレバナラナイノハ勿論デアアルガ療養所ガサウ云フ風ニ設計セラレテ居ラナケレバナラナイ。他ノ病院ニ比シテカ、ル設計ガ特ニ必要デアアル所以ハ療養所デハ入院期間ガ長イノト安靜ヲ必要トスル重症患者ト自覺的症狀ガ少クテ娛樂ヲ望ム患者トガ混合シテ居ルカラデアアル。

1. 防音ト清潔

病室ノ「靜ケサ」ト云フ事ハ最も必要デアアル、病室ノ近クニ於ケル騒音ノ發生ハ出來ルダケ避ケ、止ムヲ得ザル場合ニハ防音壁ヲ使用シナケ

レバナラナイ。獨逸ノブランデンブルグ結核病院 Das Brandenburgische Tuberkulosekran-kenhaus デハ特ニ敏感ナ患者ノ爲ニ特別室ガ設ケテアツテ、電話室ノ如キ防音設備ガ施シテアル。病室、廊下ノ床ハ音ヲ鈍ラス特別ノ材料 Silentium ヲ用キ、其上ニ「リノリウム」ガ張ツテアル。

又同療養所デハ廊下ノ中央部ヲ擴クシテ「ホール」ヲツクリ、食事前後ニ患者ガ集マツテ談話ヲスル處ニシテアルガ、多人數集マルタメニオコル騒音ヲ緩和スルタメニ床ニハ「ゴム」ガ敷イテアル。

病室ノ内部ハ容易ニ病原菌ヲ除去シ得ルヤウニシナケレバナラナイ。即チ塵埃ノ溜ラナイヤウニ、又水デ清淨出來ルヤウニスル。此爲ニハ床ハ勿論壁モ2米ノ高サマデ耐水材料ヲ用キ猶表面ガ平滑デアアルノガ理想的デアアル。伯林市郊外ニ在ルベーリッツ治療所 Beelitz-Heilstätte ノ結核病棟ノ病室ノ壁ハ8呎位ノ高サ迄平滑ナ瓦張りデアリ、床ハ「リグノイド」デアアル。此床及ビ壁ノ一定ノ高サマデヲ平滑ニシテ水洗シ得ル

ヤウニスル事ハ單ニ病室ノミナラズ患者ノ出入スル凡テノ室及ビ廊下ニモ適用シナケレバナラナイ。病室ノ壁ヤ床ノ色ハ大ナル意味ハナイ。病室ノ窓ハ通風、採光ノ上カラ出來ルダケ大キクスル。日除ケノ爲ノ「カーテン」ハ色物ノ方ガヨイ。

2. 病室ノ照明

天井カラ電燈ヲ吊スノハヨクナイ。「ベッド」ノ頭部ノ壁ニ取リツケル。牀頭燈ガ「プラグ」デ取リツケテアレバ猶ヨイ。今日ノ新式ノ療養所デハ病牀ノ近クニ牀頭燈、「ラヂオ」、呼鈴ガ程ヨク配置セラレテアル。

猶 night light box ニ電球ヲ入レテ病室ノ入口ノ近クデ牀カラ6寸許リノ處ニ取リツケルノハ非常ニ便利デ看護婦ガ「シグナル」デ病室ニ入ツタ時、明ルイ上部ニアル電燈ノ點火ニヨリ眩光デ他ノ患者ニ不快ナ感ヲ與ヘル事ナシ此「フットライト」ノミニヨリ病室内ヲ歩ム事ガ出來ル。

3. 病室ノ大キサ

獨逸ノ結核病學ノ大家デアアルプロイニング氏 Dr. Bräuning ノ意見デハ一病室ニ6人以上ノ患者ヲ入レテハナラナイ、之以上デハ患者ハ精神ノ安靜ヲ妨ゲラレルト云フ。故ニ同氏が院長ヲシテキルホーエンクルーグ Hohenkrug ノ結核病院デハ1人室、2人室、3人室、6人室デアアル。

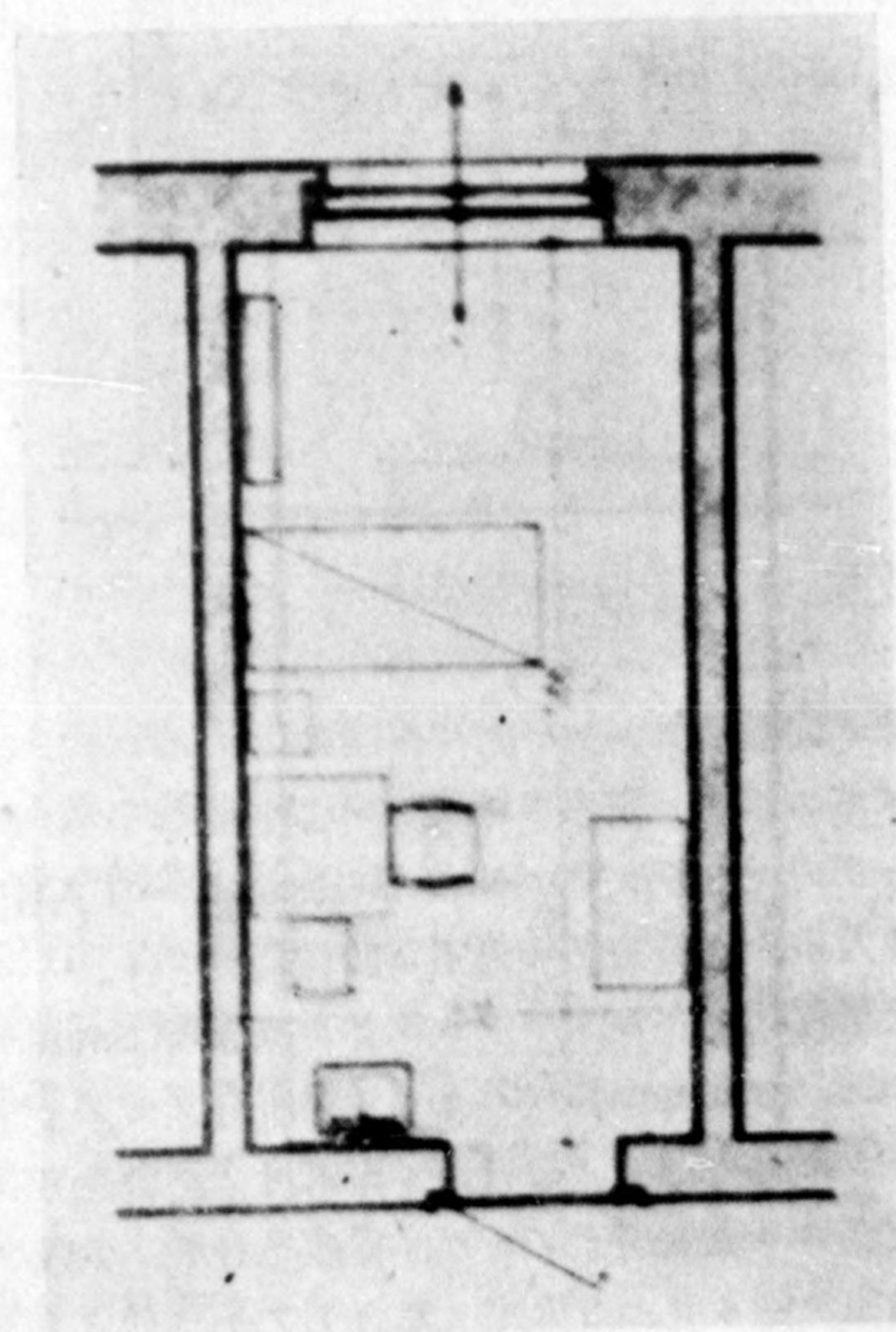
伯林郊外カールスホルスト Karlshorst ニ在ル聖アントニウス病院 St. Antonius Krankenhaus ハ最新式ノ病院デ院長ハ伯林大學ノ教授デ結核ノ無鹽食餌療法デ有名ナヘルマンズドルフェル氏 Prof. Herrmannsdorfer デアルガ此處デ一番大キナ部屋ハ11人室デアアル、ソノ外6人室ガ相當多イ。重症ハ2人室以下ニ入レル事ニナツテ居ルガ等級ニヨツテモ1室ノ人数ガ定メテアル。1等ハ1人室、2等ハ2人室、ソレ以上ハ3等デアアル。各病室ノ入口ニハ其室ノ體積ガ指示シテアル。

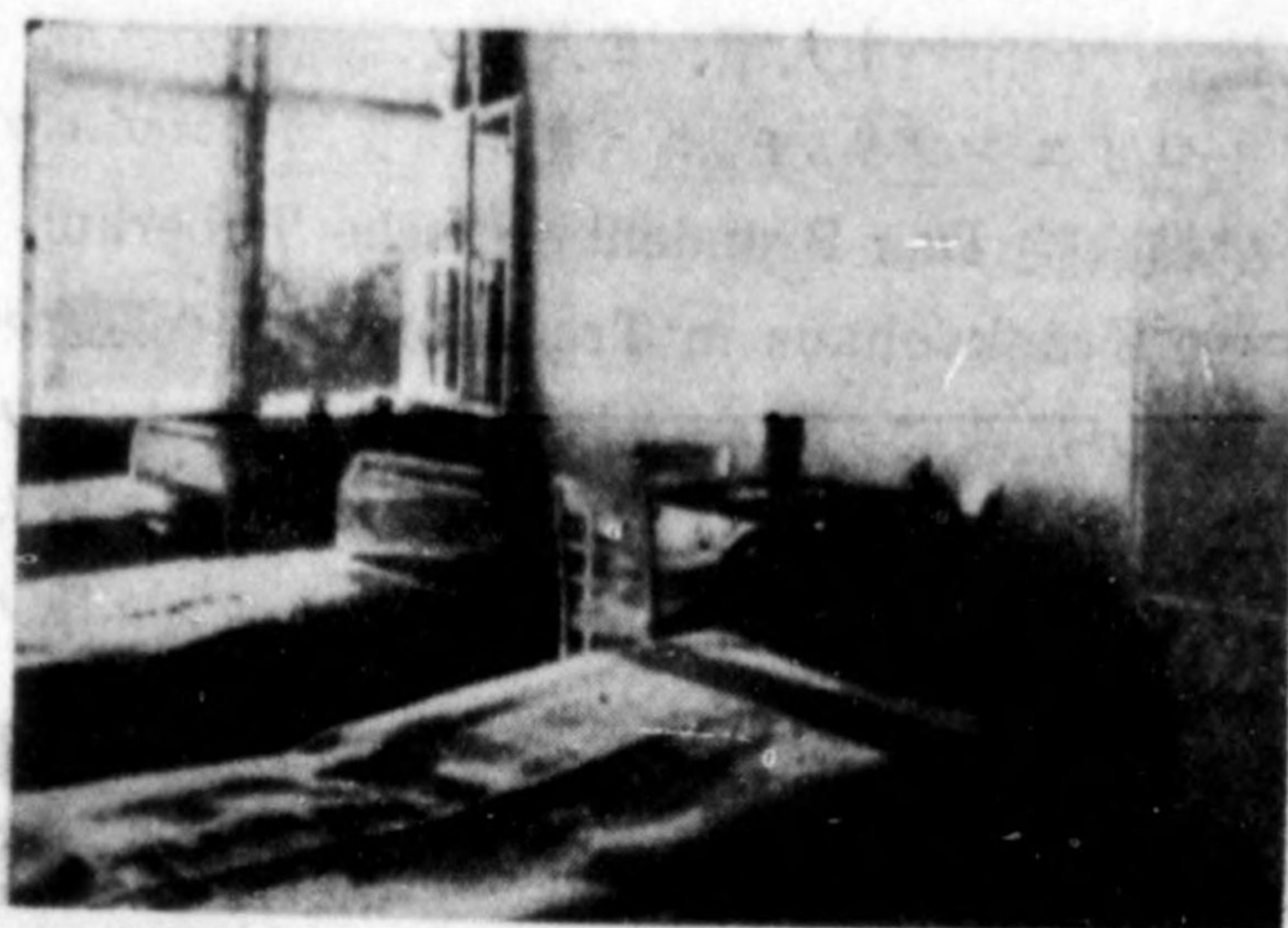
伯林ヨリ約1時間位ノ距離ノ處ニ有名ナベールツ治療所 Beelitz-Heilstätte ガアル、此結

核科ノ病室ハ1人室、2人室ノ二種類デアアル。トロイエンブリッヂェンニ在ルブランデンブルグ結核病院 Das Brandenburgische Tuberkulose-Krankenhaus in Treuenbritzen ハ獨逸ニ於ケル最新式ヲ誇ル結核病院デアアルガ、病室ノ大キサハ1人室、2人室、6人室ノ三種類デ最大ヲ6人室トナシタ點ハ既述ノプロイニング氏ノ

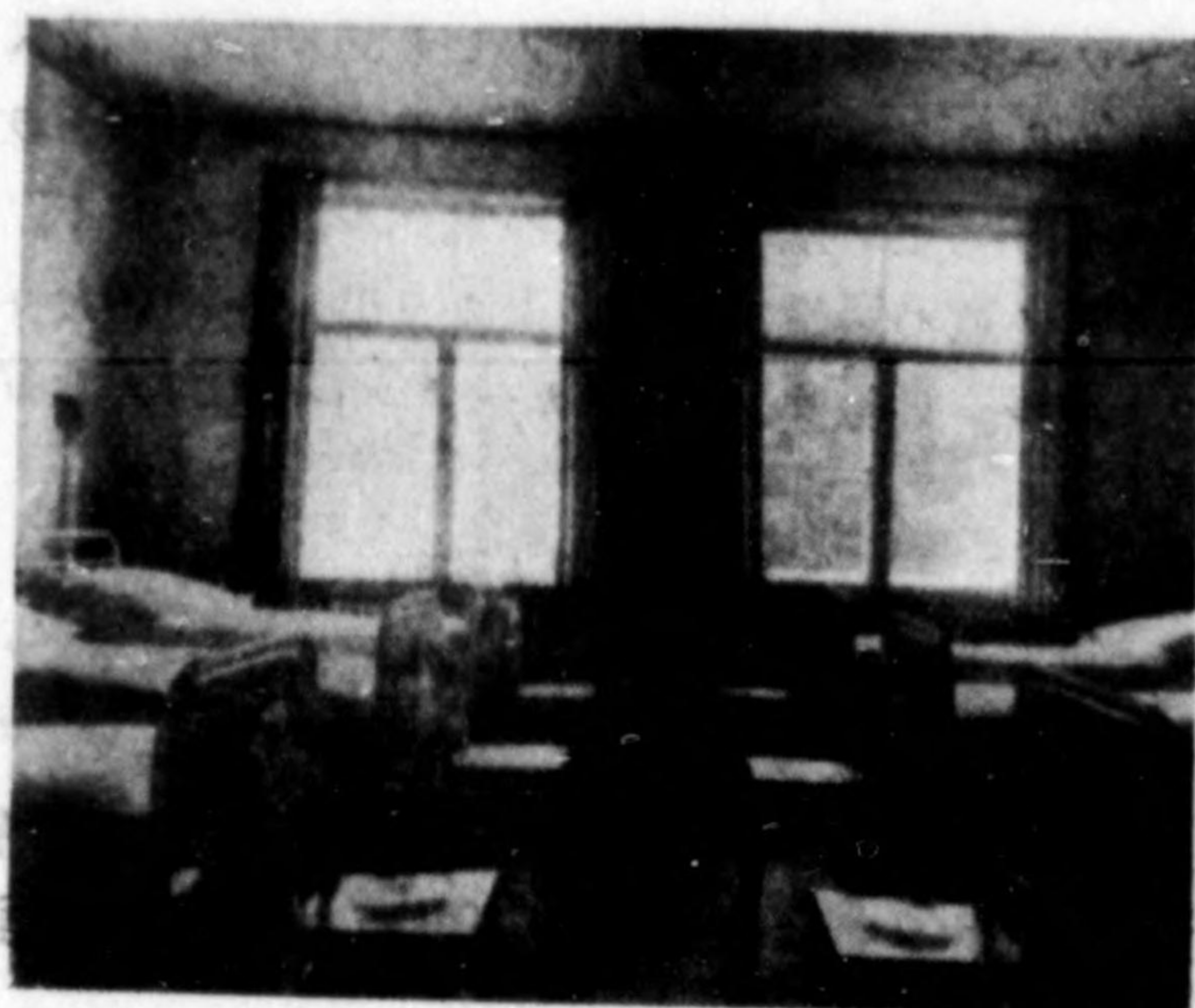


ホーエンクルーグ結核病院(1人室)

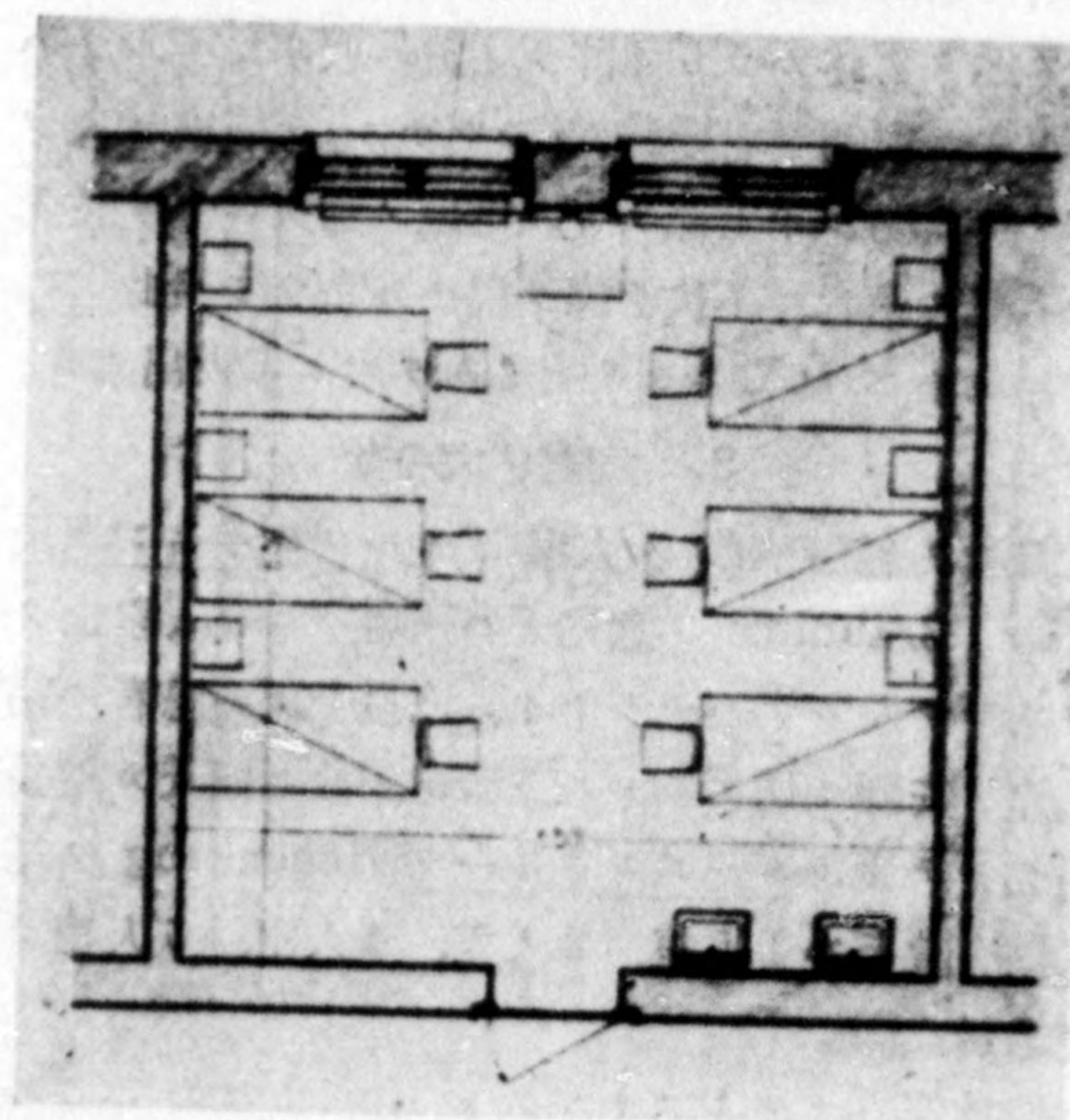
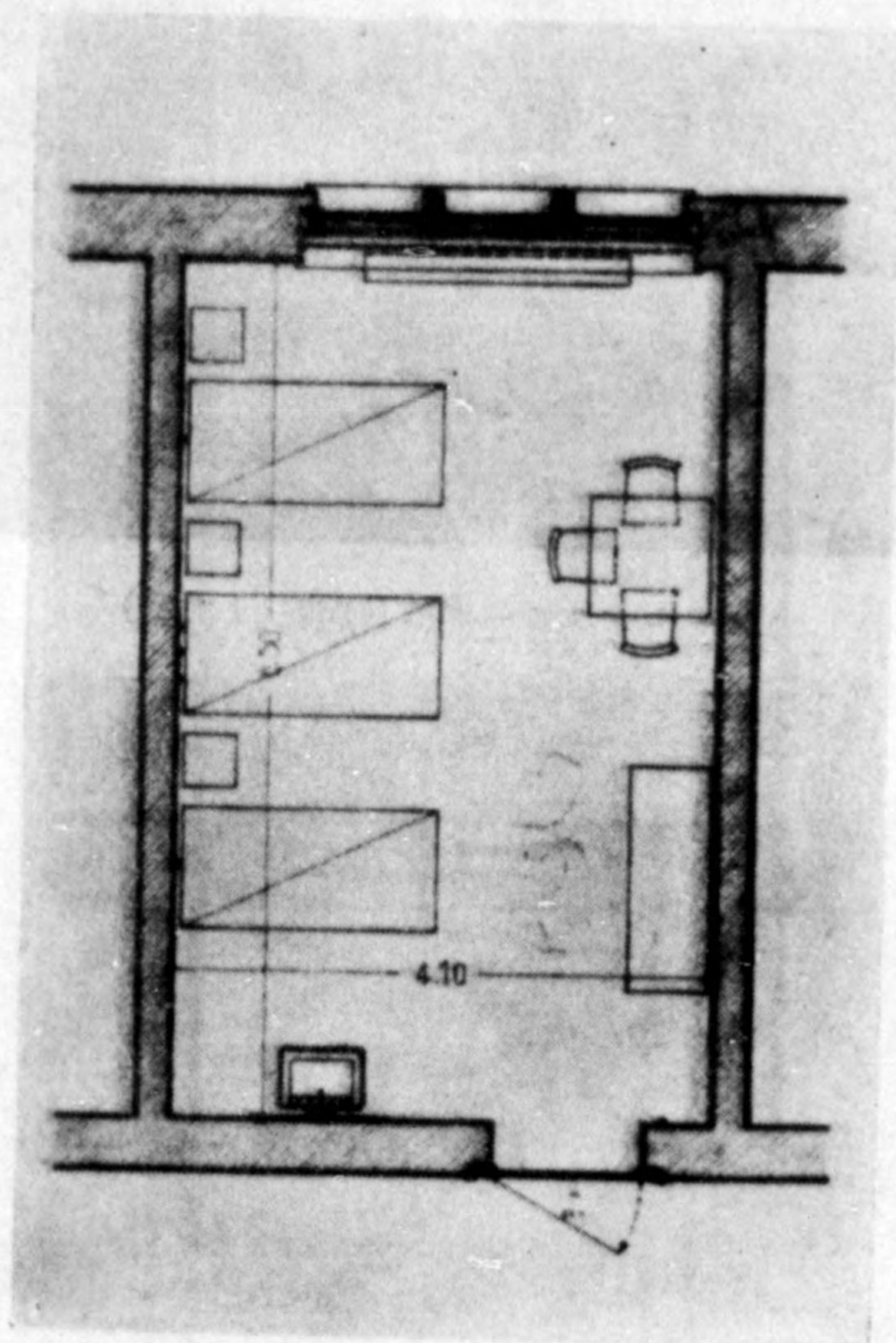




ホーエンクルーグ結核病院(3人室)



ホーエンクルーグ結核病院(6人室)



説ト同様デアル。

ダボスニ在ル數多ノ療養所中最新式デアルチュ
ーリッヒ治療所 Türicher-Heilstätte ハ1人室、
2人室、3人室、4人室ノ四種類デアル。

巴里近郊ニ在ルフランコンビル療養所 Sanato-
rium Franconville ハセイヌ縣所有ノモノデ主
トシテ社會保險ノ患者及ビ市町村ノ無料患者ヲ
收容スル療養所デアルガ、重症患者用ノ少數ノ
個室ヲ除イテハ5人室ノ集合デアル。

英國ノ療養所ヲ觀察スルニ成人男子重症肺結核
患者ヲ收容スルコリンデール病院 Colindale
Hospital ハ1914年一般病院トシテ設立セラレ
タモノデアルガ大キナ病室ニハ30人以上收容
セラレテ居ル。

ジョージ五世療養所 King George V. Sanat-
orium ハ歐洲大戰後(1922年)ニ開カレタ成人
男子ニ對スル療養所デアルガ、1人室、2人室、
4人室ノ三種類デアル。

アーキウェー病院 Archway Hospital ハロンド
ン市内ニ在ル一般病院デ1879年ノ設立デアル、
此處ノ結核部ニハ重症肺結核患者ヲ收容スルガ



ブランデンブルグ結核病院(2人室)

大キナ病室ハ1室24人デアアル。

パッポース村「セツルメント」The Papworth Village Settlement ハケンブリッジ郊外ニ在ル有名ナル結核患者ノ職業「コロニー」デアアル。此中ニアル結核病院(1935年設立)ハ1人室、2人室、4人室、8人室デアアル。猶外科病院(1936年設立)ハ1-4人室デアアル。

米國デ視察シタ病院ノ中ニウヨークノニウメヂカルセンター New Medical Center ノ結核部デハ2人室ト4人室デアアル。

米國ガ其新式ヲ誇ルハドソン縣結核病院 Hudson County Tuberculosis Hospital デハ1人室、2人室、3人室、4人室ノ四種デ各人ノ間ニハ「カーテン」ガアツテ必要ノ時ニハ之デ隔離スルヤウニナツテ居ル。

ニウヨーク近郊ニ在ル、バレービュー療養所 Valley View Sanatorium デハ1人室ト2人室トデアアル。

ロスアンゼルス Los Angeles ニ在ルオリーブ・ビュー療養所 Olive View Sanatorium ハ古イ病室ハ「ベランダ」式ニナツテ居テ30人位一緒

ニ居ル處モアルガ新築ノ外科病室(外科結核手術者ヲ收容ス)ハ全部1人室デアアル。

以上ノ結核療養所及ビ病院ハ決シテ贅澤ナ病人ガハイル處デハナク、ソノ費用ハ大部分疾病保險或ヒハ公共團體カラ支出セラレルモノデアアル。

是等ノ施設ヲ見ルニ古ク建テラレタモノハ1室ニ多人数ヲ收容スルモノガアルガ、新シク造ラレタモノデハ大部分6人室ガ最大デアアル。即チ昔ノ如キ大病室 Open Ward ハ不適當ト看做サレルニ至ツタ。私ノ東京市療養所ニ於ケル經驗カラモ大病室ニ在ツテ下熱シナカツタ患者ヲ小病室ニ移ス事ニヨツテ下熱シタ例ハ澤山アル。米國結核協會デハ重症患者ハ4人以上ノ病室ニ置ク可キテナイトシテ居ル。

4. 大小病室ノ比率

重症患者ハ個室ニ收容シ輕症患者ハ2人以上ノ室ニ置イテモヨイト云フ事ガ各國共通ノ方針デアアル。

獨逸ノブランデンブルグ結核病院 Das Brandenburgische Tuberkulose-Krankenhaus デハ6牀室3、2牀室4-5、1牀室2ノ割合ニ建テラレテアル。

米國デハ如何ナル考ヘ方ヲシテ居ルカ、米國ノ療養所デハ患者ヲ病狀ニヨツテ次ノ三種類ニ分類シテ居ル。

1. 重症患者 Bed or Infirmity Cases 病牀ニ於テ規則的看護ヲ必要トスルモノ
2. 中等症患者 Semi-Ambulant Cases、食堂等ニハ行ケルモ未ダ散歩ヲ許サレザル者
3. 輕症患者 Ambulant Cases、毎日指示セラレタ量ノ運動ヲナシ状態ガヨクナレバ更ニ運動ノ量ヲ増加シ得ラレルモノ

扱以上ノ患者ヲ如何ナル割合ニ收容スルヤウニ療養所ヲ設計ス可キデアアルカト云フ事ハ療養所ノ性質ニヨツテ異ルガ、大體カラ云ヘバ以前ニハ全病牀數ノ20%ヲ重症患者ノタメニ用意スレバヨイ事ニナツテ居タガ、1926年米國結核協會ノ發表デハ、

重症用病牀 40%以上
 中等症用病牀 35%
 輕症用病牀 25%
 ノ割合ニナリ更ニ1929年ニハ同協會ハ次ノ如キ割合ニ變更シタ。

重症用病牀 60%
 中等症用病牀 20—25%
 輕症用病牀 15—20%

此變更ハ指導的立場ニアル療養所ノ權威ノ要望ニ沿フ爲デアツタ。即チ重症用病牀ノ割合ガ著シク増加スル傾向ヲ示シテ居ル。之ハ決シテ輕症患者ニ比シテ重症患者ガ増加シタノデハナク、治療方針進歩ノ結果デアル。

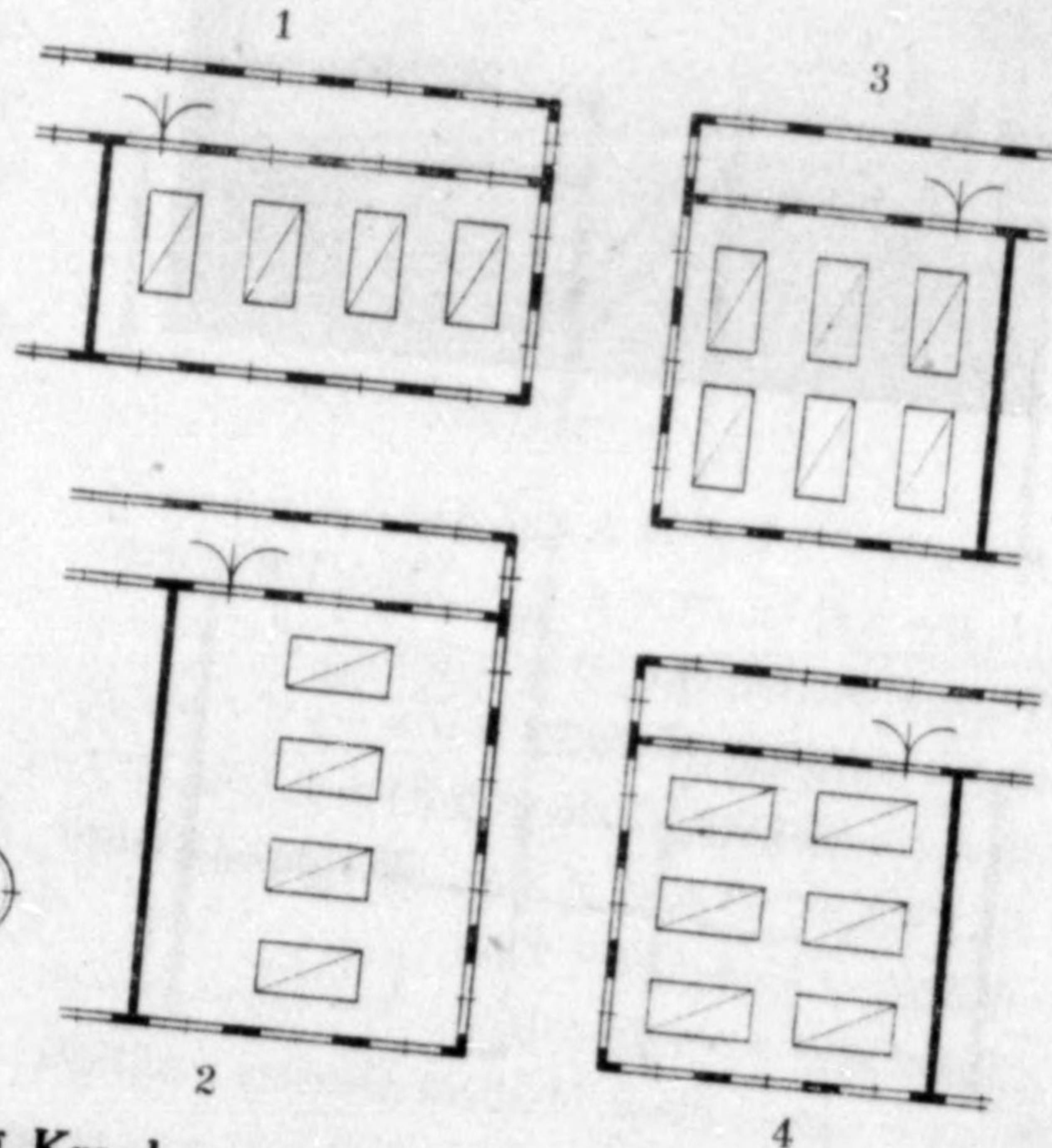
重症患者病棟 Infirmery Section デハ35%ヲ1人室、残りハ主トシテ2人室、其他ニ少數ノ3—4人室ヲツクル。参考ノタメニ東京市療養所患者ノ昭和12年8月20日現在ノ病狀ノ割合ヲ示セバ

重症患者 74%
 中等症患者 17%
 輕症患者 9%

5. 病牀ノ並べ方

病室ハ凡テ南側ニ取り廊下ノ北側ニハ他ノ室ヲツテアルノガ大部分デアル。病室内ノ病牀ノ並べ方ヲ分類スレバ大體ニ於テ次ノ四種類トナル。理想的ニ云ヘバ(1)ガ最モヨクダボスノ

チューリッヒ治療所、巴里ノ近クニアルフランコニビル療養所、英國バツボースセツルメント内ノ療養所等、何レモ新式ノ療養所デアルガ(1)ノ如キ病牀ノ配列ヲナシテ居ル。唯此式ニヨルト建築全體ガ幅ノ狭イ東西ニ長イ型トナル。(2)(4)モ新式ノ療養所デ用ヒラレテ居ル。譬ヘバホーエンクルグ結核病院及ビブランデンブルグ結核病院等ノ如クデアル。此二者共ニ獨逸デ其新設備ヲ誇ル結核病院デアル。新式ノ病院デ(3)ノ如ク病牀ヲ並ベタモノハ餘リ多クナイガ聖アントニウス病院内ニハカ、ル配列ノ病室ガアル。



第七章 單位病棟 Krankenstation

1. 單位病棟ノ大キサ

大療養所ニ於テハ病人ヲ幾ツカノ區分 Stationニ別チテ之ヲ治療看護ノ單位トシナケレバナラナイ、此區分ヲ如何ナル大キサニスルカト云フ事ハ看護並ビニ人員經濟上非常ニ必要デアルカラ療養所設計ノ際ニ慎重ニ考慮シナケレバナラナイ、獨逸ノプロイニング博士 Dr. Bräuningハ一區分ノ患者數ハ25—30ガ最モ適當デアルトシ、之以上ニナルト主任看護婦 Stationschwester ガ患者ヲ個人的ニ十分世話スル事ガ

出來ナイシ、又患者ノ氣持モ落着カナイト云フ。而シテ此一區分ニ對シテ主任看護婦1名、補助看護婦2名、雜役婦2名ヲ置イテアル。又ブランデンブルグ結核病院 Das Brandenburgische Tuberkulose-Krankenhausデハ各區分ハ33—34牀デ之ガ看護作業ノ最大限トシテ居ル。東京市療養所デハ人員經濟ノ點カラ看護上ノ缺點ハアルガ45—50牀トシナケレバナラナイ。各單位病棟毎ニ次ノ室ガ必要デアル。

2. 小料理室 Stationsküche, Stations-

verteilküche

中央大料理室ノ外ニ各病棟ニ小料理室ヲツクル、此小料理室ノ機能ニハ種々ナル程度ガアルガ機能ノヨイモノハ中央料理室デツクラレタ食餌ヲ此處デ各病人ニ適合スルヤウニ變化スルノデアアル。機能ノ少イ小料理室ハ單ニ食餌ノ分配或ヒハ暖メル位ノ程度デアアル。

3. 食堂

明ルク通風ノヨイ、患者ニ快感ヲ與ヘルヤウニ設計スル。食卓ハ4人、6人毎ニ一卓トスル方ガヨイ。從來ノヤウナ長イ食卓ニ多人數竝ブノハヨクナイ。

食堂ノ入口ノ近クニ患者ガ食前ニ集マルタメニ集會室ヲツクル、此處ニハ手洗場ヲツクツテ置ク。ブランデンブルグ結核病院デハ廊下ノ一部ヲ廣クシテ之ニ用キテキル。

4. 讀書室兼娛樂室

食堂ニ續ケテツクル、嚴選セラレタ書籍ト數種ノ娛樂器具ヲ備ヘル、猶手紙等ヲ書クタメノ机ヲモ用意スル。

5. 浴室

現在東京市療養所デハ全患者ヲ一浴室ニ集メテ居ルガ、各病棟毎ニ設備シタ方ガヨイ。

6. 洗面所

歐米ノ療養所デハ患者1人毎ニ取り付ケノ洗面器ガ一ツ宛アル。獨逸、瑞西ノ療養所デハ室内ニ備ヘ付ケテアルカラ4人室ナラ4箇アル譯デアアル。佛蘭西ノ新式療養所デハ既ニ述ベタル如ク5人病室ノ集合デアアルガ各2病室ノ間ニ10箇ノ洗面器ヲ備ヘタ室ガ置イテアル。

我國ノ公立療養所ノ建築費ノ程度デハ各人ニ備ヘ付ケノ洗面器ヲ設備スル譯ニハユカナシ、又數十人ノ患者ニ對シテ數個位ノ洗面器デハ病人ノ潔癖感カラ使用シナイ故ニ洗面用ノ「流シ」ヲ設ケタ方ガ實用的デアアル。

7. 清掃器具ヲ入レル室

汚水ヲ流スヤウニ設計シナケレバナラナイ。多クノ療養所デハ小サスギルカラ十分ナ廣サヲトルヤウニスル。

8. 看護婦勤務室及宿直室

重症患者ニ對シテハ絶エズ注意ヲシナケレバナラナイ故ニ重症室ノ近クニ置クト同時ニ其病棟ニ出入スル人ヲ監視スルニ便利ナ位置ヲ選バナケレバナラナイ、此處ニハ電話竝ビニ患者ヨリノ「シグナル」ヲ用意スル。

9. 醫員室

歩行シ得ル患者ノ診察或ヒハ氣胸等ノ處置ヲスル外、病歴ノ整理、讀書等ヲナスタメニ診察用臺、診察用「ベッド」、机、戸棚等ヲ備ヘル。

10. 備品物置

一病棟ノ患者50人トシテ約5坪ヲ要ス、此中ニ適當ナル戸棚ヲ入レル。

11. 患者所持品ノ物置

病室内ニ於ケル患者ノ所持品ハ出來ルダケ制限シ殘餘ノモノハ各人別ニツクラレタ物置内ノ錠付戸棚中ニ入レテオカナクテハナラナイ。之ハ病室内ノ整頓清潔上緊要ナル事項デアアル、各患者ニ用意セラルベキ容積ハ東京市療養所ノ經驗ニヨレバ患者1人ニ就キ縦1尺7寸、横2尺、奥行3尺位デアアル。

患者ノ衣類戸棚ハ獨逸、フランスノ新式療養所デハ殆ンド凡テ廊下ノ壁ノ中ニツクラレテアル。此衣服戸棚ヲ歐洲式ニ壁ノ中ニツクルカ或ヒハ什器トシテ置クカト云フ事ハ米國デハ議論ガ別レテ居ルガ最近デハ什器トシテ室内ニ置ク方ガヨイト云フ風ニ傾イテ居ル。ロスアンゼルスノバレーヴー療養所ノ出來タ許リノ病室デハ什器トシテ室内ニ置イテアツタ。

ダボスニ在ルチューリッヒ市立療養所ノ病棟ヲ新築スルニ當リ衣類戸棚ヲ病室ノ内外何レニ置クカニ付イテハ中々論議セラレタガ醫長ヘベルリ氏 Dr. Häberli ノ主張ニヨツテ内部ニ置クヤウニナツタ。外部ニ置クト云フノハ病室内ノ空氣ヲ汚染シナイト云フ理由デアアル。

ロンドン郊外ニ在ルデューヂ五世療養所デハ患者ノ衣服戸棚ハ各病棟毎ニ1室ニ入レテアリ、ソノ戸棚ハ金屬性「チューブ」デ出來テテリ、内容ガ外カラ見エル、猶ソノ室ノ中央ニハ熱湯ヲ通

シタ「パイプ」ガアツテ濡レタ外套等ヲ乾カスニ
用キラレテキル。

以上ノ外ニ必要ナル室ハ次ノ如クデアル。

- 12. 附添人室
- 13. 氷室
- 14. 食器消毒室
- 15. 喀痰消毒室

16. 小洗濯室

17. 患者竝ニ職員便所

猶病室ヲ清潔ニスルタメニ内外ノ履物ヲ別ニスル
必要カラ病棟ノ入口ニ履物ヲ換ヘル場所ヲツ
クリ此所ニ履物箱ヲ置ク。

廊下 幅ハ獨逸デハ2.30「メートル」、米國デ
8呎以上ヲ標準トシテ居ル。

第八章 静臥用「ベランダ」ノ問題 *Véranda, Liegehalle, Cure Porch*

1. 「ベランダ」ノ位置

結核療養所ニ於テ如何ナル「ベランダ」ガ最モ適
當デアルカハ今日未ダ解決セラレザル難問題デ
アル。從來多クノ療養所ハ病室ノ採光、通風ヲ
顧慮シナイデ必ズ病室ノ前ニ「ベランダ」ヲツ
ツタ。瑞西ニ在ル大部分ノ療養所ヤ之ヲ真似タ
獨逸ノ療養所ガ多數此式ヲ採用シテ居ル。



ベルベターレ療養所(レーザン)

大體「ベランダ」ノ位置トシテハ次ノ三様式ガ考
ヘラレル。

- (1) 病室ノ前
- (2) 病棟ト分離シテ庭園内或ヒハ森林中ニ置ク
- (3) 病室ノ一翼或ヒハ兩翼

[1] 病室ノ前

殊ニ重症患者ニ對シテ便利デアルガ後ニアル病
室ノ採光、通風上ノ缺點ガ生ズル。之ヲ緩和ス
ル爲ニ病室ヤ「ベランダ」ノ幅ヲ狭クシタリ、或
ヒハ静臥用露臺 *Liegebalkon* ノ型ニシタリシ
タ、ダボスニ在ルチューリッヒ治療所 *Züricher*
Heilstätte ハ病室ノ前ニ「ベランダ」ヲツクリ同
時ニ病室ノ幅ヲ狭クシテアル。

病室ノ前ニ「ベランダ」ヲトツテ居ル代表的ノ新

シイ療養所ヲ舉グレバ柏林市立結核病院、ベー
リッツ治療所ノ結核病棟、ケンブリッヂ郊外ニ在
ルパッボース・セッツルメント内ノ療養所、或ヒハ
ニウーヨークノ近クニ在ルバレービュー療養所
等非常ニ澤山アル。殊ニ後者ノ如キハ廣イ「ベ
ランダ」ノ後ニ狭イ病室ガアリ、「ベランダ」ガ
主デ病室ハ附屬ノ感ガアル。1日ノ大部分ハ「ベ
ランダ」デ過シ、衣服ヲ更ヘル時等ニ病室ヲ利
用スル。



パッボース・セッツルメントニ於ケル結核病院
(男子部)

[2] 「ベランダ」ヲ病室ト別棟ニツクル場合
森ノ近ク等、静カナ處ニ置クト如何ニモヨササ
ウデアルガ、重症患者ヲ相當收容シテ居ル療養
所デハ往復ガ不便デアルシ、又監督上ノ缺陷モ
生ジ易イ、此式ハ新シイ療養所ニハナイガ柏林
市立結核病院ノ舊館ノ方ニ在ル。

[3] 病棟ノ翼ニツクル

之ハ一側ニ取ル場合ト、兩翼ニ取ル場合トガア

第6號】

春木=結核療養所建設ニ關スル諸問題

811

ル、獨逸ノホーエンクルーグ結核病院、ブラン
デンブルグ結核病院デハ各階ノ兩翼ニツク
リ、フランスノフランコンビル療養所デハ各階
ノ一側ニツクツテ居ル、猶前二療養所デハ「ペ

ランダ」ノ椅子ヲ二列ニ並ベテアル、之ハ幅ノ
廣イ短カイ「ペランダ」ヲツクル事ニナツテ建築
上カラモヨイ、ブランデンブルグ結核病院デハ
後列ノ椅子ヲ並ベル處ガ30輦高クナツテ居ル。



ブランデンブルグ結核病院(南面)



ブランデンブルグ結核病院南面「ペランダ」



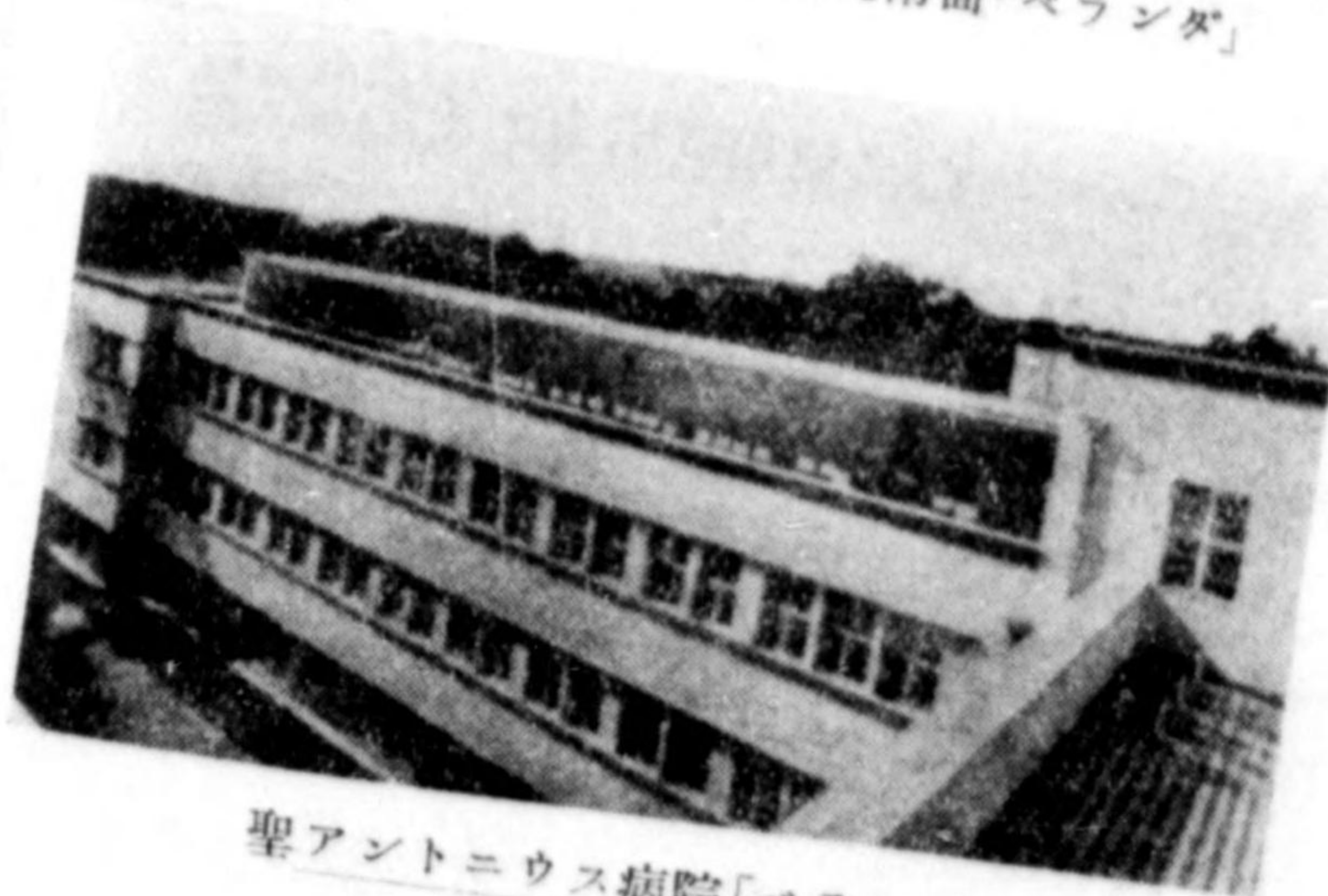
ホーエンクルーグ結核病院



ホーエンクルーグ結核病院南面「ペランダ」



ホーエンクルーグ結核病院南面「ペランダ」



聖アントニウス病院「ペランダ」

フランコンビル療養所長ドーブランシ。氏 Dr.

Dovrainche ノ「ベランダ」ニ關スル意見。

(1)「ベランダ」ヲ病室ノ前ニトル場合ニハ病室ノ幅モ、亦雨ノ吹き込ムノヲ防グ爲ニ「ベランダ」ノ幅モ各4米以上ヲ要スル、斯クスルトドウシテモ病室ガ暗クナリ、猶ソノ上ニ「ベランダ」ニ出テ居ル患者ノ動作ガ病狀ノタメ「ベランダ」ニ出ラレナイデ病室ニ残ツテ居ル患者ノ安靜ニ障碍ヲ與ヘル。

(2)病棟ト離シテツクルノハ、不便デアルシ又監督上カラモヨクナイ。

(3)病棟ノ翼ニトルノガ「ベランダ」トシテハ最も適當デアル、兩翼ニトルト一側ニツクル場合ニ比シテ監督上ニ倍ノ人員ヲ要スル故ニ、人件費ノ上カラ一側ニツクル方ガヨイ。

以上ガドウブランシェ氏ノ意見デアルガ、米國ノ病院建築ノ權威デニウヨーク市病院局長ヲシテ居ルゴールドウォーター氏 Dr. Goldwater, Commissioner of Department of Hospital, City of New York モ亦「ベランダ」ヲ病室ノ前ニトルト病室ノ採光ガ不十分ニナリ、又夏ハ暑クテ「ベランダ」ニ出ラレナイカラ、ヤハリ兩翼ニトル方ガヨイト云ツテ居タ。

2. 「ベランダ」ヲ硝子張ニスル事ニ就テ

Enclosing Porch with Glass

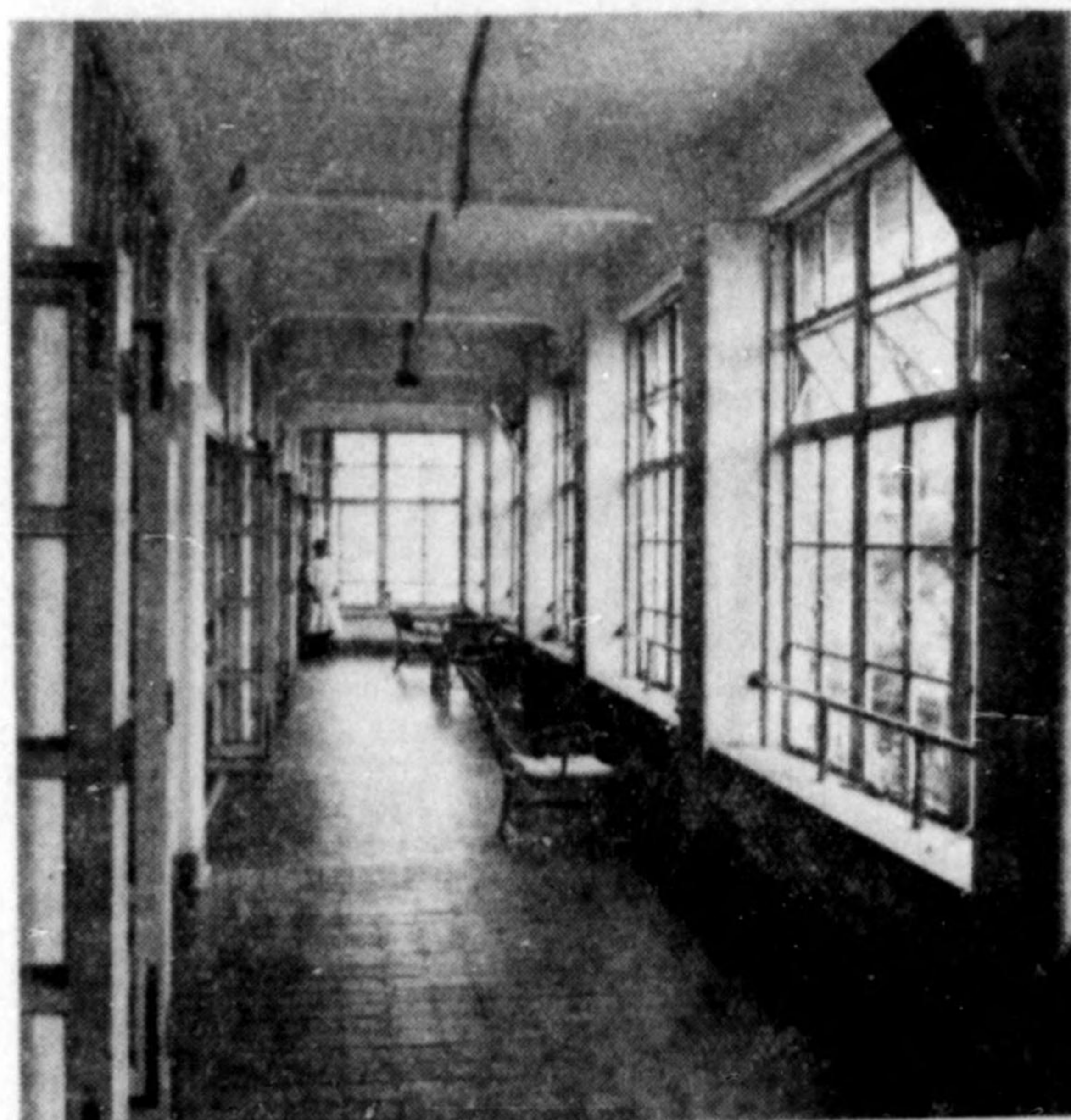
「ベランダ」ヲ「スクリーン」ニヨツテ蚊ヤ蠅カラ防グ事ハ以前カラ行ハレテ居タガ近年ニナツテカラ雨雪ノ降り込ムノヲ防グタメニ「ベランダ」ヲ硝子張ニスル事ガ問題ニナツタ。冬季雨雪ノ多イ地方デハ吹き曝シノ「ベランダ」デハ相當長イ時間「ベランダ」ノ使用ガ出来ナイ。之ヲ防グタメニ「カンバス・カーテン」ヲ使用シテ居ル處ガアルガ、「カーテン」ヲ用キルト此取扱ヒガ看護婦ニトツテ相當大キナ仕事ノ量ニナルシ、「カンバス」ハ2—3年毎ニ新調ノ必要モアリ、猶強風ノ際ニ「カンバス」ノ叩ク音が病人ニ焦燥ノ感ヲ起サセル。

カウ云フ爲ニ新シイ療養所デハ「ベランダ」ヲ硝子張ニスル事ガ行ハレル、窓ノ型ハ色々ニ工夫セラレルガ米國デハ Projecting or Awning

Type ガヨイトセラレテ居ル、風雨ノ時ニハ Awning Type ガ Sliding Sashes ヤ Casement Type Windowt ヨリ内部ニ對スル「ドラフト」ガ少イタメニ、長イ間開ケテオカレル利點ガアル。

欄間以上ニ在ル窓ノ開閉ハ患者ガ勝手ニ「コントロール」シナイヤウニスル、看護婦ガ一齊ニ開閉出来ルヤウニスレバ便利デアル、此處ノ硝子ハ特別ニ「カセドラル」硝子或ヒハ「フロレントイン」硝子 Cathedral or Florentine Glass ヲ用キテ居ル處モアル。

硝子張ニスル費用ハ「ベランダ」ノ幅ヲ狭クスル事ニヨツテ補フ事ガ出来ル。硝子張リヲシナイ「ベランダ」Open Porch デハ雨雪ヲ防グタメニ14—15呎ヲ要スルガ硝子張ノ「ベランダ」ナラバ9呎デ十分デアル。猶此深サナラバ「ベランダ」ノ後ニアル病室ノ採光、通風上ノ缺點モ或程度迄緩和スル事ガ出来ル。



硝子張「ベランダ」(東京市療養所)

3. 「ベランダ」ノ privacy ニ就テ

「ベランダ」ニ於テモ多人數一緒ニ居ルト云フ事ハ御互ヒニ心神ノ安靜ヲ妨ゲル場合ガ少クナイ。殊ニ氣質ノ合ハナイ患者同志ガ同ジ「ベランダ」ニ静臥スル時ハ之ガ甚ダシイ。ベール

ツ治療所ノ結核病棟デハ病室ノ前ニ長イ「ベランダ」ヲツクツタガ後カラ病室毎ニソノ前ニ壁 Screen ヲ設ケタ、米國ノバレービュー療養所ノ「ベランダ」モ同様デアアル。米國デハ此「ベランダ」ノ「スクリン」ノ高サヲ低クシ所謂 Sneez Screen ト云フ型ヲ考案シタ。之ハ臥位デ咳嗽ヲシテモ隣リノ患者ニ咳嗽飛沫ヲカケルコトハナイガ、「ベッド」ノ上ニ坐レバ周圍ヲ眺メタリ、或ハ隣リノ患者ト話ヲスル事ガ出來ル。「ベランダ」ノ「スクリン」ハ病人ノ望ム Privacy ナ目的トスルモノデアアルガ、其上ニ「スクリン」ニヨリ病牀ヲ近接セシメラレルカラ面積ヲ廣ク用キル事ガ出來ル。

ブランデンブルグ結核病院ハ「ベランダ」ノ構造ニツイテ非常ニ苦心シタ跡が見エルガ、此病院デハ兩翼ニ在ル大「ベランダ」、病室ノ前ニ在ル特殊「ベランダ」ノ外ニ病室ノ近クニ小「ベランダ」ガ設ケテアル。之ハ「ベランダ」ヲ幾ツカニ別ツ事ニヨツテ患者ノ Privacy ヲ保ツ事ガ出來ルタメデアアル。

4. 特殊「ベランダ」ニ就テ

(1) ドスケ式 System nach Dosquet

或ハドスケ室 Dosquet-Zimmer

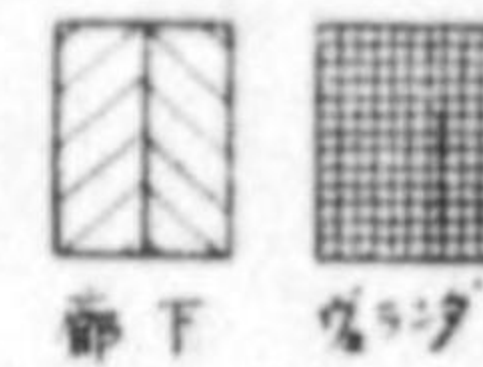
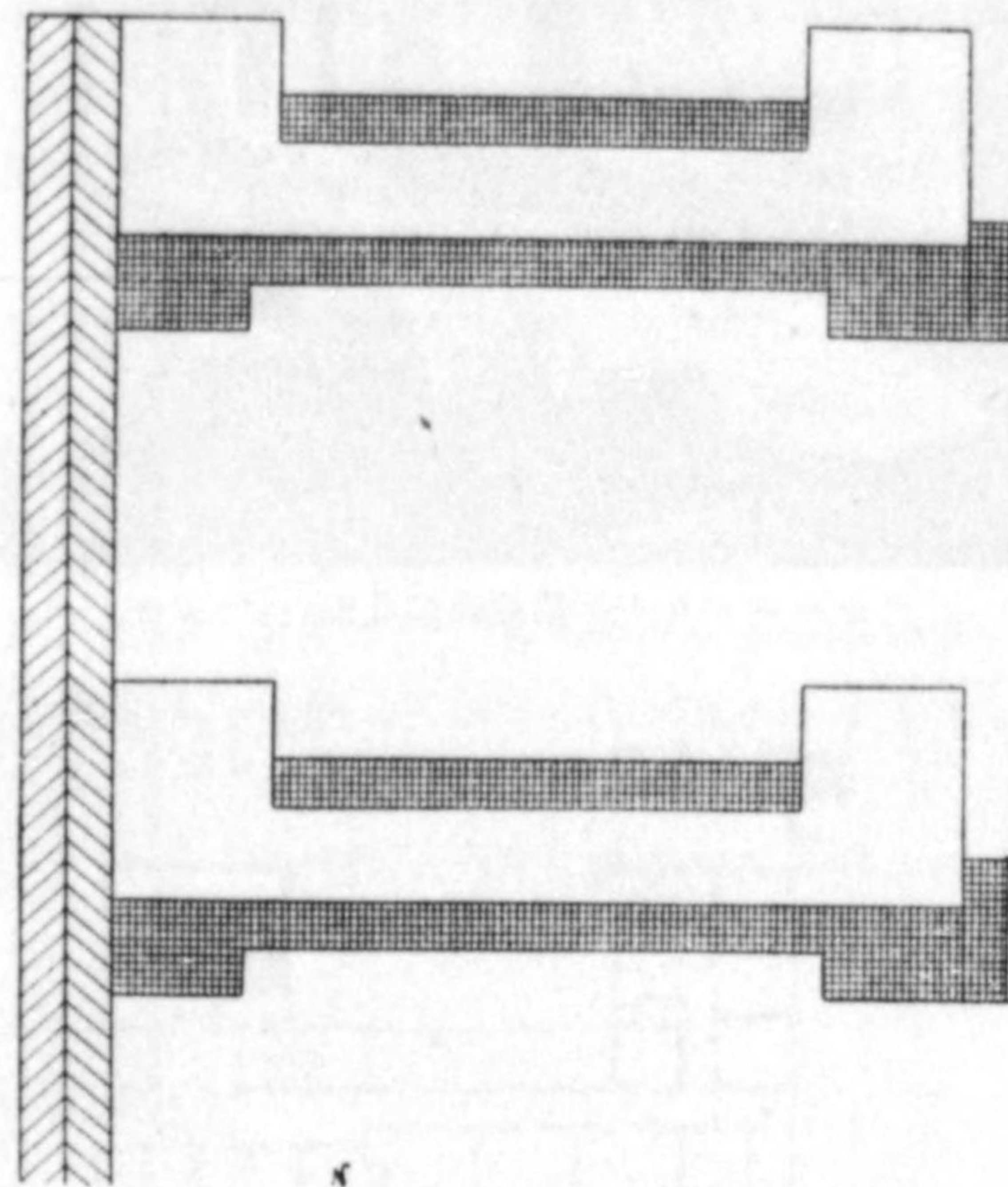
特別ニ「ベランダ」ヲツクラナイデ、病室ノ外面ヲ廣ク開ク構造デアアルガ、之デハ結核治療中重要ナ要素デアアル大氣療法ヲ十分ニ施行スル事ハ出來ナイ。結核患者ノ中ニハ凡テノ天候ノ下ニ大氣療法ヲナシ得ナイ者ガ澤山居ル。ドスケ室デハ是等ノ患者ノ病狀ノ相違ヲ顧慮シナイデ一様ナ大氣療法ヲスル事ニナル。故ニ或患者ニハ大氣療法ガ不十分デアルト同時ニ他ノ患者ニ對シテハ刺戟ガ強過ギル事ニナル。隨ツテドスケ室ニ於ケル大氣療法ハ「ベランダ」ニ於ケル大氣療法ト同價値デハナイ。

此ドスケ室ヲ以テ「ベランダ」ニ換ヘル事ハ伯林市立結核病院長ウルリッヂー氏並ニプロイニング氏等ノ權威者ガ反對シテ居ル。

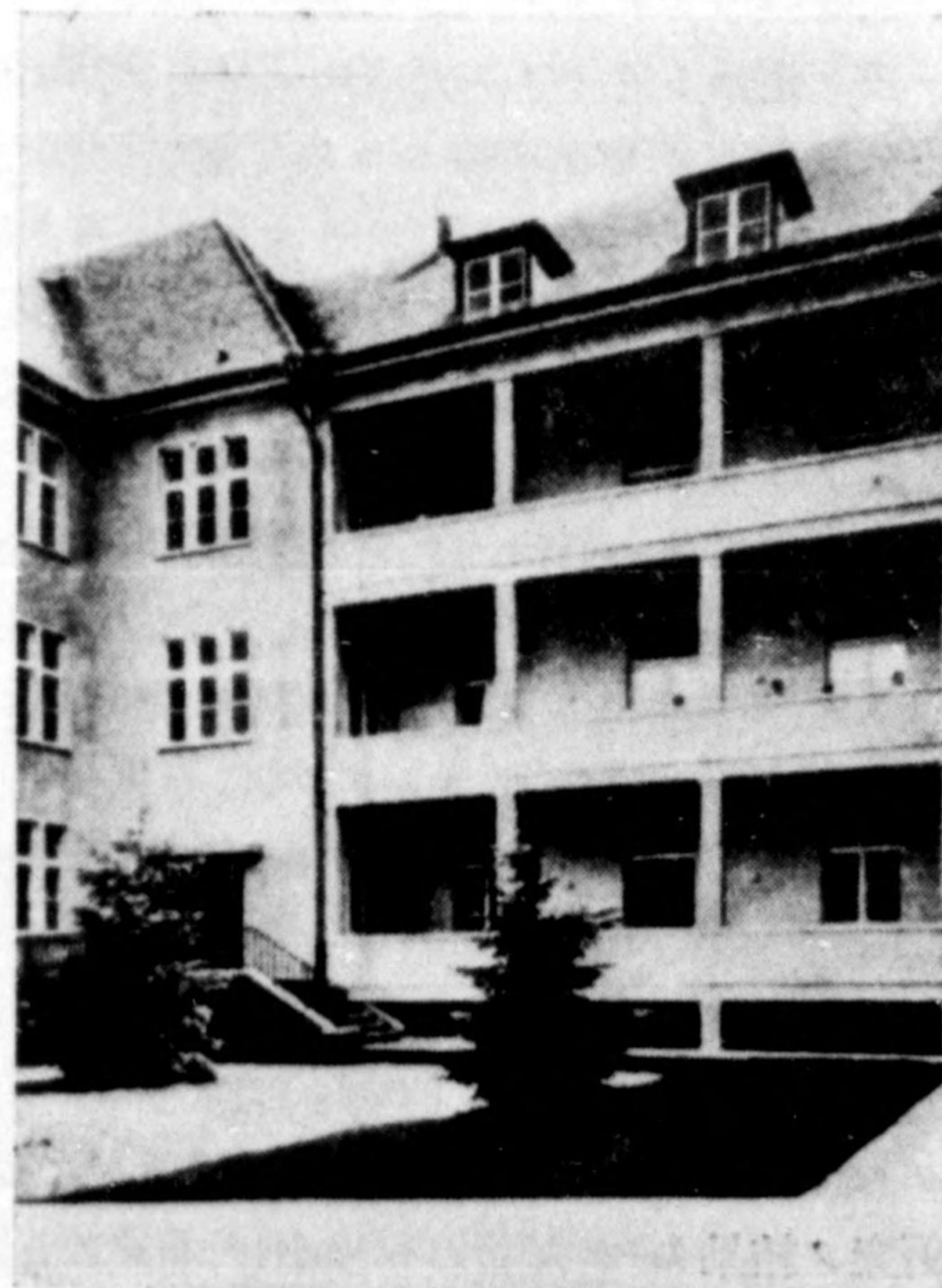
(2) 北面ノ「ベランダ」

夏向キノ「ベランダ」トシテ適當デアアル許リデナ

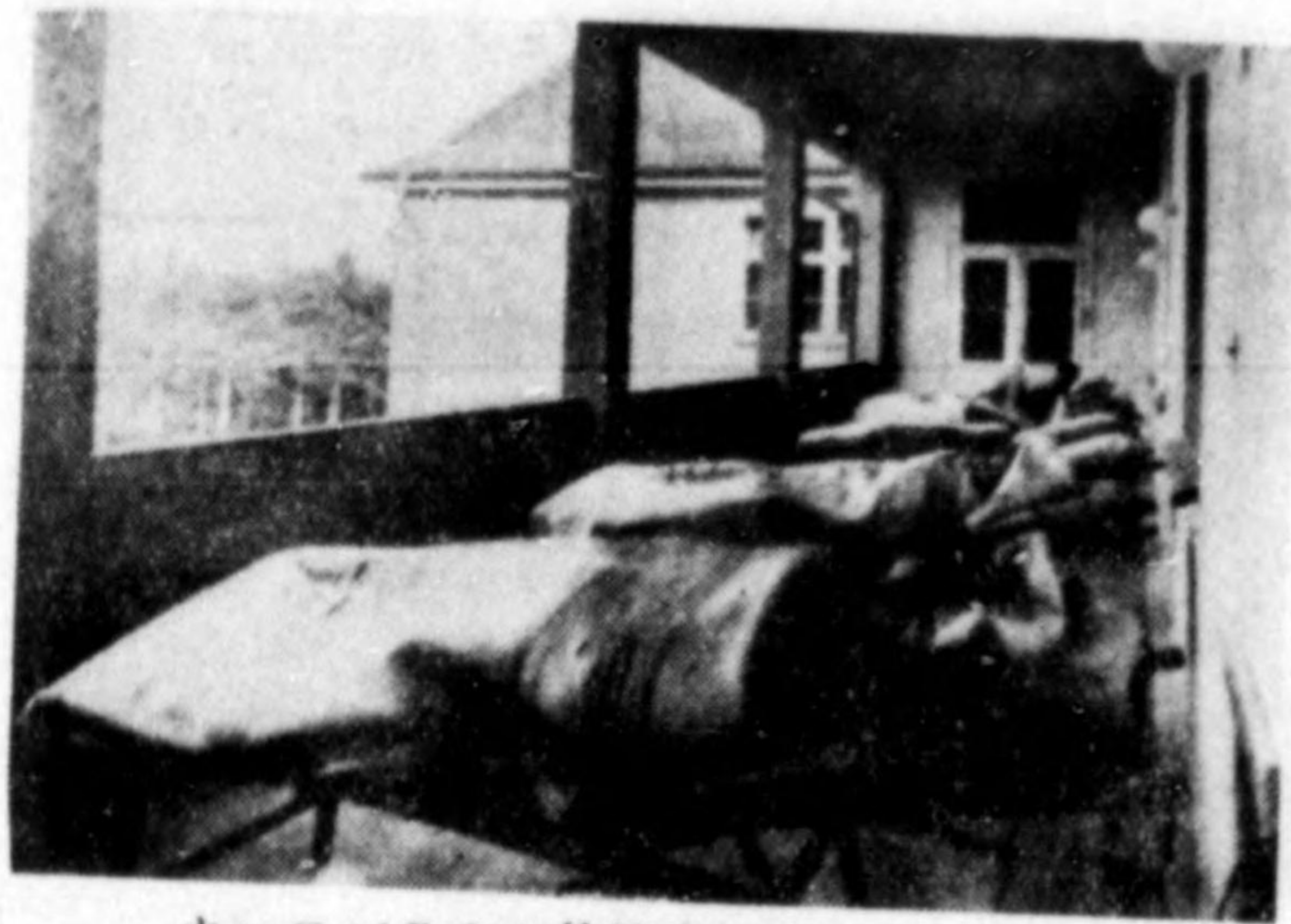
ク熱、光線ニ敏感ナ患者或ヒハ特ニ安靜ヲ要スル病人ニ適當デアアル、北面「ベランダ」ハウルリッ



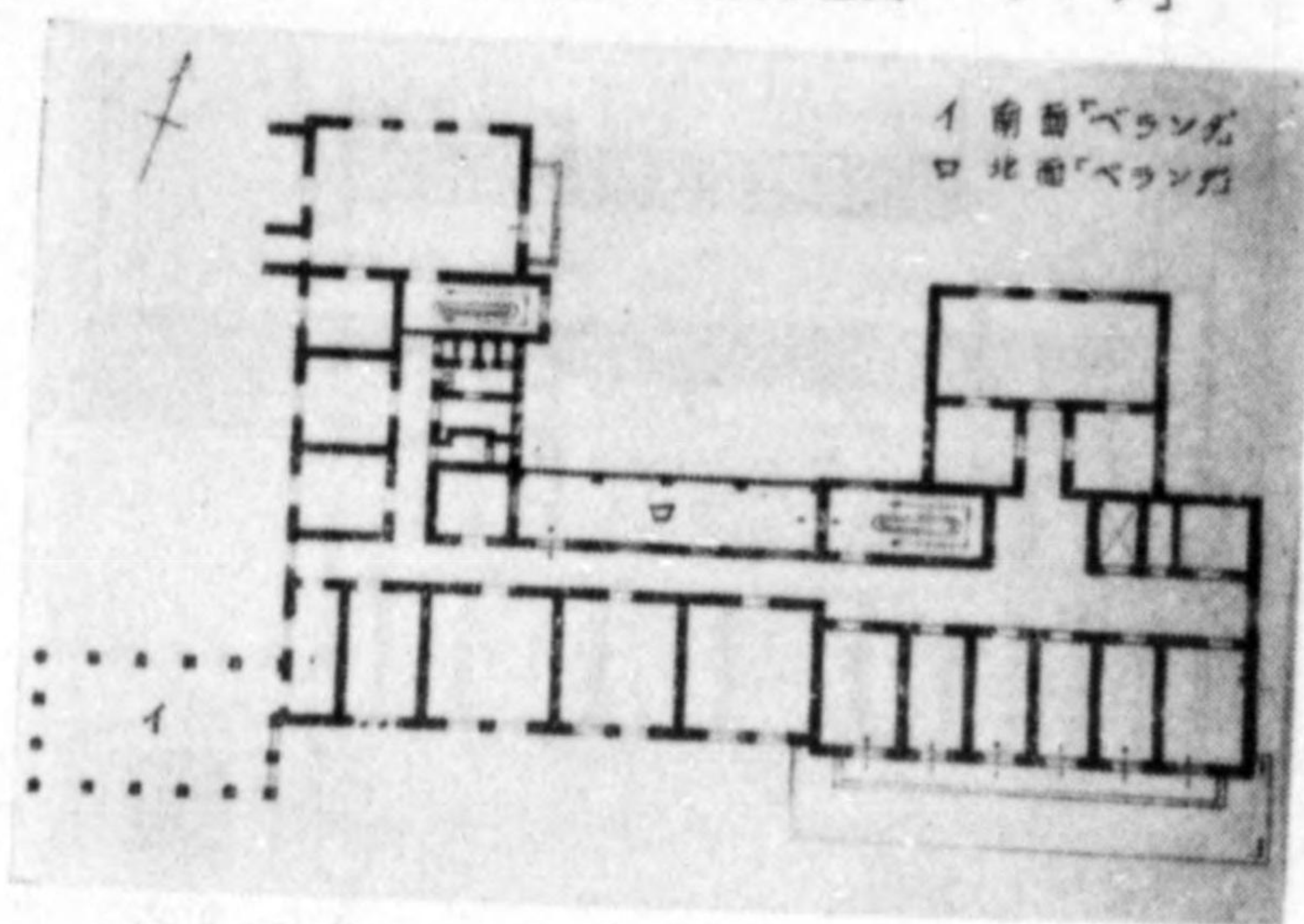
伯林市立結核病院ニ於ケル南面及北面「ベランダ」



ホーエンクルーグ結核病院北面「ベランダ」



ホーエンクルーグ結核病院北面「ベランダ」



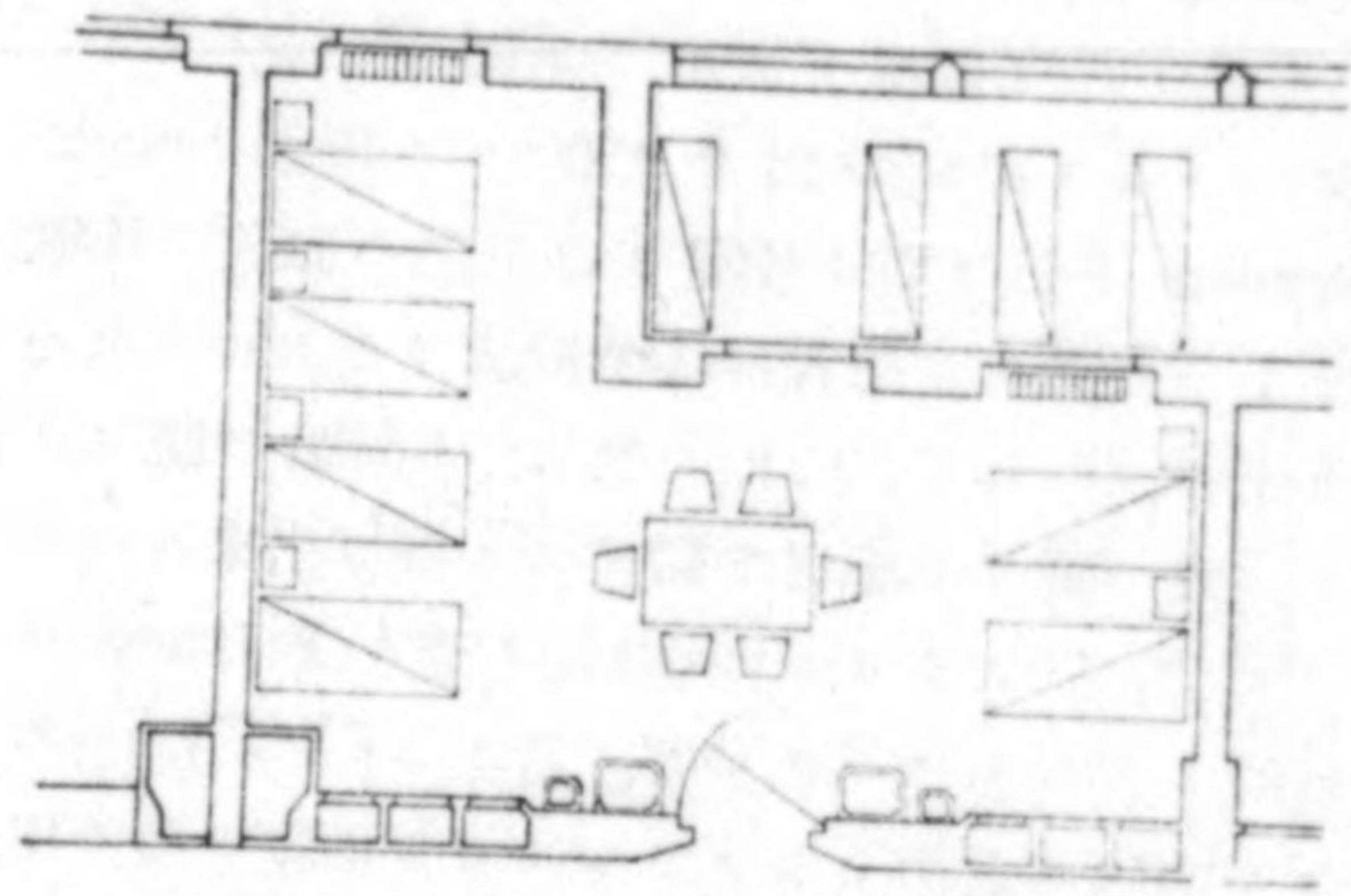
ホーエンクルーグ結核病院ニ於ケル南面及北面「ベランダ」

チ一氏ノ創始シタモノト云ハレルダケアツテ伯林市結核病院ノ新築病棟ニハ南北兩面ニ「ベランダ」ガツクツテアル。又ホーエンクルーグ結核病院モ北面「ベランダ」ヲ有シテ居ル。北面「ベランダ」ノ構造上ノ注意トシテ其内側ニ在ル廊下ヲ暗クシナイ爲ニ幅ヲ狭クシ、臥椅子ハ一列トシ天井ニハ特ニ明ルイ塗料ヲ用キルヤウニス可キデアル。

(3) ブランデンブルグ結核病院ニ於ケル特殊「ベランダ」

ブランデンブルグ結核病院ノ新築設計ニ當ツテ、「ベランダ」ニ關シテハ特ニ研究ヲセラレタ。即チ病室ニ採光、通風上ノ障碍ヲ起サナイデ而モ重症患者ノタメニ病室ト接續シタ「ベランダ」ヲ如何ニシテツクルカト云フ問題デアル。此研究ノ結果1-4人室デハ出來ナイガ6人室デハ之ガ可能デアルト云フ結論ニ達シタ、然シ

重症患者6人ヲ一室ニ入レル事ハ不適當デアルト云ハレテ居ル故ニ病牀ノ置キ方ヲ次ノ如クシテ此缺點ヲ補ツタ。



ブランデンブルグ結核病院ニ於ケル6人病室及同病室附屬「ベランダ」



ブランデンブルグ結核病院6人室附屬「ベランダ」

猶此6人室「ベランダ」ハ一般「ベランダ」ト同價値デアルヤ否ヤ、即チ空氣ノ沈滞ハナイカ、或ヒハ溫度ガ上昇シテ敏感ナル患者ニ障碍ヲ與ヘハシナイカト云フ點デアルガ、是等ニ關シテハ天候及ビ日光ニ對スル適當ナル庇護竝ニ通風ニ就イテ特別ノ構造ガ考慮セラレテアル、又「ベランダ」ノ腰壁ヲ普通ノ不透過性ノモノニスルト患者ノ氣持ノ上カラ云ツテモ不愉快デアルシ又患

者ノ横臥シテ居ル空氣層ニ空氣ノ沈滞ヲ來ス。若シ腰壁ヲ取り去ルト通氣(Draft, Zug)ヲ感じ或ハ二階以上ノ「ベランダ」デハ病人ニヨツテハ眩暈ヲ感ズル。是等ノ缺點ヲ除去スル爲ニ腰壁ヲ簡易ニ開閉出來ルヤウニシテアル、更ニ日光、風雨ヲ遮蔽スルタメニ特別ノ「スクリン」ガ工夫セラレタ。之ハ木製半透明デ而モ空氣ヲ通ス物質デツクラレテアル。

5. 「ベランダ」構造上ニ、三ノ注意

「ベランダ」ノ南面ハ廣ク開放セラレテ居ルガ、北方ニモ窓ヲ設ケテ此開閉ニヨツテ通風ヲ制御スルヤウニスル。「ベランダ」ハ凡テノ患者ガ隨時利用シ得ルヤウニシナケレバナラナイ、故ニ人工照明ヲ十分ニ設備スル必要ガアル。「ベランダ」ノ臥椅子ノ數ハ獨逸ノ結核病院デハ

其療養所ノ病牀ト同數、米國ノ結核協會デハ60%ヲ必要デアルトシテ居ルガ、東京市療養所ノ現状カラ計算スルト1,170牀ニ對シテ約470(40%)ヲ要スル、此計算ハ安靜度第4、第5ノ全數、及ビ第3ノ半數ノ和デアル、北側ノ「ベランダ」ノ大キサハ補助的ノモノデ一定ノ標準ハナイ。

(註) 東京市療養所ニ於ケル患者分類法

- 第一安靜 絕對安靜
- 第二安靜 「ベッド」上ニ坐シ得ル者
- 第三安靜 便所ニ行ク事ヲ許可セラレタル者
- 第四安靜 食堂、慰安室ニ行ク事ヲ許可セラレタル者
- 第五安靜 戶外散歩、職業療法ヲナシ得ル者

第九章 醫療部

近年結核ノ診斷及治療ノ方法ガ著シク擴大セラレタタメニ之等ニ要スル室ノ數モ多クナツタ、之等ノ室(診察室、「レントゲン」室、手術室、研究室等)ハ出來ルダケ近接セシメテ造ラナレバナラナイ。

1. 診察室

廣クツクツテ醫長ガ此處デ醫員ト共ニ重要ナ或ハ診斷困難ナル患者ノ診察ヲナス、此室ニハ大ナル「レントゲン」觀察裝置ヲ設備スル、此「レントゲン」觀察裝置ニハ2種類アツテ一ツハ「フィルム」ヲ觀察スルモノ、一ツハ「レントゲン、ペーパー」ヲ見ルモノデアル、前者ハ透過光線ヲ以テシ、後者ハ反射光線ヲ用キル。診察室ノ上下隣ニハ騒音ヲオコス室ヲ置イテハナラナイ。其壁及ビ戸ハ防音ノモノヲ用キル、此大診察室ノ外ニ醫員ハ各自ノ病棟ニ小診察室ヲ有シテ居ルワケデアル。

2. 圖書室

單ニ結核専門ノ文獻ノミナラズ一般醫學ノ文獻ガ必要デアル。

3. 手術室

近年ニ於ケル肺結核治療ハ外科的方面ニ於テ大ナル進歩ヲナシ歐米ニ於テハ療養所ノ外科ニ屬スル領域ハ著シク擴大セラレタ。故ニ結核療養所ノ手術室ハ完備セルモノヲツクリ猶ソノ上ニ特殊設備ヲ必要トスル。

特殊設備ト云フノハ必要ニ應ジ電氣機構ニヨツテ直チニ暗室トナシ得ル手術室デアル。之ヲ胸腔鏡室 Endoskopieraum ト稱シテ居ル。之ハ人工氣胸療法ノ大ナル障礙ヲナス癒著ヲ電氣燒灼ニヨツテ切斷スルタメニ胸腔鏡 Thorakoskop ノ使用ヲ便ニスルタメデアル、カ、ル手術室ハ一面及ビ天井ハ硝子張ニナリ、電釦一觸天井カラ錠戸ガ下リテ手術室ヲ暗黒化スルコトガ出來ル、手術室ノ中ニハ「レントゲン」寫真觀察裝置ガ必要デアルガ、之ハ器具トシテ室内ニ置イテアル處モアルシ、伯林市立結核病院ノ手術室ノ如ク壁ノ中ニ入レ込メアル處モアル。立體寫真觀察裝置ヲ備ヘツケレバ更ニ手術上便利デアル。

無菌手術室ト有菌手術室 Aseptischer und septischer Operationssal トノ分離。

膿胸等ノ手術ヲスル場所ト無菌的手術ヲスル室トヲ分離シテ居ル病院モアル。ペーリッツ治療所デハ嚴格ニ別ケテ居ル。然シ結核療養所デハ之ヲ一緒ニシテ居ル方が多イ。手術室内ノ壁ノ色ハ大部分ノ病院デハ「ウルトラマリン」色デアル。

手術室内ニ完全ナ暖房装置ノ必要ナル事ハ申ス迄モナイ。

4. 「レントゲン」室

大療養所デハ「レントゲン」器械ガ澤山アレバ便利デアル。獨逸ノホーエンクルーグ結核病院ハ270ノ病牀ヲ有シテ居ルガ、中央ノ大容量「レントゲン」器械ノ外ニ男女各病棟ニ一ツ宛ノ透視用ノ「レントゲン」器械ヲ備ヘテ居ル。

「レントゲン」室ヲ建設セントスル時ハ隣接セル室(上、下ヲモ含ム)ニ對スル放射線ノ透視ニ對シテ十分ナル注意ヲ拂ハナケレバナラナイ事ハ勿論デアルガ、其外患者等ノ出入ニ際シテ「レントゲン」室ニ射入スル光ニヨツテ暗黒ニ馴レタル醫師ノ眼ヲ眩感セザルヤウ設計シナケレバナラナイ。

ブランデンブルグ結核病院デハ「レントゲン」室ノ患者待合室モ赤イ「カーテン」ヲ掛ケテ薄暗クシテアル。之ハ暗黒ナ「レントゲン」室ニ入ル前ニ患者ノ眼ヲモ馴ラス事ト、今一ツハ待合室、「レントゲン」室間ノ「ドア」ヲ開ケタ際ニ光ガ「レントゲン」室ニ射入シナイタメデアル。「レントゲン」室内ニ於テハ患者ヲ半裸體ニスル故ニ冬期ニハ暖房設備ガ必要デアル。

「レントゲン」室内ニハ患者ガ多數出入シ、暗黒裡ニ作業スルコトガ多イ、故ニ、同室ヲ使用シナイ時ハ開放シテ日光ヲ照射セシメタ方がヨイ。

猶「レントゲン」室ノ換氣、乾燥ニ就イテモ特ニ注意ヲ要スル故ニ設計ニ當ツテハ是等ノ點ヲ充分ニ考慮ニ入レナケレバナラナイ。以前ニハ「レントゲン」室ノ内部ハ黒イ塗料ヲ用ヒタガ今日デハソノ必要ハナク、寧ロ明ルイ色彩ノ方がヨイ。

寫真室(暗室)

「レントゲン」室ニ近接シタコロニツクル、換氣ヲ注意シナケレバナラナイ。冬期現像液等ノ溫度下降ヲ防グタメニ、暖房装置ヲ必要トスル。

5. 日光浴室及空氣浴室

從來我國ノ公立療養所ハ肺及喉頭結核患者ノミヲ收容スル事ニナツテ居ツタ、外科的結核ガ合併セルモノモ入院スルガ肺結核ノ病症ガ進行シテ居ルモノガ大部分ヲ占メテ居リ、日光浴ヲナス適應症ガ非常ニ少ナカツタ。處ガ昭和12年ニ改正セラレタ結核豫防法ニヨルト公立結核療養所ニ收容セルル可キ患者ハ傳染ノ危險アル凡テノ器官ノ結核ニ擴大セラレタタメニ外科的結核デ肺ノ病竈ナキカ、或ヒハ之ガ極メテ輕微ナル者ノ入院モ増加スルモノト見ナケレバナラナイ、從テ日光浴室ノ必要性ハ從前ニ比シテ著ク増加シタ。

ブランデンブルグ結核病院ノ日光浴室竝ニ空氣浴室ハ「ベランダ」ノ屋上ニ東向キニツクリ。前面ハ開放サレテ居ルガ兩側ハ紫外線透過硝子 Ultravitrilas ヲ用キテアル。



ブランデンブルグ結核病院ニ於ケル
日光及ビ空氣浴室

此日光浴室ハ骨結核、關節結核ノ患者ニ使用シ、同時ニ看護婦ノ靜臥及ビ其屋上庭園トシテ利用セラレテ居ル。

伯林郊外ニ在ル聖アントニウス病院デハ屋上ノ南側ニ「ベランダ」ヲツクリ「ベランダ」ノ背面即

チ北側ニ無蓋ノ空氣浴場ヲツクツテアル。
ダボスニ在ルチューリッヒ市立治療所ノ外科病棟
ニハ兩翼ニ外面全部紫外線透過硝子ヲ張ツタ立
派ナ日光浴室ヲツクリ、風雨ノ際窓ヲ全部閉鎖
シタ場合ニモ人工的の通風ニヨツテ室内ノ空氣ガ
清淨ニ保タレルヤウニナツテ居ル。

米國デハ日光浴室及ビ空氣浴室ハ屋上ニツクラ
レ日光浴室ハ無蓋デア、新式ノ療養所デハ各
階ニ無蓋ノ「テレース」Open Terrace ヲツクツ
テ之ニ用キル。

米國最新式ノ結核病院デア、ハドソン・カウン
チー結核病院ハソノ例デ各階ニ天井ノアル空氣
浴室、之ニ續イテ無蓋ノ日光浴室ガツクラレテ
アル。日光浴及空氣浴ヲスル時患者ハ裸デア
カラ周圍カラ見エナイヤウニ又嚴格ニ男女別ニ
シナケレバナラナイ。

近年ニ至ツテ青空或ハ白雲ヨリ反射セラレル光
ノ中ニ多量ノ紫外線ガ含マレテ居ル事ガ治療上
ノ問題ニナリ、之ヲ Skyshine, Cloudshine,

Himmellicht, Schattenlicht ト稱セラレ、北側
或ハ蔭ニナツテ居ル屋上或ハ「バルコニー」ヲ此
光線療法ニ用キテ居ル療養所モアル。此青空光
線療法 Skyshinetherapy ハ夏期高温度ノタメ
ニ日光浴ノ困難ナル季節ニ天然紫外線療法トシ
テ行ヘバ非常ニ適切デアルト思フ。

又日光浴ノ後デ入浴ヲスルトヨイト云フ説モア
ルタメニ日光浴湯ニ隣接シテ浴室ヲ設ケテアル
處モアル。

6. 人工光線療法室

主トシテ冬期寒冷ノタメニ外ニ出ラレナイ時ト
カ曇天、雨天ノ際ニ用キルカラ換氣ヲ注意シナ
ケレバナラナイ。場所ハ何處デモ便利ナ處ナレ
バヨイガ、米國デハ屋上デ日光浴場ニ近接シテ
ツクツテアルモノガ多イ。獨逸ノ新式ノホーエ
ンクルーグ結核病院デハ反對ニ地下室ニ設ケテ
アル。

其外醫療部ニハ耳鼻咽喉科、婦人科、齒科、眼
科ニ對スル診療室ガ必要デア、

第十章 慰安室及職業療法室

新式ノ療養所ニハ慰安室及職業療法室ガ設備シ
テアル。

1. 慰安室

一定ノ慰安、娛樂ハ結核患者ノ精神生活上ノ重
要ナ糧デア。慰安室ハ患者ノ集合ニ便利ナ位
置ニツクリ、宗教的集會、「コンサート」、映畫
等ニ適スルヤウニ設計スル。慰安室ノ設計ニ宗
教的表現ヲ加味スルナラバ或特定宗教ニ限ラレ
ナイヤウニシナケレバナラナイ。公立療養所ニ
ハ各宗教ノ患者ガ入院シテ居ルカラデア。米
國ガ其最新式ヲ誇ル ハドソン・カウンチー 結核
病院內ノ禮拜堂ハ新教、舊教共通ノ「デザイン」
ガ施シテアル。

慰安室ノ大キサニ就イテハ米國ノ結核協會デハ
患者ノ全部並ビニ療養所員ノ半數ガ一時ニ出ラ
レル設備ヲ必要トスルト云ツテ居ルガ、東京市
療養所デハ重症患者ガ多イタメニ收容人員ノ

1/3、所員數ノ 1/4 ノ席ヲ準備スレバ足リル。

2. 「ラヂオ」ノ問題

「ラヂオ」ノ普及ハ慢性ノ永イ経過ヲ辿ル病人ノ
生活ニ大ナル慰安ヲ與ヘルヤウニナツタ。然シ
大病室ニ於テ「ラウドスピーカー」ニヨツテ病人
ニ一齊ニ聽カスト云フ事ハ餘程考慮ス可キ問題
デア。之ハ聽キタクナイ「ラヂオ」ガ耳ニ入ル
ト云フ事ハ安靜ヲ欲求スル病人ニトツテ一苦
痛デア、カラデア。故ニ歐米ノ結核療養所デ
ハ病室デハ決シテ「ラウドスピーカー」ヲ用キナ
イ。各病牀ニ（「ベランダ」ニ於テスラ）挿込開閉
器 consent plug ガツケテアツテ患者ハ之カラ
「レシーバー」ニヨツテ他人ニ何等ノ障碍ヲ與
ヘナイデ聽ク事ガ出來ルヤウニナツテ居ル。猶
「レシーバー」ヲ用キテ居ルト病人同志ガ「ベラ
ンダ」等デ不必要ナ事ヲ話シ合ハナイ利點モア
ル。

3. 職業療法室

一般療養所ニ於テ行フ職業療法ハ恢復期患者ニ對シテ職業復歸ノ基礎ヲツクルト云フ意味モアルガ、其主要目的トスル處ハ單調ナル療養所生活ニヨル精神の空虚ヲ充スタメト、生産ヲ伴フ適當ナ運動ガ心身ニ齎ス好影響竝ニ自分ガ癱疾者デナイト云フ自信ヲ與ヘルタメデアル、生産ソノモノガ目的デナイ故ニ大規模ノ必要ハナイ。

英國ノキングヂ、一チ五世療養所 King George V Sanatorium デハ職業療法室ガ二棟ア

リ、一ツハ木工、一ツハ鞍細工ノタメニ使用セラレテ居ル。

ロンドン郊外ノハイウッド病院 Highwood Hospital ハ小兒肺結核病院デアアルガ職業療法室ハ慰安室ニ近接シ木工、陶器等ヲツクツテ居ル、又恢復シタ小兒ノツクツタ「バラック」モアル。

ニウヨークノ近クニ在ルバレービュー療養所 Valley View Sanatorium ノ同室ハ地階ニツクラレテアル。然シ此場合ニハ採光通風ヲ設計上餘程考慮シナケレバナラナイ。

第十一章 食餌調理室

食餌調理ノ組織ハ病院ノ大キサ、病牀數竝ニ病人ノ種類ニヨツテ異ル。

500牀以上ヲ有スル病院デハ中央料理室ニ於テ基礎食餌ヲツクリ、之ヲ各病棟料理室 Stationsküche ニ於テ各病人食ニ適合スルヤウニ調理スル組織ガヨイトセラレテ居ル、之ハ病棟料理室ノ料理人ガ病人ト絶エズ接觸シテ居ルタメニ自分ノツクツタ食餌ガ病人ニ満足ヲ與ヘルカ否カ、或ハ如何ナル影響ヲ病人ニ及ボスカト云フ事ガワカツテ、非常ニヨイ、然シ此組織デハ各病棟ニ小サイナガラ整備シタ料理室ヲツクルタメニ相當ノ設備費ガカ、ル事ト、料理人ノ數モ多クナルト云フ缺點ガアル、故ニ料理ノ種類ガ大體ニ於テ一定シテ居ル結核療養所デハ中央料理室ノ一部ニ特殊食餌調理室ヲ設ケ病棟料理室ハ加熱、保温、食餌ノ分配ト多少ノ料理ガ出來ル程度ニ設備シテモヨイ、但シ此場合ニハ料理人ガ病人ト接觸シナイカラ料理主任ハ出來ルダケ病室ヲ訪レテ料理ノ結果ヲ觀察シナケレバナラナイ。

中央調理所ハ熱料理室 Koch-od. Warmeküche 冷料理室 Kalte Küche、及洗滌室 Spülküche ニ別チ之ヲ熱料理室ヲ中央ニシテ一列ニ配置シ、各室トモニ通風採光ヲ十分ニスル、此外ニ特殊食餌料理室 Küche für Sonderkostformen

ヲ設ケル。

料理用竈ハ各面ヨリ使用スルタメニ室ノ中央部ニ置ク可ベデ小ニ過ギテモ不便デアアルシ、又大キ過ギテモ熱ノ利用率ガ悪イ、冷熱兩水道ハ直接ニ竈ニ使用セラレルヤウニスル。

重湯煎 Wasserbad ハ出來上ツタ食餌ヲ保温スルタメニ必要デアアル。熱ヤ蒸氣ヲ發散スル處ノ上ニハ之ヲ「カバー」スル排氣管ヲツケル。

料理臺ハ瀬戸、煉瓦、或ハ大理石ヲ張ツタモノガ適當デアアル。粉ヲ煉ツタリ、丸メタリスルニヨイシ又清潔ニシ易イ。

蒸氣釜ハ二重壁及二重底ノモノヲ用キル。冷料理室ハ熱料理室ニ比シテ餘程狭クシテ十分デアアル。此中ニハ作業机、分配用机ノ外ニ冷蔵庫及「パン」貯藏庫ヲ置ク。

洗滌室、一區劃或ハ二區劃ニセル野菜洗滌槽及ビ三區劃ノ大洗滌槽ヲ設備ス。食器ヲ置ク戸棚ハ洗滌室内ニ置ク方ガ便利デアアル。

各室ニハ水道口ヲ備ヘタ水槽及ビ自働秤ヲ置ク。

食餌運搬器ハ厚イ木箱ノ中ヲ4—5ニ區分シ此中ニ瀬戸引キノ或ハ瀬戸物ノ皿ヲ入レタモノガ便利デアアル。

伯林郊外カルルスホルスト Karlahorst ニ在ル聖アントニウス病院 St. Antonius Krankenh-



聖アントニウス病院ニ於ケル熱料理室

aus ハ無鹽食餌療法デ有名ナヘルマンズドル
フル教授 Prof. Herrmannsdorfer ガ院長デ

食餌療法ヲ標榜シテ居ルダケアツテ其料理室ハ
中々立派デアツテ大料理室(熱料理室)、特殊食
料室、冷料理室及ビ洗滌室ヨリナツテ居ル。

食品貯藏室

獨逸、スウヰス等ノ療養所デハ大キナ食品貯藏
室ヲ有シテ居ルモノガ多イ。食品ノ種類ニヨツ
テ貯藏室ノ溫度ガ異ツテ居ル。野菜ノ貯藏ニハ
特別ニ溫度ヲ下ゲナイデ新鮮ナ空氣ノ流通ヲヨ
クシテアル處ガ多イ、スウヰスノチューリッヒ治
療所ノ馬鈴薯貯藏所ハ上カラ新シイ馬鈴薯ヲ入
レテ下カラ古イノヲ出スヤウニナツテ居ルノモ
面白イ。

第十二章 看護婦寄宿舍

新式ノ療養所デ看護婦寄宿舍ガ病棟ト同ジ建築
物内ニ在ルモノガアル。獨逸ノブランデンブル
グ結核病院 Das Brandenburgische Tuberku-
losekrankenhaus デハ第4階ガ寄宿舍ニナツテ
居ルガ、出入ハ特別ノ階段昇降機ニヨツテ病室
区域内ヲ通ラナイヤウニナツテ居ル。

又米國ノハドソン結核病院 Hudson County
Tuberculosis Hospital デハ第2地階ガ看護婦
寄宿舍ニアテラレテキル。是等ノ病院デハ巧ミ
ナル建築法ニヨリ病人ト同一建築物中ニ在ツテ
モ全ク職場ト隔離セラレタ氣分ニナルヤウニ出
來テ居ル、然シ一般的ニ云ヘバ病棟ト別ニナツ
テ居テ一定距離ヲ隔テ、病棟ノ區域外ニ置イタ
方ガヨイ。此處デ看護婦ハ勤務ヨリ全ク解放セ
ラレタ氣分ニナリ、其疲勞カラ容易ニ恢復シ得
ラレルカラデアル。又看護婦ノ種々ナル娛樂ガ
患者ノ妨害ニナラナイタメニ、又其出入ノ際病
棟附近ヲ通過シナイタメニ療養所ノ門ノ近クニ
置ク方ガ便利デアル。

寄宿舍設計ノ主眼トスルトコロハ家庭的氣分ヲ
醸スヤウニスル事デアル。相當ノ廣サヲ有スル
談話室ノ外應接室ガ必要デアル。應接室ハ大キ
ナ一室ヲツクルヨリ、二ツノ小應接室ヲツクツ



ブランデンブルグ結核病院ニ於ケル

看護婦寄宿舍廊下

(天井ヲ教會型ニシテ屋根裏ノ感ヅヲナクス)

タガヨイ。其他ニ食堂、料理室、洗濯場等ガ

必要デアル。

看護婦ノ居室ノ大キサハ獨逸デハ個人室ハ16—20平方「メートル」、共同室デハ一牀ニ就テ8—10平方「メートル」トセラレテ居ル。

私ガ見タ歐米ノ結核療養所ノ中デ看護婦寄宿舍

トシテ最モ設備ノヨイト思ツタノハ米國ノハドソン結核病院 Hudson County Tuberculosis Hospital デ婦長ハ數室ヲ有シテ居ルガ、普通ノ看護婦デスラ1人1室デ2人ニ一ツ宛ノ浴室ヲ有シテ居ル。

第十三章 暖房設備

經濟的關係ヲ詳細ニ調査シタ上ニ設計シナケレバナラナイ。最近ノ研究ニヨツテ、コレマデ一般ニ用ヒラレテ居タ高壓蒸氣暖房裝置ハ高壓熱水暖房裝置ニ置キ換ヘラレルヤウニナツタ。猶熱「エネルギー」ノ損失ヲ少クスルタメニ閉塞式循環系統トスル。獨逸ニ於テモホーエンクルグ

結核病院Hohenkrug Tuberkulose Krankenhaus、ベーリッツ治療所 Beelitz-Heilstätte 等新式ノ病院ニ於テノミ採用シテ居ル。然シ本邦ニ於テ今後ツクラレントスル散在式木造療養所ニ於テ此方法ガ適スルヤ否ヤハ再吟味ノ必要ガアル。

第十四章 研究室

生理、化學、病理、血清、細菌ノ各室及ビ動力室、天秤室、培養室、培養基製造室、動物解剖室等ヲ具備シナケレバナラナイ。研究室ニハ「ガス」、電氣、動力、蒸氣ヲ供給スル。

研究室ニハ火災ノ原因トナル可キモノガ多イカラ夜間當直室ヲ設クル必要ガアル。

以上ノ外、中央消毒室、水道、下水、氣罐室等ノ設置ノ必要アル事ハ謂フマデモナイ。

附 アメリカ療養所協會ノ結核療養所評價方式

アメリカ療養所協會 American Sanatorium Association 及ビアメリカ結核協會 National Tuberculosis Association デハ結核療養所ヲ評價スル標準トシテ次ノ112項目ヲ舉ゲテ居ル。

1. 位置

1. 療養所ハ交通ガ便利デナクテハナラナイ(之ハ相當重症ナル患者ヲ收容スル療養所ニ對シテノミデアル)。

2. 療養所ハ沼澤地、喧騒ナル工場、或ヒハ惡臭及多量ノ塵埃ヲ生ズル場所ヨリ遠ザカツテ居ナケレバナラナイ。

2. 造影物

3. 建築ハ耐火性デナクテハナラナイ(萬一時ニ生命ノ危險ガアツテハナラナイ)。

4. 重症患者ノ保護ニ關スル特別ノ注意。

5. 十分ナル外出口及ビ火災逃避設備。

6. 十分ナル防火設備即チ「ホース」、消火栓、消火器等ヲ適當ニ配置スル事。

7. 重症患者用病牀、(a) 早期患者ニ對スル療養所ナレバ少クとも20%、(b) 輕重症混合ノ療養所ナレバ少クとも50%ヲ要スル。

8. 十分ナル水量及、飲料トシテ適當ナル水質。

9. 給水及水壓ハ防火用及ビ淨化用トシテ十分デアル事。

10. 下水ハ公共下水管ニ接続スルカ或ヒハ適當ナル私設下水道設備ヲツクラナケレバナラナイ。

次ノ事項ニ就テ十分ナル設備ヲ必要トスル。

11. (a) 電燈。

12. (b)熱。
13. (c)動力。
14. (d)湯。

次ノ事項ニ關シテ適當ナル且十分ナル衛生的設備ヲ必要トスル。

15. (a)洗面所。
 16. (b)便所。
 17. (c)浴場。
 18. 蟲類ニ對スル防禦。
 19. 各患者ニ對シテ少クとも 800 立方呎ノ體積。
 20. 病牀ノ間隔ハ 4 呎以上。
 21. 最小牀面積ハ一牀ニ付キ 70 平方呎。
 22. 換氣及大氣療法ニ對スル適當ナル設備。
 23. 過量ノ日光及惡天候ニ對スル防禦設備。
 24. 重症患者ノ附屬室ハ便利ナ場所ニ置ク事。
 25. 必要ナル位置ニ料理室ヲ設クル事。
 26. 適當ナル數ノ隔離室。
 27. 更衣室ノ暖房裝置。
 28. 患者ノ所有物ヲ保管スル設備。
 29. 料理室ハ設備ヨク、十分ナル廣サヲ必要トス。
 30. 食堂モヨク設備セラレ十分ナル廣サヲ要ス。
 31. 食器類ヲ熱湯デ洗フ設備。
 32. 十分ナル廣サノ食品貯藏所。
 33. 中央調理室ニ便利ナル氷室。
- 食品ノ貯藏、料理、及廢棄ニ用ヒル場所ハ
34. (a)蠅ヲ防グ網。
 35. (b)害蟲ノ防禦。
 36. 洗濯設備。
 37. 家具及其供給ハ適當ニシテ十分ナル事。
 38. 管理上必要ナル場所及器具ハ適當ニシテ十分ナル事。
 39. 醫療上必要ナル場所及器具ハ適當ニシテ十分ナル事。
 40. 適當ナル集會室及慰安室。
- 醫師、看護婦及他ノ職員ノ住居ハ

41. (a)十分ナル廣サ。
42. (b)住心地ヨキ事。
43. (c)便利ナル事。

若シ小兒或ヒハ肺結核以外ノ患者ヲ收容スル場合ニハ

44. (a)適當ナル區域。
45. (b)隔離シ得ル事。
46. (c)是等ノ病症ニ對スル設備。

3. 事務管理

47. 土地、建築物及家具ガ見苦シカラザルヤウ維持セラレル事。
 48. 一般ノ秩序及清潔ノ保持。
 49. 暖房及換氣。
 50. 蠅及害蟲ノ驅除。
 51. 正式ノ防火訓練。
 52. 患者ニ適シナイ療養所ノ仕事ヲサセルタメ十分ナル數ノ雇人ヲ置ク。
- 食餌ハ
53. (a)十分ナル量。
 54. (b)良質。
 55. (c)變化ニ富ム事。
 56. (d)巧ミナル料理。
 57. (e)暖イ食餌ハ暖ク供給スル事。
 58. 特殊食餌供給ノ設備。
 59. 傳染ノ危險アル者ニハ食品取扱ヒヲ禁ズ。
 60. 出納計算ノ記録。
 61. 管理上必要ナル患者ニ關スル記録。
 62. 一定期間ノ管理上ノ記録ハ綴込ミトシテ保存ス。
 63. 一定期間ノ醫療上ノ記録ハ綴込ミトシテ保存ス。

4. 醫療管理

64. 醫長ハ優秀ナル世間デ認メラレタル醫師ナル事。
65. 常ニ適切ナル醫療ヲ迅速ニナシ得ル事。
66. 60 人ノ患者ニ就キ 1 人ノ醫師ヲ住居セシム。
67. 外科顧問醫ヲ必要ナル場合ニ直チニ招聘

シ得ル事。

68. 適當ナル齒科治療ヲナシ得ル事。
69. 若シ整形外科或ヒハ喉頭結核等、肺以外ノ患者ヲ收容スル場合ニハ専門醫指導ノ下ニ治療ヲナス事。

5. 看護ニ關スル管理

70. 看護婦長ハ一般病院或ヒハ結核病院ノ看護婦養成所ヲ卒業セル者タル事。
71. 病室附看護婦ノ10%ハ正規ノ教育ヲ受ケタル者タル事。
72. 病室附看護婦ハ少クトモ7人ノ臥牀患者ニ對シテ1人ノ割合ナル事。
73. 輕症患者ニ對スル看護婦ハ13人ニ就キ1人以上ナル事。

6. 醫學的設備

74. 診療上必要ナル設備。
或療養所ニ於テハ特殊の診療ノ全部或ハ一部ヲ他ニ委嘱シテ居ル處モアルガ、凡テノ療養所ハ少クトモ血液検査、尿検査及ビ人工氣胸ヲナス設備が必要デアル。
故ニ療養所ニ於テハ次ノ設備ヲ要ス。
75. (a) 血液検査。
76. (b) 尿検査。
77. (c) 人工氣胸。

7. 醫療及看護

78. 患者ノ入院後48時間以内ニ詳細ナル診察ヲナシ病歴ヲ完成スル事。
79. 入院時ニハ胸部ノミナラズ全身ヲ診察スル事(急性疾患ノ完全ナル治療ハ療養所ニ於テ困難デアルカラデアル)。
80. 醫師ハ臥牀患者ニ對シテ1日1回診察(Visit)スル事。
81. 輕症患者ニ對シテハ醫師或ヒハ責任アル看護婦ガ1日1回見廻ル事(See)。
82. 重症患者ハ入院後直チニ醫師ノ診察ヲ受ケシムル事。
83. 經過良好ナル患者ニ對シテハ少クトモ2ヶ月ニ1回詳細ナル診察(Examination)ヲナシ、經過不良ナル場合ニハ2週間ニ1回ナス。

84. 體溫及脈搏數ハ最初ノ1週間ハ1日ニ2回測定スル事。

85. 臥牀患者ニ對スル檢溫、檢脈ハ1日ニ、2回ナス事。

86. 1週間後ノ檢溫、檢脈ハ1ヶ月間ニ少クトモ3日間繼續シテナス事。

87. 患者ノ體重測定ハ1週1回トス。

88. 治療ハ凡テ醫師ノ命令ニヨリテナス。(治療中ニハ身體ノ運動ノ調節ヲモ含ム)。

89. 身體ノ状態ニヨリテハ歩行ヲ許サレナイ。

(適當ナル食餌、ソノ運搬及看護等ハ絶對的ニ身體ノ状態ニ適應シナケレバナラナイ)。
次ノ記録ヲツクル事。

90. (a) 入院時病歴。

91. (b) 社會的還境ノ状態。

92. (c) 病歴。

93. (d) 診察記録。

94. (e) 治療及經過。

95. (f) 退院時状態。

96. (g) 入院時並ニ退院時ニ於ケル病期。

97. 臥牀患者ニ對シテハ絶エズ周到ナル看護ヲナシ、慰藉及清潔ニ關シテハ十分ナル注意ヲ拂ハナケレバナラナイ。

98. 合併症及非結核性疾患ニ對シテモ適當ナル注意ヲナス事。

99. 若シ小兒ヲ收容スル場合ニハ傳染ニ對スル特別ナル注意ヲ必要トスル。

100. 患者ノ適當ナル訓練。

101. 喀痰及ソノ他傳染ノ危険アルモノ、處置ハ特別ナル注意ヲ要ス。

102. 社會的意味ニ於ケル患者ノ救護。

103. 慰安的設備。

104. 宗教上ノ欲求ヲ満足セシムルコト。

105. 教育指導上ノ設備。

106. 繼續シテナサレタル仕事ノ價值ヲ認メ得ル事。

8. 「レントゲン」

107. 「レントゲン」検査ハ入院時ニナス事。

108. 「レントゲン」検査ハ必要アレバ反覆スル事。

9. 検査室

109. 喀痰ハ入院時ニ検査スル事。

110. 退院時ニモ 喀痰ヲ 検査スル事(結核菌陰性ナル場合ニハ3枚ノ標本ヲ検査セル必要ガアル)。

111. 尿ノ検査ハ入院時ソノ後ハ必要ニ應ジテ

ナス事。

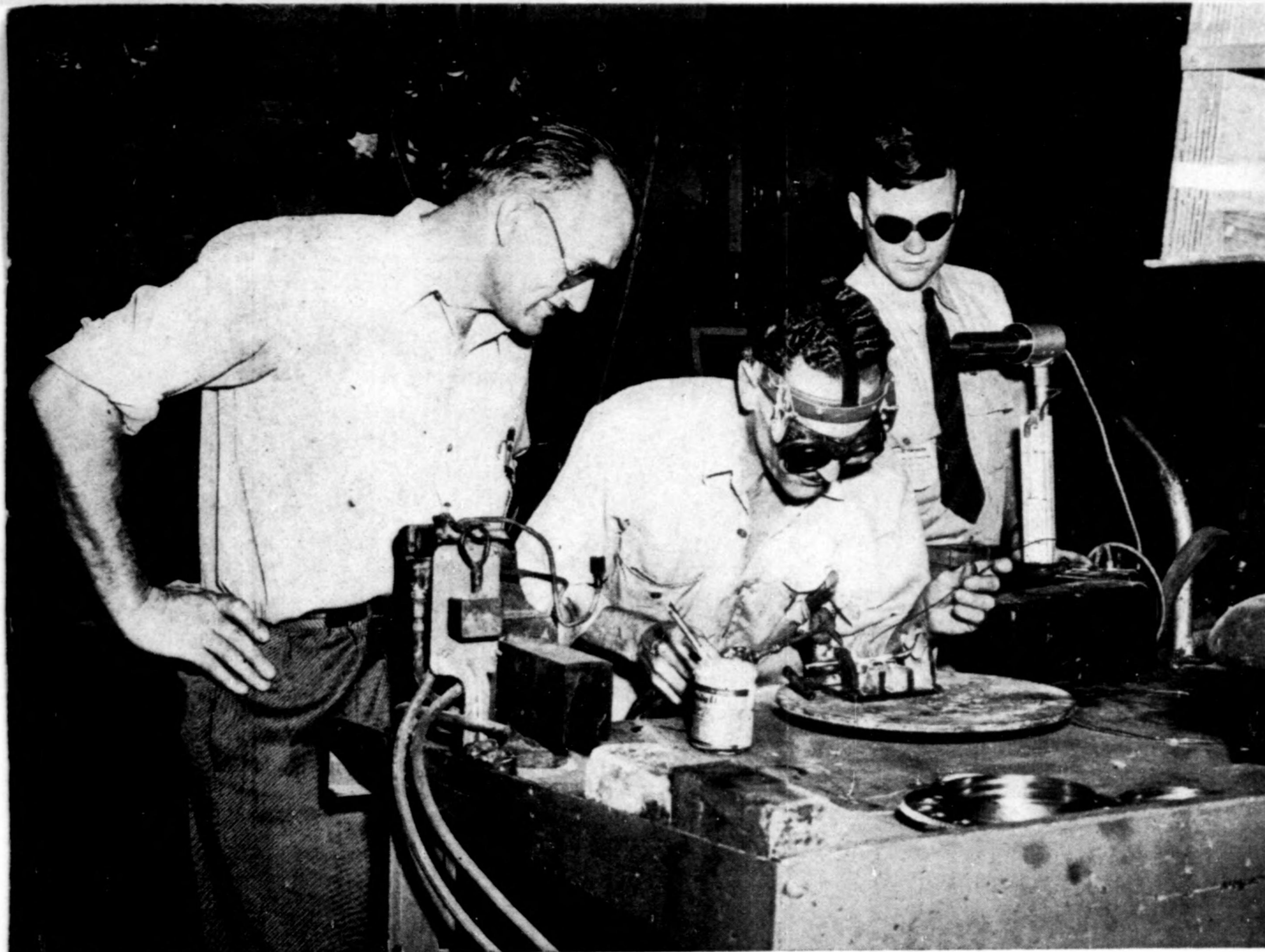
112. 微毒ノ血清學的検査。

調査セントスル療養所ガ以上ノ各項ニ於テ要求セラレタル設備竝ニ機能ヲ如何ナル程度ニ有スルカヲA・B・Cニヨツテ表ス。

A. 要求ニ完全ニ適合セル場合。

B. 要求ニ部分的ニ適合セル場合。

C. 要求ニ適合セザル場合。



STATE INSPECTORS are welcomed by union and management at Beech Aircraft Corp., Wichita, Kan. Company gives full publicity to their visits. Results: greater employee confidence, worker morale is bolstered.



CADMIUM PLATING operation (above), like silver brazing (left), gets O.K. from state inspectors looking for hazards.

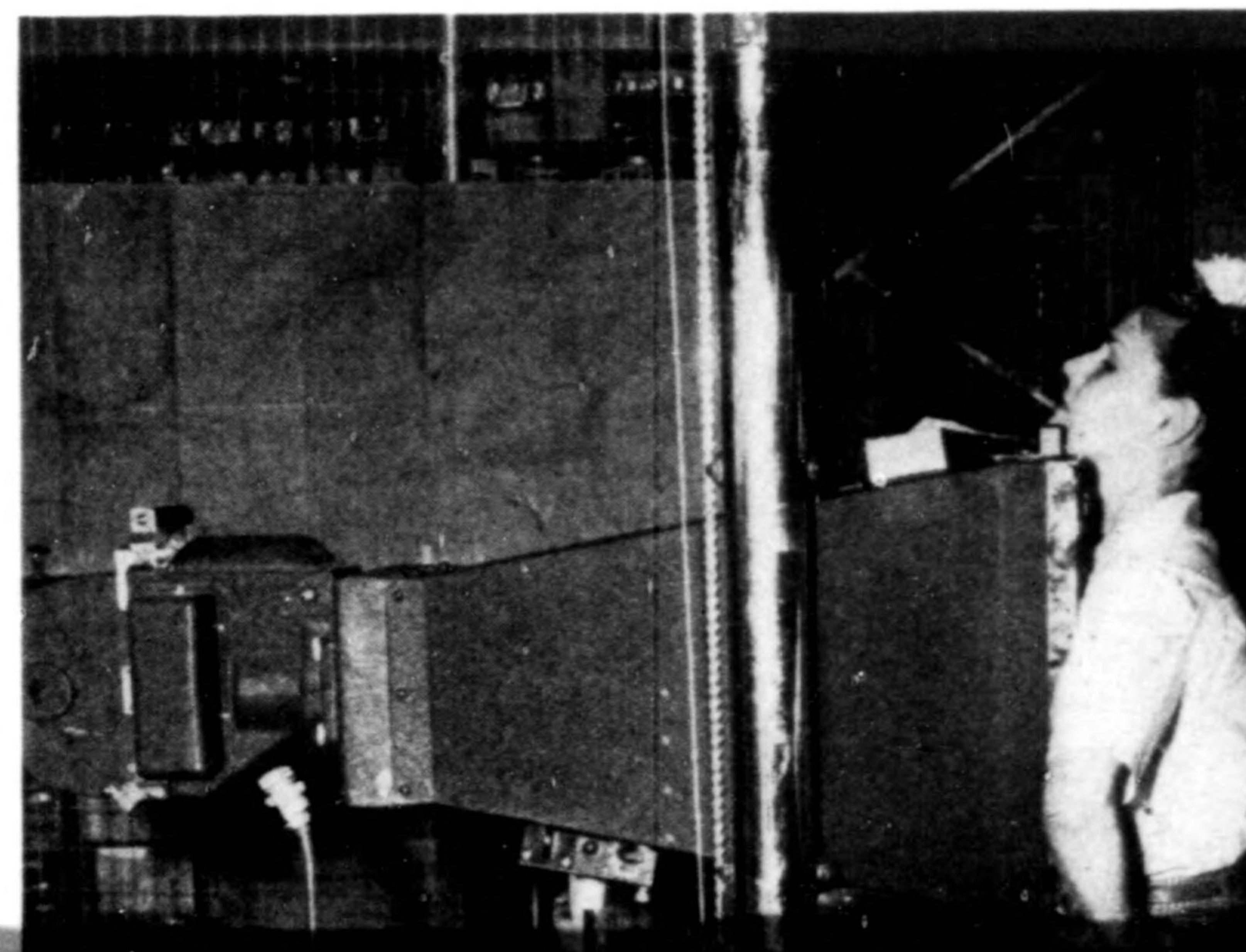
B x

Meeting health problems head-on

Labor Trends

INDUSTRIAL health and hygiene in plants are fast becoming an area of union-management negotiation —

Beech Aircraft Corp., Wichita, Kan., however, dramatizes routine inspections by the Kansas State Board of Health. Photographs on this page were not taken by or for the



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B x

Meeting health problems head-on

Labor Trends

INDUSTRIAL health and hygiene in plants are fast becoming an area of union-management negotiation — and possible conflict. But by meeting the problems of health and safety hazards frankly, excessive union demands can be averted. What threatens to be a headache can be turned into a real advantage by management.

Just how serious this can become is illustrated in the recent refusal of crane operators to work in the Ford Motor steel mill. Crane operators — a handful of men — claim a health hazard in the use of certain chemicals that hasten steel pouring. (The fumes complained of are annoying, but are not dangerous.)

Yet a strike of crane operators would halt all Ford production.

Many managements are fearful of the visits of city or state health inspectors — not necessarily because they have anything to cover up, but because they don't want the union to get any new ideas.

Beech Aircraft Corp., Wichita, Kan., however, dramatizes routine inspections by the Kansas State Board of Health. Photographs on this page were not taken by or for the State Board — but by Beech for publication in its employees' *The Beech Log*.

Beech invited the state inspectors in, gave them the run of the plant, encouraged them to visit every department, test all operations, talk to workers.

The same policy is pursued by the company with its insurance carriers. It has a standing invitation for insurance inspectors to visit the plant at any time.

Dr. R. H. Heilman, head of the state division of industrial hygiene, who conducted the tests at Beech, found conditions satisfactory and said: "Management and union are to be highly recommended for their sincere effort to promote health and safety for employees."

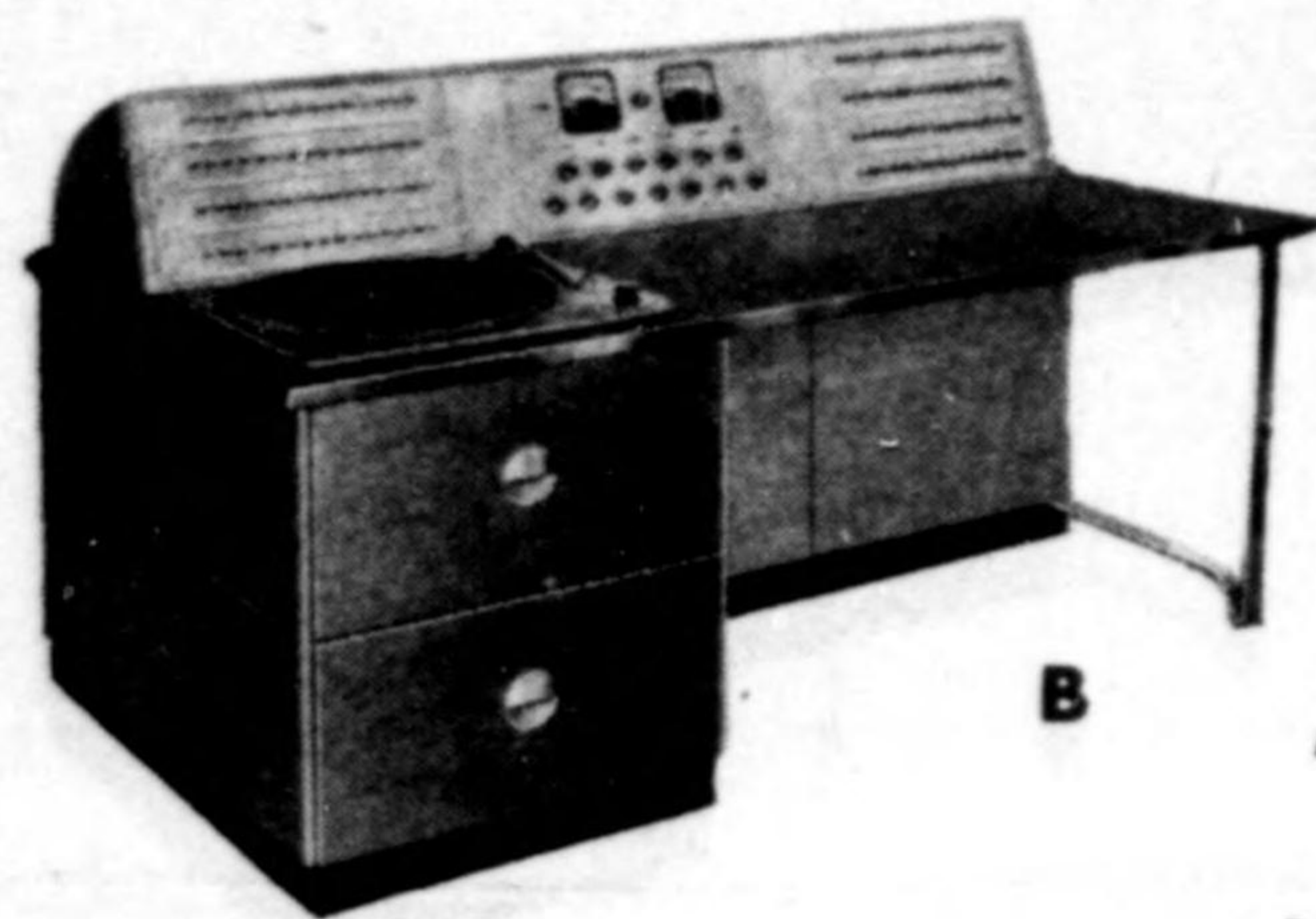
Beech also uses the state medical services for periodic chest examinations of all employees to check against possible tuberculosis. Tests are made in the plant, during working hours with a

CADMIUM PLATING operation (above), like silver brazing (left), gets O.K. from state inspectors looking for hazards.



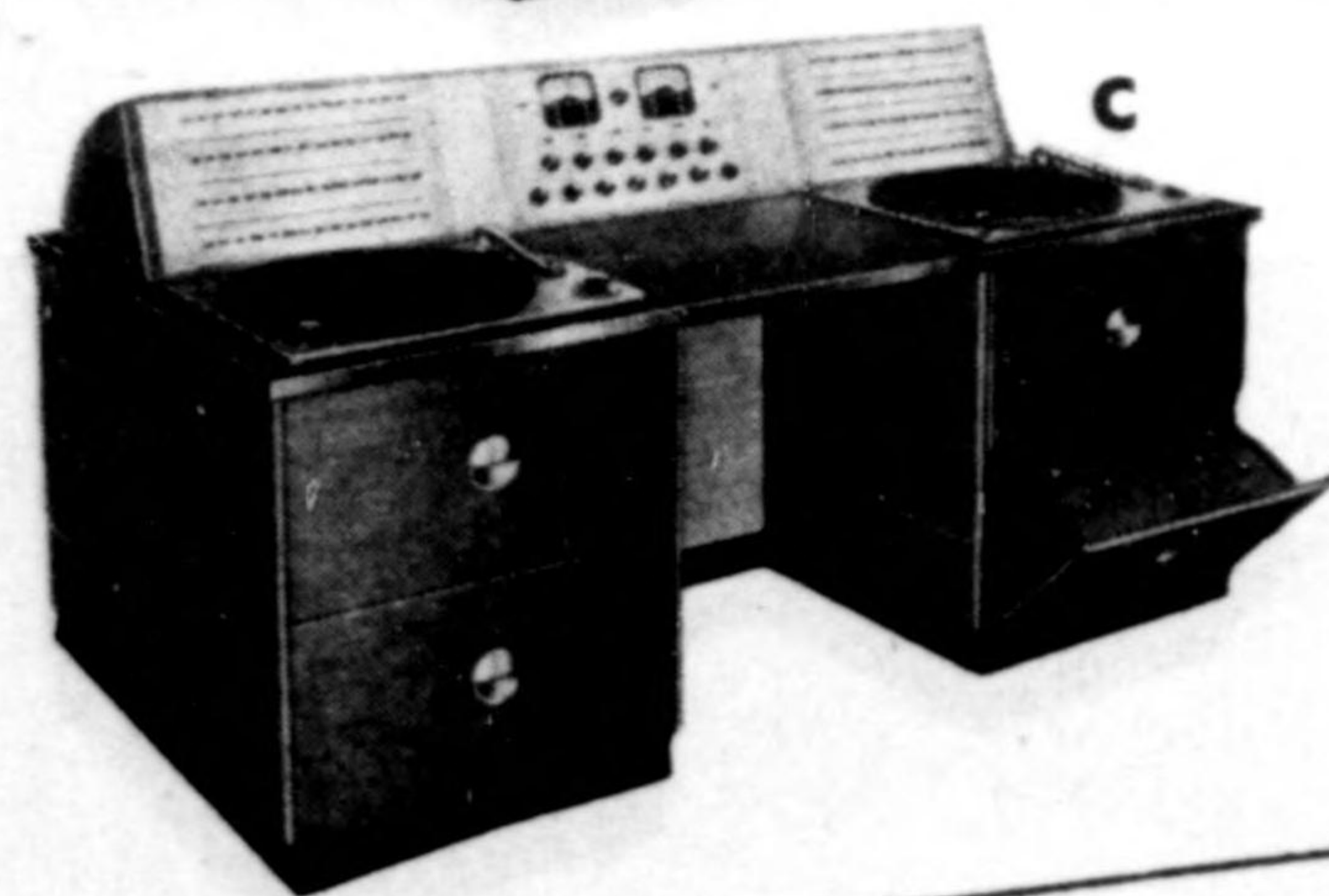
CHEST X RAYS to check suspected tuberculosis, provided by state health department, backstop company's program.

Unit-Built... RCA MASTER SOUND CONTROL CONSOLES



B

A Master Sound Control Console provides paging facilities to loudspeakers in 15 to 60 zones.



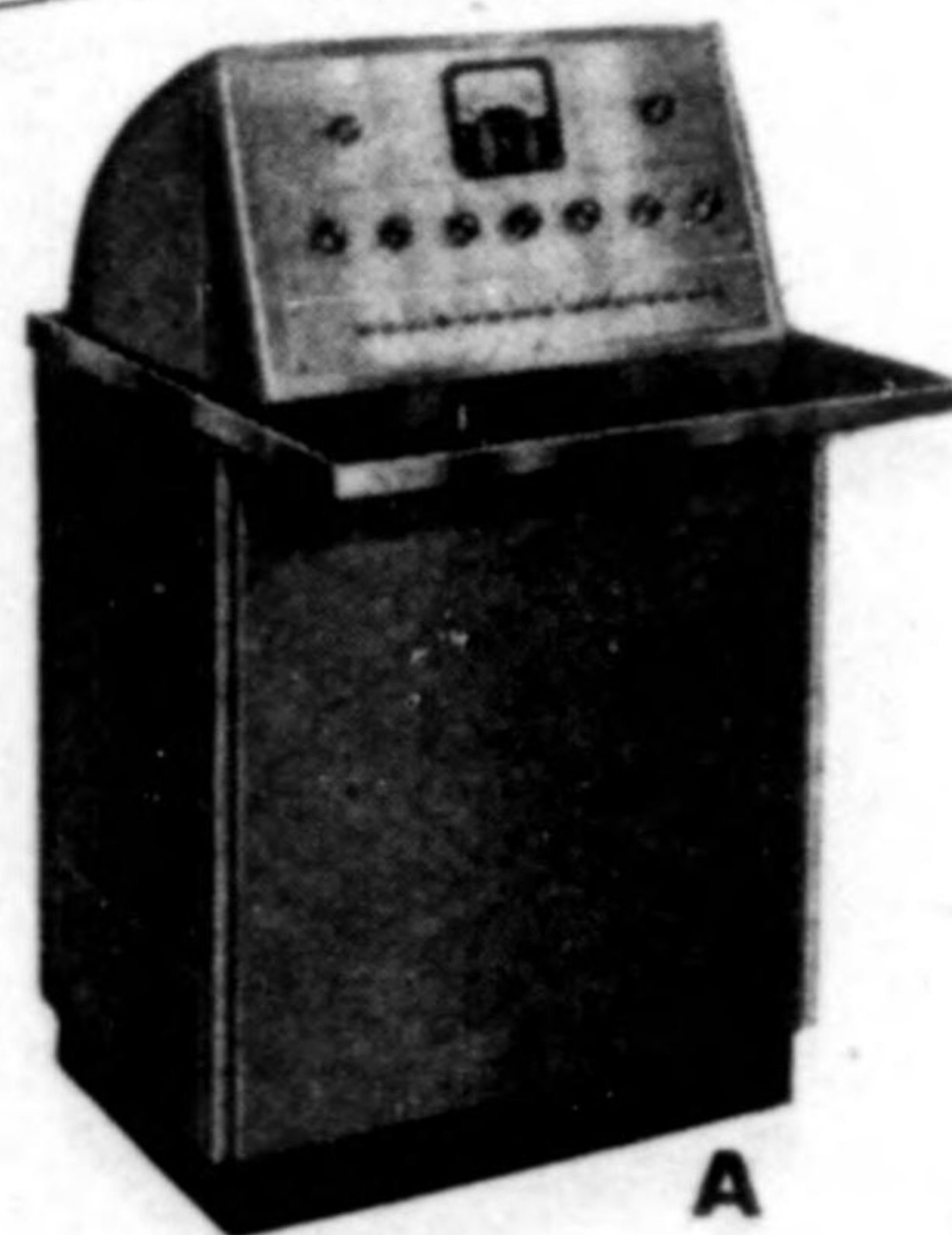
C

B Master Sound Control Console with Record-Transcription Unit and facilities for the distribution of speech and music to loudspeakers in 120 zones.

C Master Sound Control Console with two Record-Transcription Units, a Radio Receiver and paging facilities for distribution to 120 zones.

Whether your problem is sound distribution for a small paging installation or an elaborate plant broadcasting service—you can do it better with an RCA unit-built Master Sound Control Console.

...ized frames and any or all of these services. As your ... develop, basic units can be ... equip...



A

Labor trends

(continued)

minimum loss to production time.

By facing facts, Beech makes its health and safety plans a plus in good industrial relations.

Employee cartoons turn to advertising

Morale-lifting cartoons released by OWI and other government agencies were one of the most popular features of the *Thor Scoreboard*, employee publication of Independent Pneumatic Tool Co., Chicago, during the war. When these releases were halted, Editor G. A. Thoma started looking for a commercial source for cartoons.

Thoma, who hadn't drawn a cartoon since high-school days, picked up an idea jokingly suggested at an advertising conference, and dashed off a sketch which he

put into the *Scoreboard*. Employee response was good. Now each cartoon "gags" some feature of Thor products.

The series was originally designed to increase employee interest in the company's products, was never intended for external publication. But distributors saw the cartoons, began asking for reprints. Next year the cartoons will move into magazines as a theme for Thor advertising.

Agree on U. S.-run strike vote

Allis-Chalmers Mfg. Co. has included in contracts settling protracted strikes in its Pittsburgh and Springfield, Ill., plants a unique clause for the conduct of strike votes under government supervision.

Under the so-called "Pittsburgh





A Master Sound Control Console provides paging facilities to loudspeakers in 15 to 60 zones.

B Master Sound Control Console with Record-Transcription Unit and facilities for the distribution of speech and music to loudspeakers in 120 zones.

C Master Sound Control Console with two Record-Transcription Units, a Radio Receiver and paging facilities for distribution to 120 zones.

Whether your problem is sound distribution for a small paging installation or an elaborate plant broadcasting service—you can do it better with an RCA unit-built Master Sound Control Console.

A series of standardized frames and panels are matched to make up distinctly styled basic units. These matched units are so designed that it is possible to assemble them into any desired combination of unit-built Master Sound Control Consoles.

No matter what your requirements—record-transcription turntable, recorder, radio, or paging—the right combination of basic units can be provided to give you

any or all of these services. As your needs develop, basic units can be added without discarding equipment already in use.

Built of "matched" units RCA's Master Sound Control Equipment provides custom-built consoles within the price range of regular production-made equipment.

For full information on the various unit-built combinations, write Dept. 54-K, Sound Equipment Section, RCA, Camden, N. J.



SOUND SYSTEMS
RADIO CORPORATION of AMERICA
 ENGINEERING PRODUCTS DEPARTMENT, CAMDEN, N. J.

In Canada: RCA VICTOR Company Limited, Montreal

Thoma started looking for a commercial source for cartoons.

Thoma, who hadn't drawn a cartoon since high-school days, picked up an idea jokingly suggested at an advertising conference, and dashed off a sketch which he

Allis-Chalmers Mfg. Co. has included in contracts settling protracted strikes in its Pittsburgh and Springfield, Ill., plants a unique clause for the conduct of strike votes under government supervision.

Under the so-called "Pittsburgh



"Yeah...we bought the octopus to go along with our new Multimatic Air Tool Kit!"

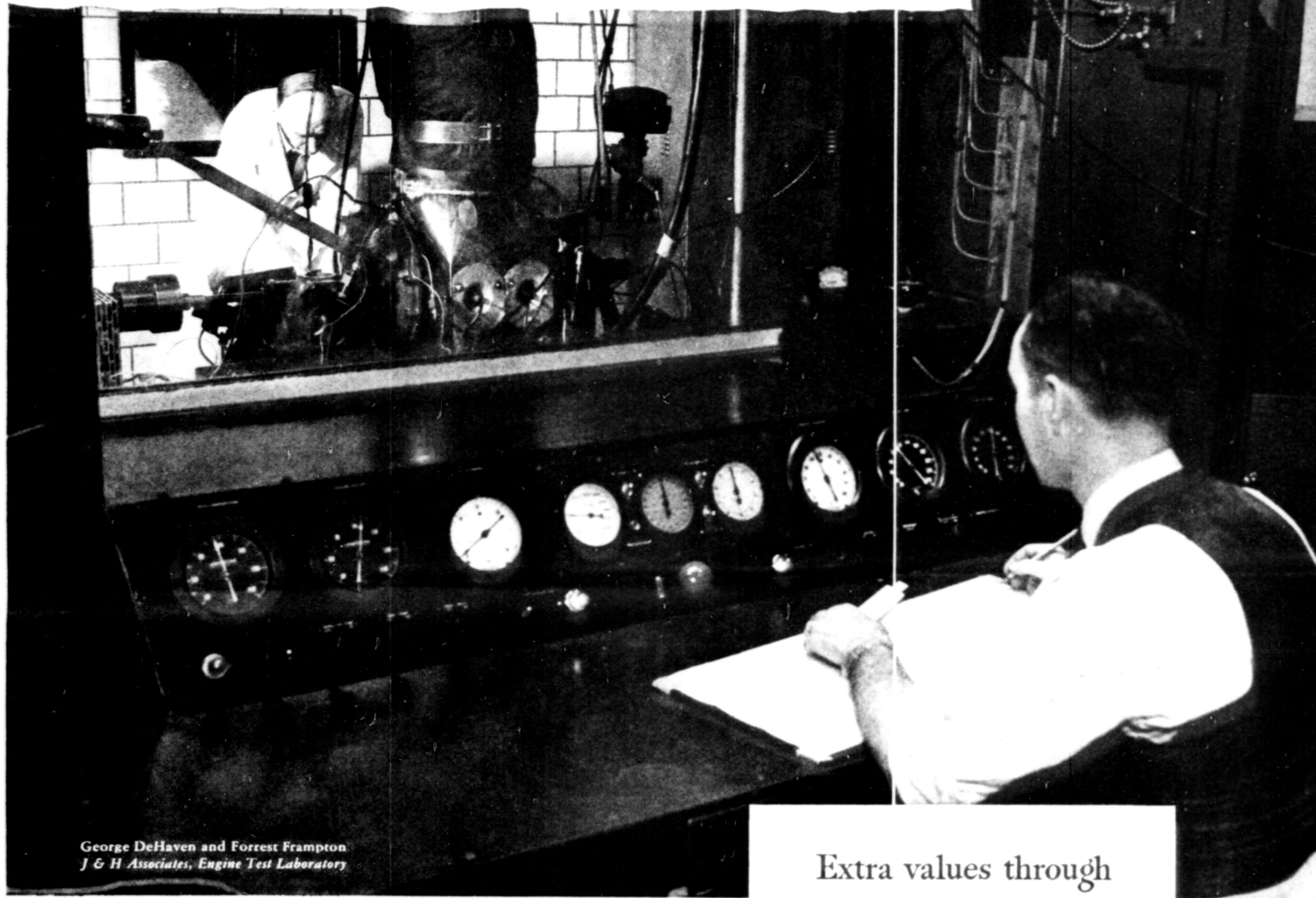
"I don't care if it does drive to predetermined tension—you girls can't use our new Thor electric screwdrivers to curl each others hair on company time!"

"Him?—Oh, he's the guy who puts the EXTRA WALLOP in Thor tools!"

"How many times I gotta tell ya—never PUSH on them Thor 1/4" Drills!"

MORALE BOOSTER for employees of Independent Pneumatic Tool Co., Chicago, is series of cartoons in *Thor Scoreboard* plugging company products. Cartoons, these are typical, are now scheduled for national magazine ads. (See text.)

Racetrack in a Laboratory



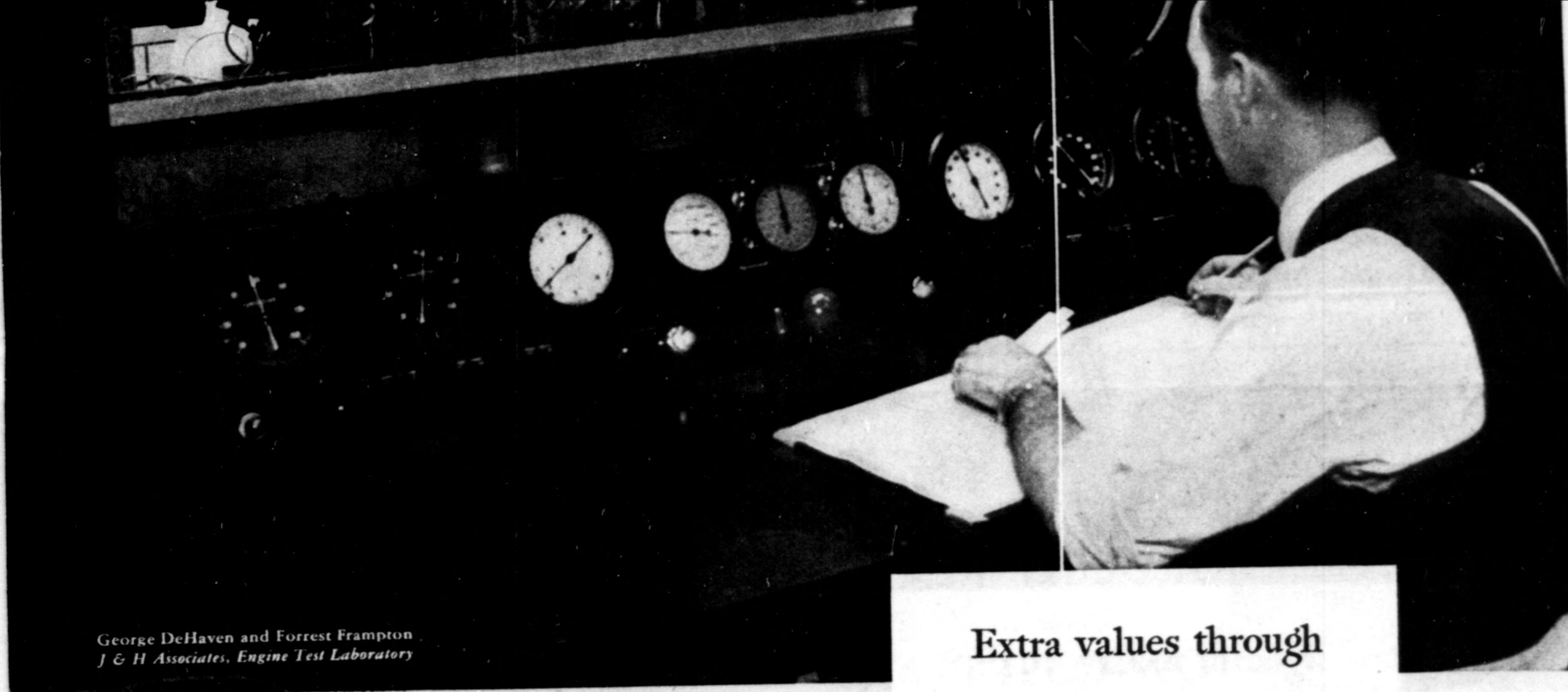
George DeHaven and Forrest Frampton
J & H Associates, Engine Test Laboratory

You are looking into one of the "torture chambers" of our engine laboratory where the world's

Extra values through

JACK & HEINTZ

Mass Precision



George DeHaven and Forrest Frampton
J & H Associates, Engine Test Laboratory

Extra values through
JACK & HEINTZ
Mass Precision

You are looking into one of the "torture chambers" of our engine laboratory where the world's largest pressure-die-cast, four-cycle engine is going through its paces. Under sustained tests this new Jack & Heintz slide-valve engine reveals exceptional fuel economy. Its weight is far less than that of conventional automobile engines. It is more efficient and has a much wider speed range.

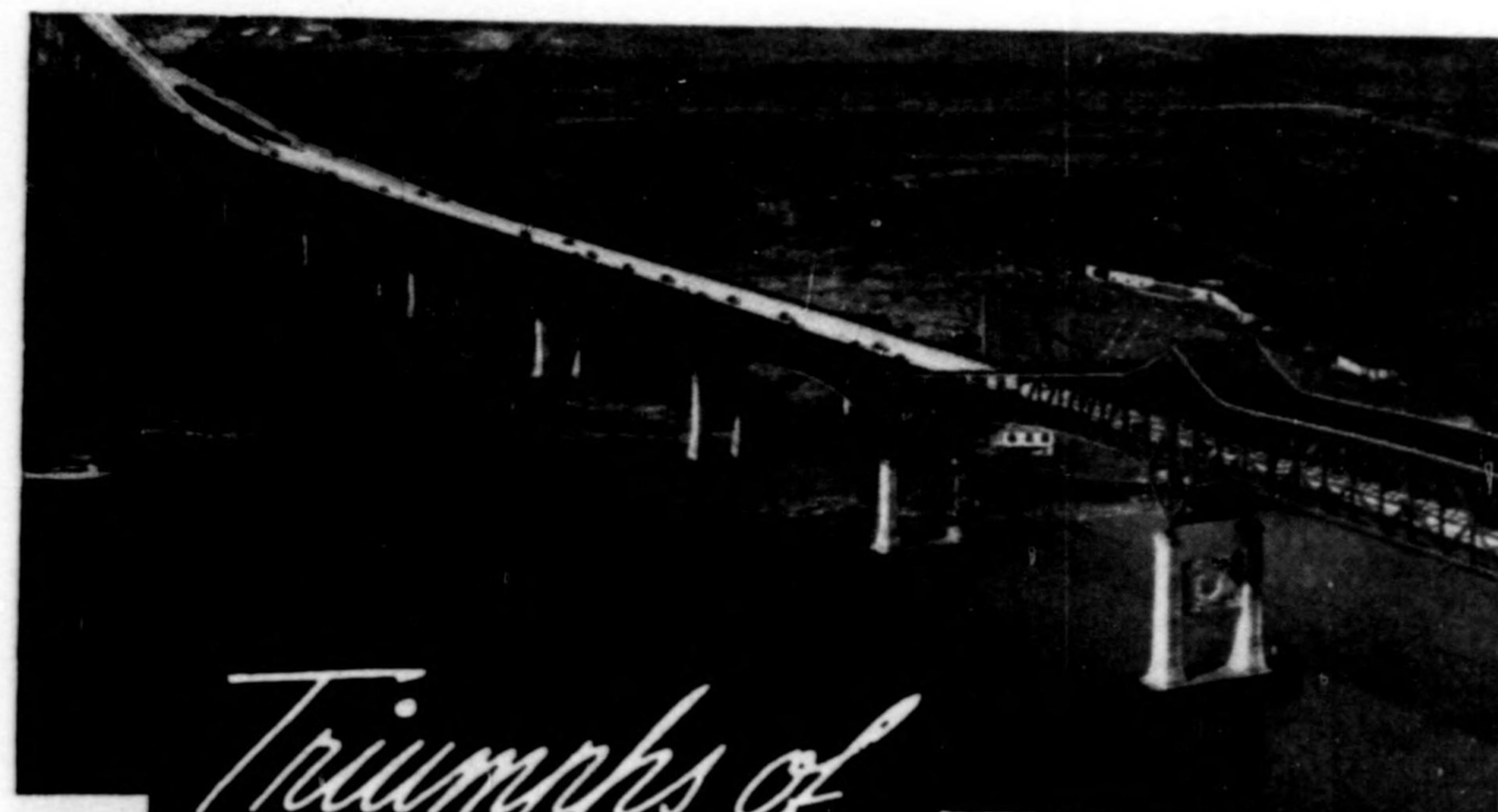
This new engine is typical of Jack & Heintz achievements through *mass precision*. This rare combination of high precision and mass production is creating better engines, electric motors, refrigeration compressors, aircraft accessories, bearings and magnetos *today*, and is developing other revolutionary products for *tomorrow*.

JACK & HEINTZ PRECISION INDUSTRIES, INC., Cleveland 1, Ohio

November 15, 1946

133

DECLASSIFIED E.O. 12065 SECTION 3-402/NNIDG NO. 775013



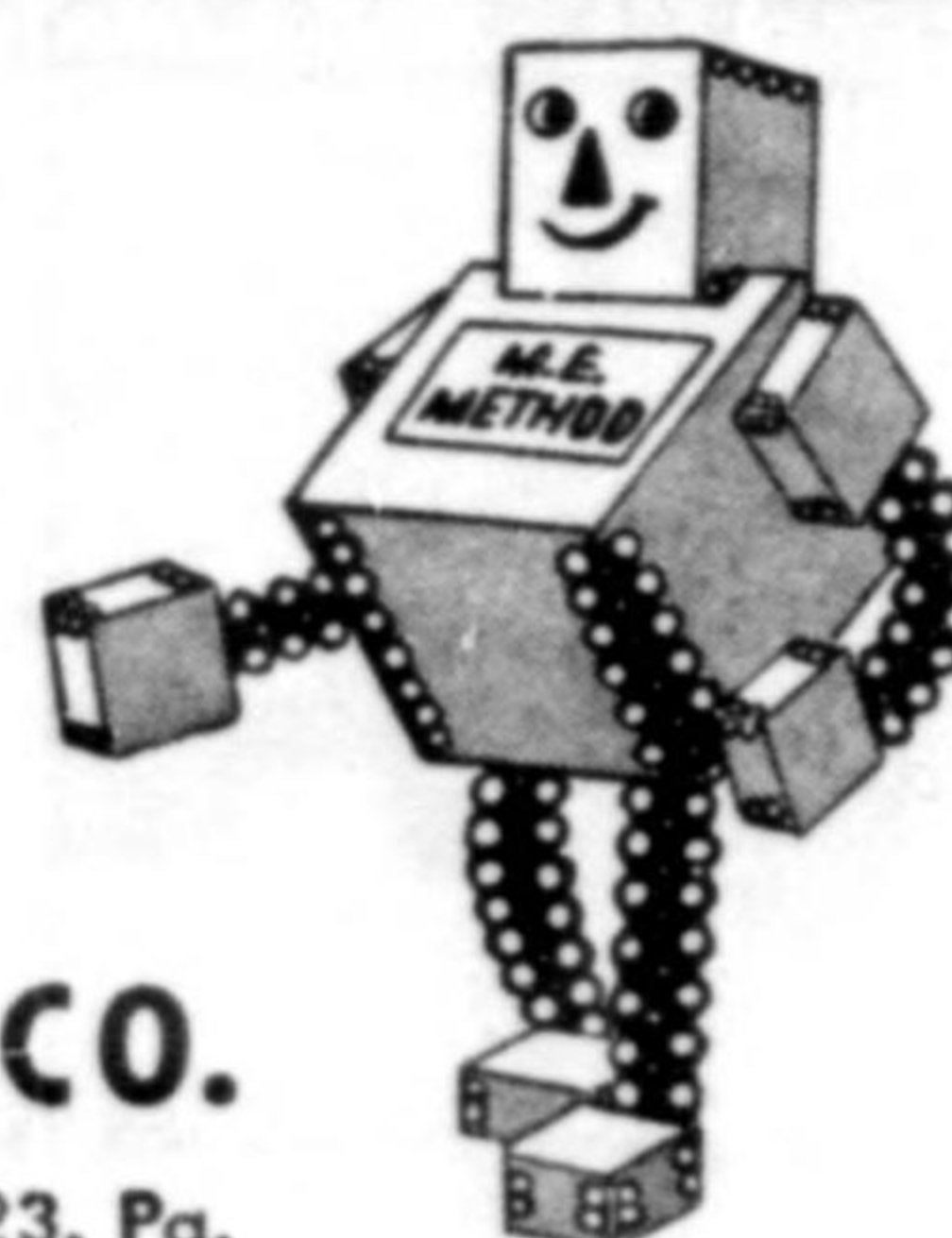
Triumphs of Engineering

Pulaski Skyway (New Jersey) world's longest high-level vehicular viaduct, completed in '32, costing more than \$300,000,000...

and METAL EDGE...

specialty ENGINEERED to serve you in
PACKAGING · MATERIAL HANDLING · INVENTORY CONTROL

Some outstanding concerns place an even higher value on what Metal Edge—skillfully engineered to their particular requirements—has done for them in Material Handling and Inventory Control than on their phenomenally rugged Metal Edge boxes. May we explain?



NATIONAL METAL EDGE BOX CO.

1210 Callowhill Street

Philadelphia 23, Pa.



An
ORDERLY PLANT
is a
LOW-COST PLANT

In every one of the hundreds of leading American plants where

Labor trends

(continued)

clause," the contract runs to Apr. 15, 1948, but is subject to reopening once — and on wages only — on or after Apr. 15, 1947.

Not less than 40 days after notice of reopening (in effect a substantial cooling-off period) a strike can be called if a majority of the employees in the union vote for a strike. Vote is by secret ballot conducted on company premises, during working hours and at company expense, under supervision of the U. S. Conciliation Service or NLRB. Wording of the ballot is limited, under the contract, to:

"Do you vote for an immediate strike for the wage demands made by Local 613 upon the company?"

The clause has been accepted by locals of the United Electrical Radio and Machine Workers (CIO), and by the United Farm Equipment Workers (CIO).

Aside from limiting the issue to wages alone, the clause provides unusual safeguards against strikes called by a minority of union members at a rigged meeting, with voters coerced under open voting.

Portal-to-portal would pinch many

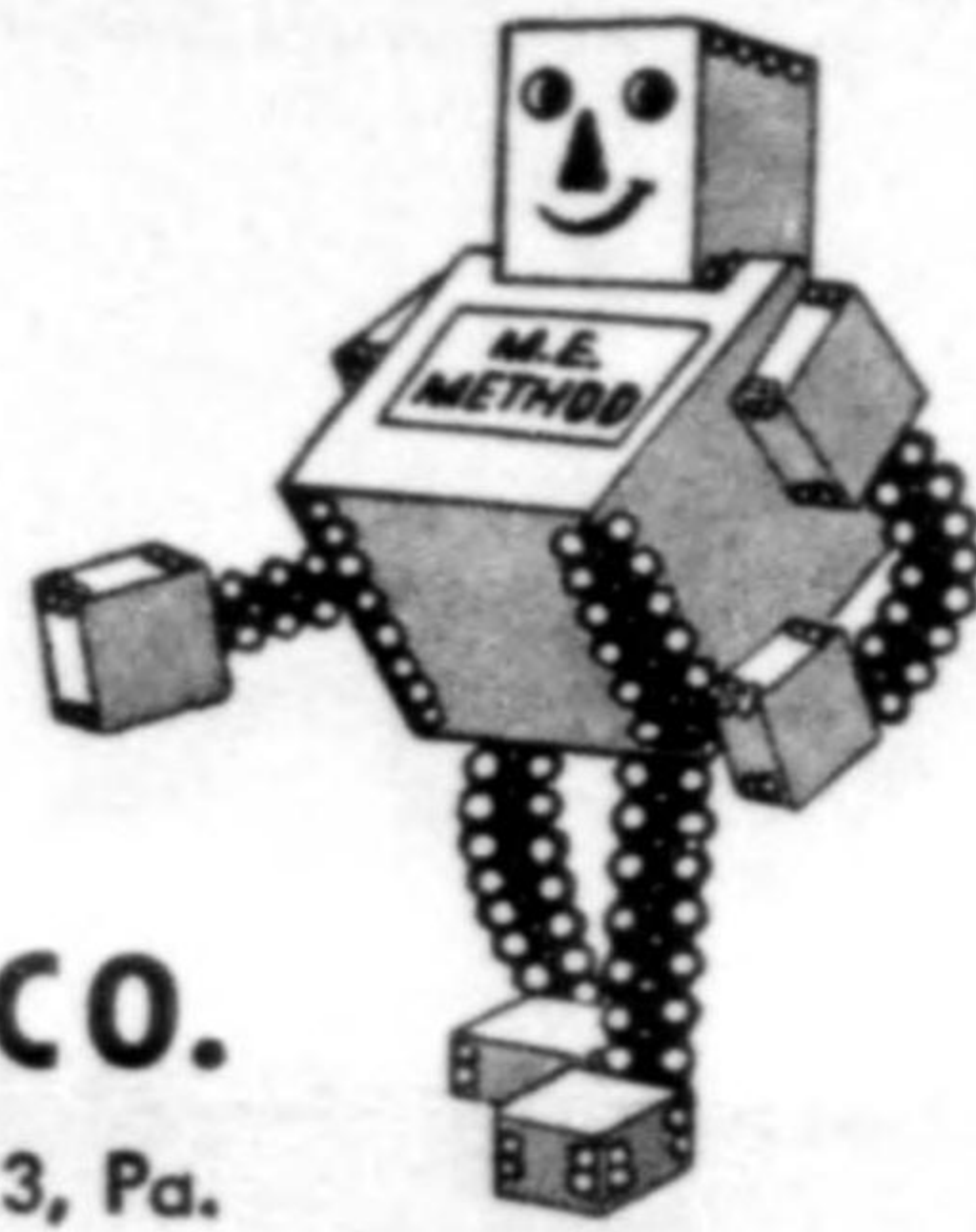
Back-wages suits based on the "portal-to-portal" pay theory are worrying lawyers for Wright Aeronautical Corp. and E. I. du Pont de Nemours & Co. — and plenty of other people.

The Federal Wage and Hour Administration is concerned. And the application of the principle to all industry presents difficulties to all management. The threat of back-wage suits — even going back eight years to the adoption of the Wage



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An
ORDERLY PLANT
is a
LOW-COST PLANT

In every one of the hundreds of leading American plants where Gerson-Stewart's Systematized Sanitation has been installed, the end result has been a noticeable overall cost reduction. By making every maintenance dollar work overtime, these plants have become more orderly, safer, healthier—and therefore more productive. At the same time, maintenance costs themselves have been reduced by making cleaning labor more effective and more efficient. For more than 30 years, Systematized Sanitation has proved its ability to achieve sizeable cost reductions. Now, entering a new era of keen competition, these savings will be of even greater importance. We'll be glad to send you detailed information on how they can be enjoyed in *your* plant.

Systematized Sanitation enables your present labor to do more tasks—better!



The GERSON-STEWART Corp.

LISBON & BUCKEYERDS. · CLEVELAND 4, OHIO

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Homemade hand-cream bar

To promote use of needed hand creams among employees exposed to skin irritants, Westinghouse Electric devised

this "bar" for East Pittsburgh plant. Dispensers are converted auto grease guns, containers catch drippings.

COMBUSTION EFFICIENCY

Correct Fuel Distribution in Firebox Cuts Boiler's Coal Need 15%

PATENTED, PRECISION INSTRUMENT
INSTANTLY ANALYZES COMBUSTION GASES

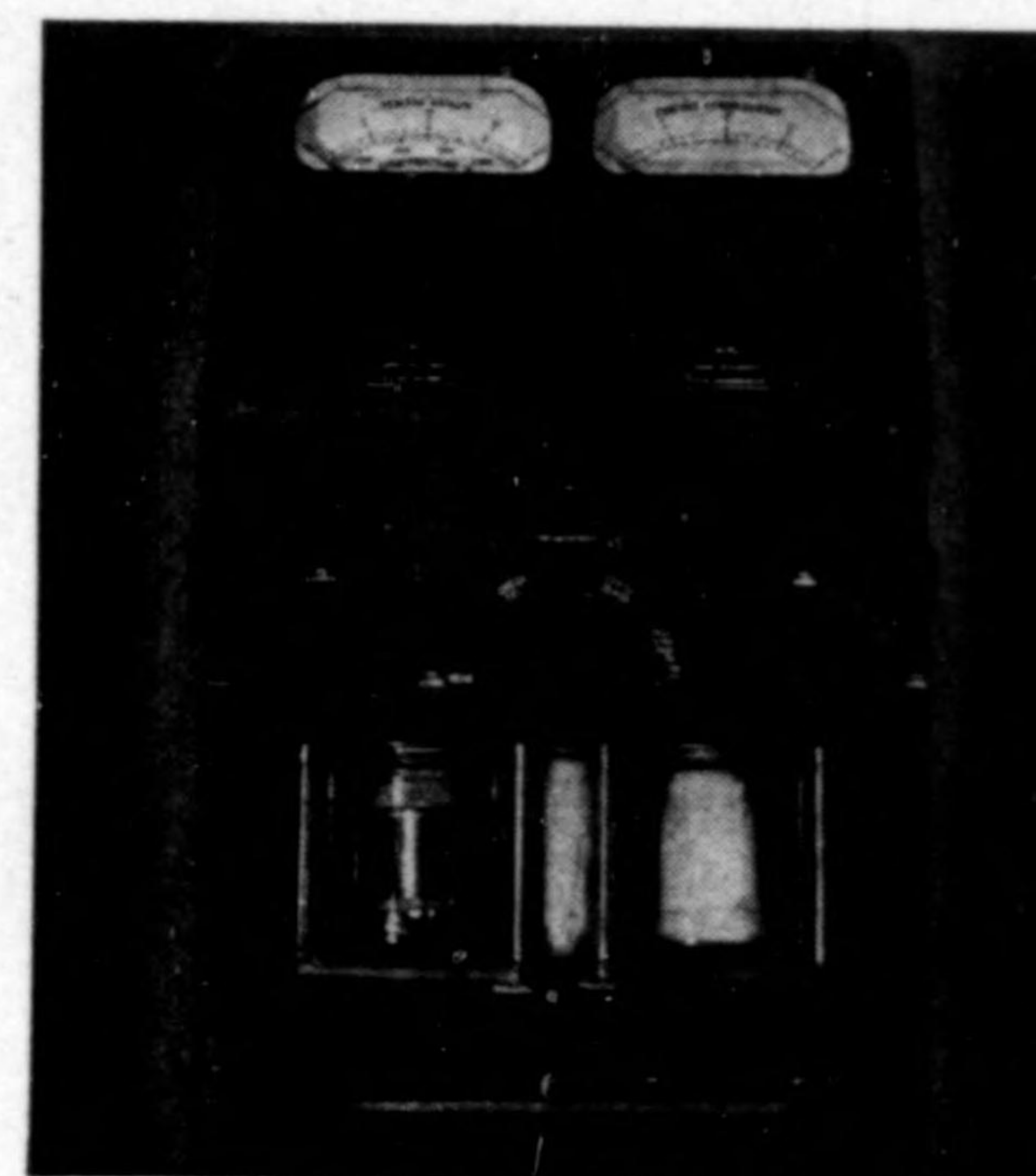
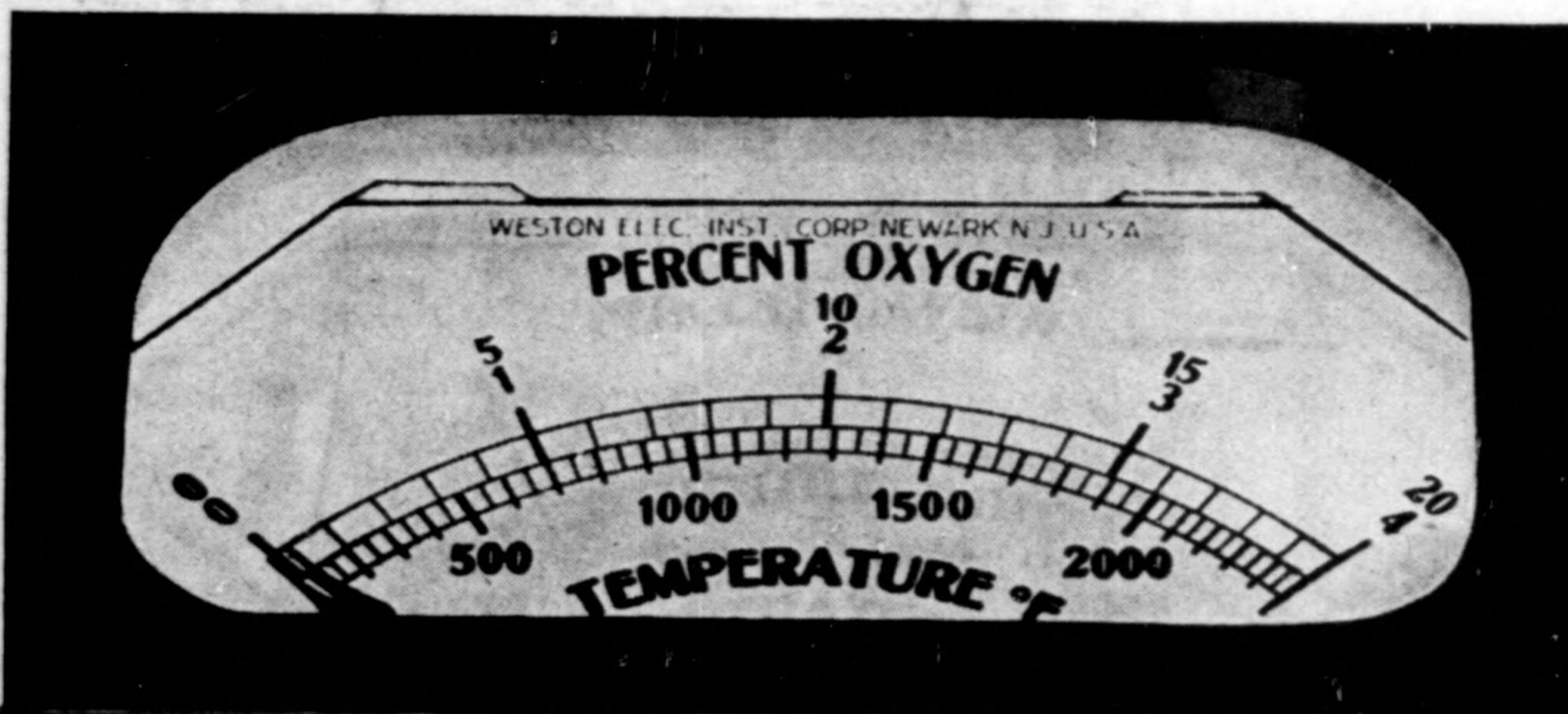
"A check on a boiler in a customer's* plant at Niles, Michigan, demonstrated how the Cities Service **Lubrication Engineer's Report** Heat Prover shows the fuel saving possible when the boiler is operating efficiently.

"On most under-feed stokers, there is greater depth of burning coal over the retort—leaving the sides and end of the grates with a thin layer of coal. This thin layer of hot coal soon burns through in spots leaving holes in the

fire so that the grates are not covered entirely with coal. These bare spots on the grates allow the air to circulate through the firebox without coming in contact with the burning coal, thus increasing the stack temperature with attendant loss of combustion efficiency.

Grates Evenly Covered

"At intervals of thirty minutes, we took a poker, pushed the hot coal from the center, covering the holes and edges of the firebox with coal so that every part of



the grates was covered. This registered highest efficiency on the Heat Prover dials.

"This boiler was using 18,000 pounds of coal a day and by covering the holes in the fire every thirty minutes, daily consumption was reduced 3,000 pounds a day or a saving of about 15% to 17%."

The Heat Prover is a portable combustion gas analyzer patented by Cities Service and operated by trained Cities Service engineers. It is used to check efficiency of every type of **Heat Prover Service Available** fuel combustion equipment. For information call your nearest Cities Service branch office, (Arkansas Fuel Oil Co., in the South); or write to Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

*Name on request.

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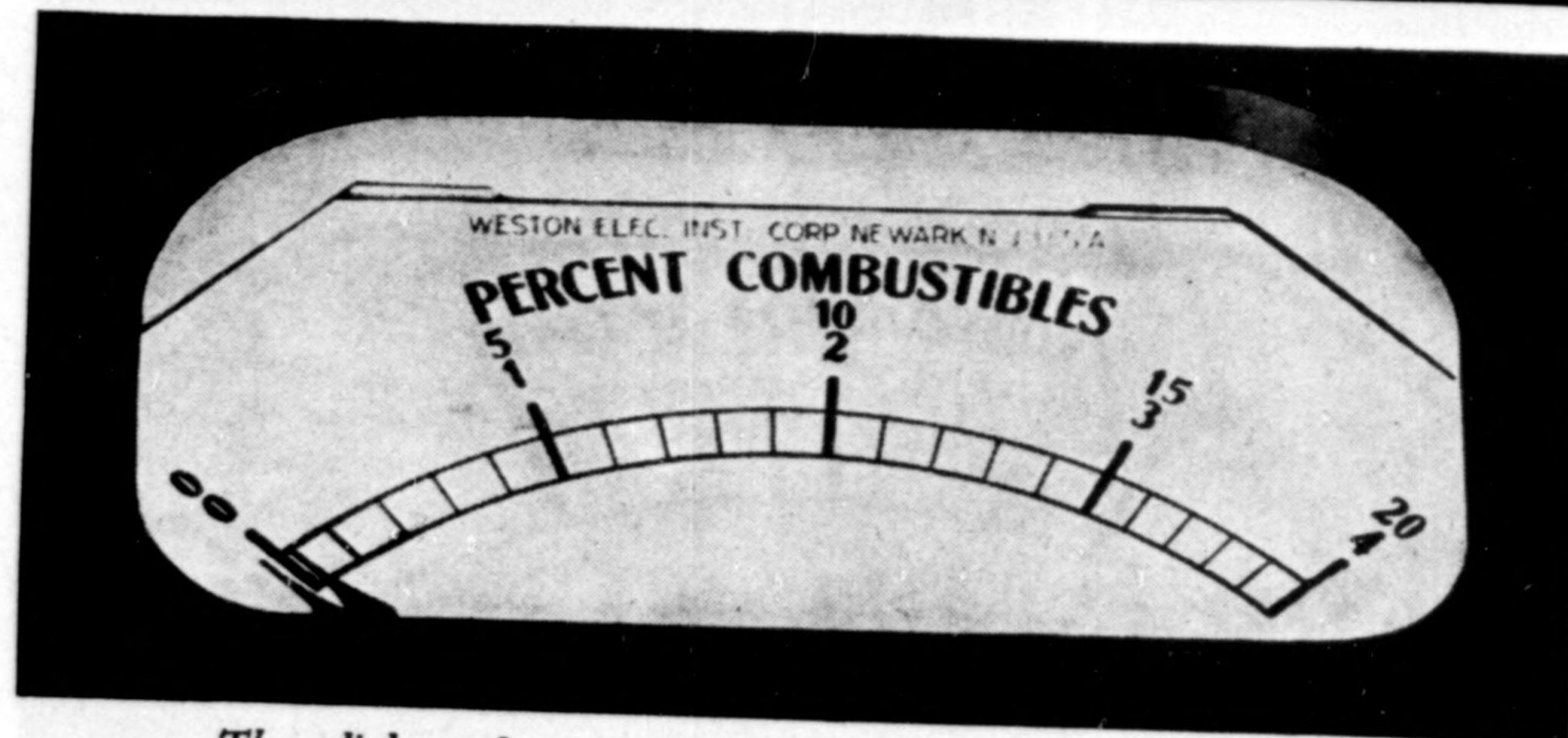
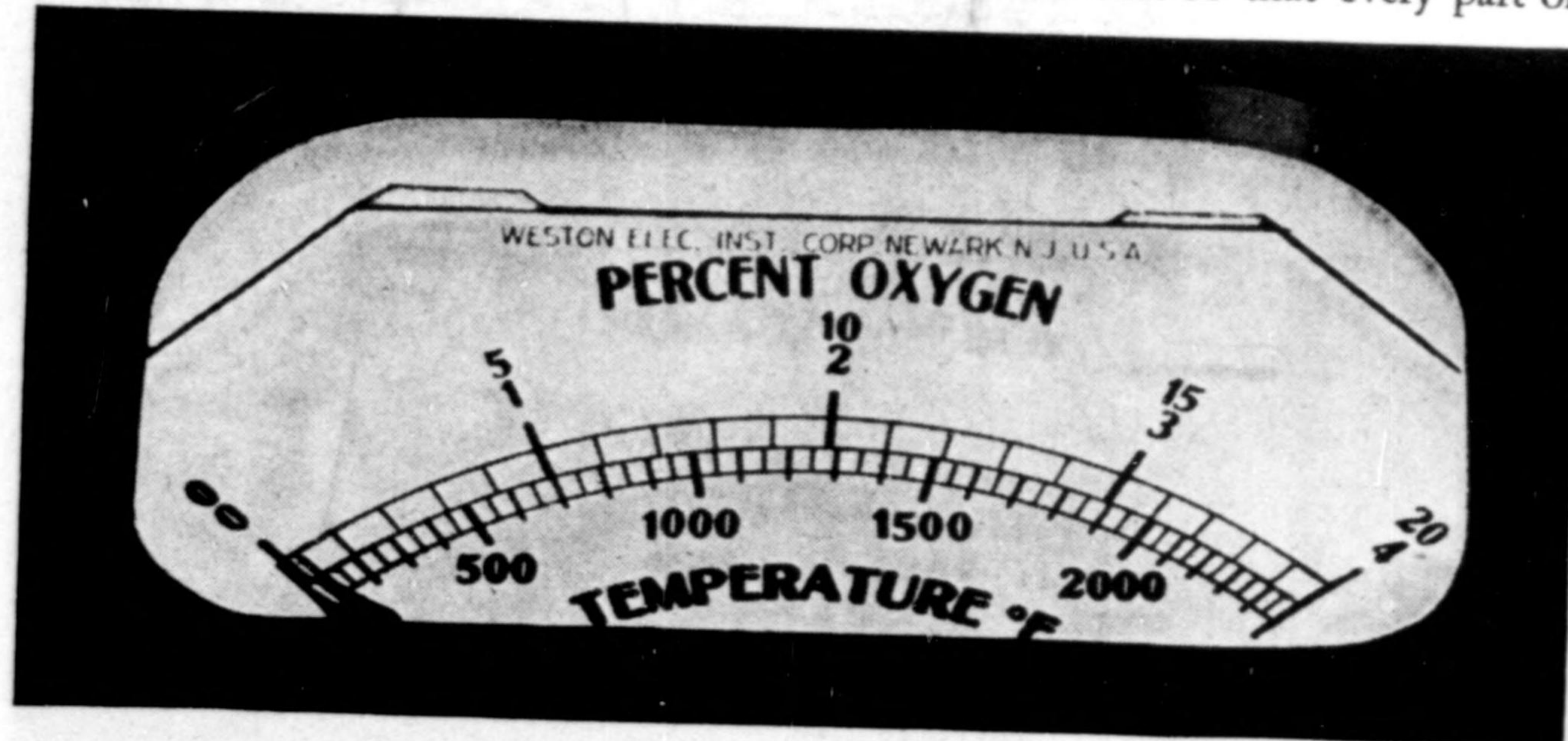
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These dials on the compact portable Heat Prover instantly register an analysis of flue gases.

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Fuel Cut 3000 lbs. Daily

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**Name on request.*



FOR EVERY LUBRICATION PROBLEM CALL Cities Service FIRST!

Wherever there is
Industry

**GOLD SEAL SERVICE
 IS VITALLY NEEDED**



PRECISION REBUILDING *at Lewt*

Not just an "overhaul" but a complete remanufacture—in a modern, brand-new, specially equipped factory, by factory methods, with production line techniques and skilled, precision workmanship. Advanced methods such as static and dynamic balancing, inspection at every station of the line,

Labor trends

(continued)

and Hour Act — probably is not as serious as the fact that unions will demand portal-to-portal pay in more and more plants.

Portal-to-portal pay had its origin in the mining industry. There an employee's time began when he first swung a pick at the working face. But hard-rock miners and some coal miners spent two hours a day between portal and work face — in change rooms, shaft lifts, walking to the face. Union pressures, plus court decisions won by United Mine, Mill & Smelter Workers, have forced portal-to-portal pay in mining.

The Supreme Court decision in the Mt. Clemens Pottery Co. case applies the same principle to an above-ground plant in which a "substantial" amount of time is spent in walking from gates to work-places, to and from time clocks, and changing to work clothes.

In the Mt. Clemens case only 18 min. a day was involved. In many plants longer periods are required

daily between entrance through the plant gate and punching time clocks.

Steel mills, with long distances between end of transportation and time clocks will be among the first to feel union pressure for portal-to-portal in negotiations with USA-CIO this spring.

Smart management men are looking to improved plant facilities for a possible solution: quicker movement of workers from end of transportation to work places.

Briefly noted

★ Guardian Electric Co., Chicago, is recruiting new workers, cutting absenteeism by paying time and a half for last five hours of each 40-hour week worked.

★ Hoberg Paper Mills, Green Bay, Wis., spurs employee interest in recreation program by pitting ex-Navy Athletic teams against ex-Army squads.



PRECISION REBUILDING *at Last!*

Not just an "overhaul" but a complete remanufacture—in a modern, brand-new, specially equipped factory, by factory methods, with production line techniques and skilled, precision workmanship. Advanced methods such as static and dynamic balancing, inspection at every station of the line, and power-testing are just part of the Service. New engine performance is guaranteed. Inquiries are invited as to how Gold Seal

Service can be applied to your maintenance problems.

AVAILABLE WHEREVER NEEDED
Gold Seal Service embraces more than engine rebuilding. It is a complete service, providing availability on the job of replacement units, whether engines are industrial, automotive, or marine.



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ENGINE REBUILD CORPORATION

**100 INTERNATIONAL RD.
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YOU'RE SURE GETTING THE WORK OUT BOYS!

IT'S A CINCH WITH THESE *Nutting's* I NEVER KNEW A TRUCK COULD HANDLE SO EASY

To speed up your materials handling and reduce handling costs—put your problems up to a Nutting Sales Engineer. Look in your classified phone directory for his name, or write direct to us.

Ask for Bulletin 47-G

See Nutting Exhibit, Space 441-442, POWER SHOW, NEW YORK, Dec. 2-7.

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NUTTING TRUCK
and **CASTER COMPANY**

2504 DIVISION ST., FARIBAULT, MINNESOTA

Modern Industry

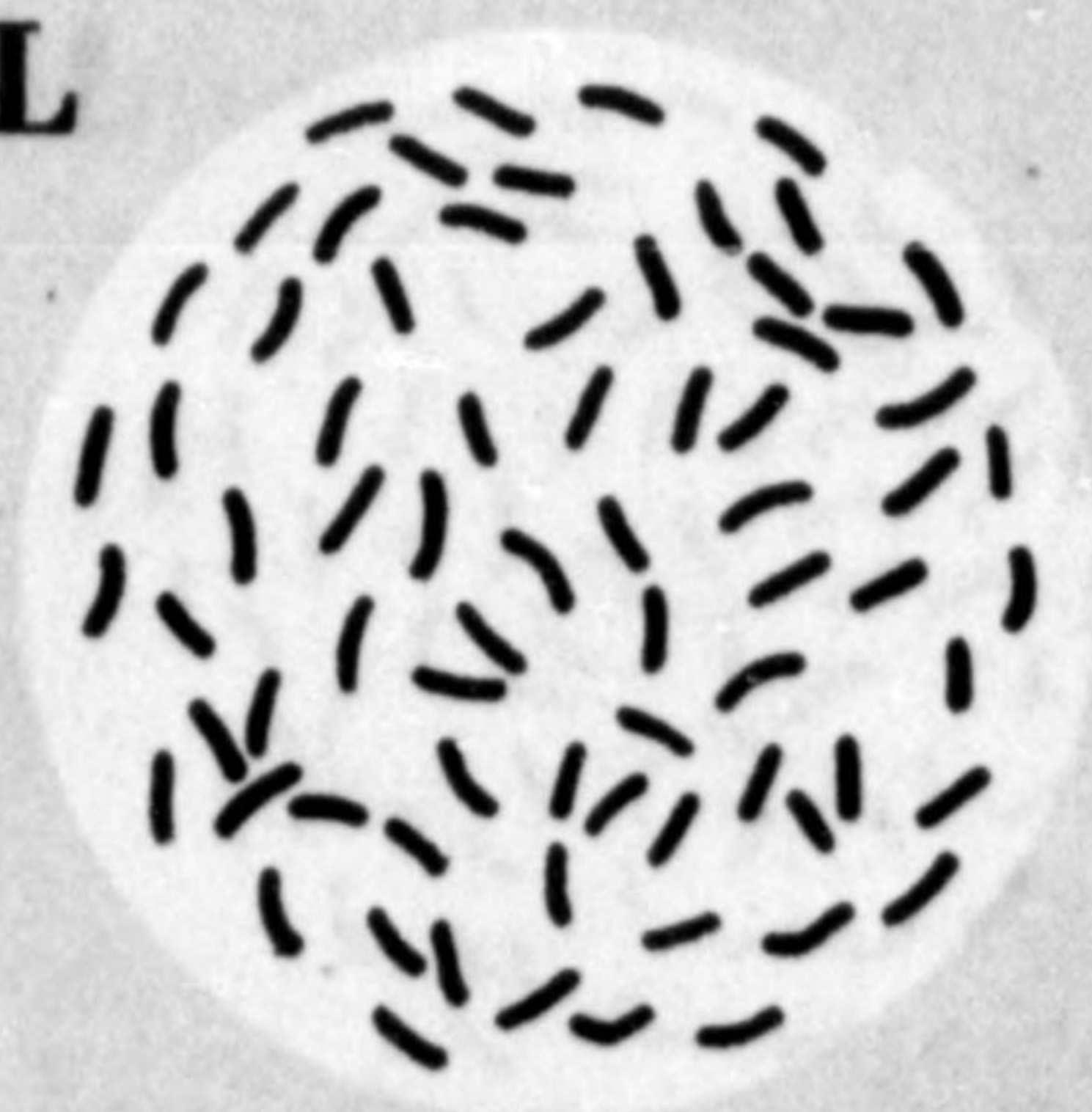
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THE

LONG

ADVENTURE

BY MARIE McCALL





The
LONG ADVENTURE

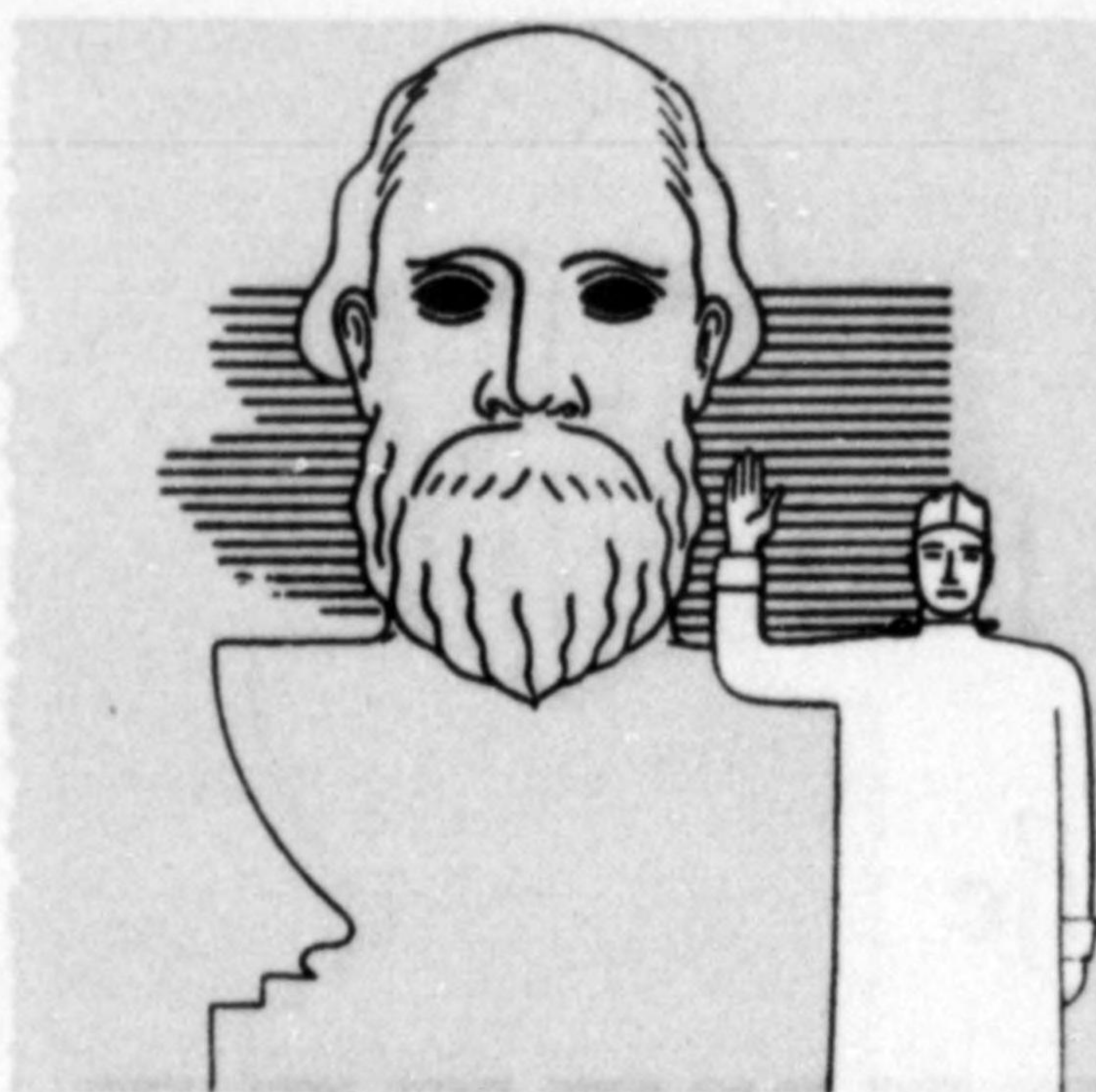
CHAPTERS IN THE STORY OF TUBERCULOSIS CONTROL

BY MARIE McCALL

Copyright, 1946

by

NATIONAL TUBERCULOSIS ASSOCIATION

**I****SWEAR BY APOLLO**

IT IS a long and daring and stirring adventure, the story of the men who sought to penetrate the mystery of tuberculosis. It was a dangerous quest. The enemy they sought was invisible, striking in a secret way that baffled detection. Each man went alone into combat against it, armed only with courage and hope. Some were themselves stricken. Others discovered amazing yet vital facts that were received with scorn by a disbelieving world. Yet in spite of doubt, in spite of defeats, these men persisted. Slowly the darkness surrounding the disease was penetrated.

Far back in history this mighty foe of man existed, called by many names: phthisis, scrofula, consumption, the White Plague. Even before history was recorded it oppressed the world, leaving its telltale marks in skeletons of Neolithic Man and Egyptian mummies. But today the tyranny of tuberculosis is shaken. Countless millions are indebted for their lives to the men of science who fought it.

The first of these was Hippocrates, the "Father of Medicine," born in Greece in 460 B.C. He started the adventure, daring to look at the various diseases of man with curiosity and sympathy, when others of his time were turning from them as signs of inferiority and punishment by the gods. He it was who elevated medicine to the nobility of a science, separating it from magic and philosophy and basing it upon a first-hand study of nature. He infused it with ethical ideals and such was the integrity of his own character that those ideals, which are expressed

in the Hippocratic Oath, are sworn to by every new doctor of medicine today.

Hippocrates had no marvelously wrought medical instruments for diagnosis. He had only the training of his senses through careful examination of patients and the clear and unafraid observation of his keen mind.

With his recognition and description of the symptoms of tuberculosis he forged the first link of a long chain for the control of this disease. The Hippocratic writings (the work of Hippocrates, his colleagues and followers) were the first detailed descriptions of disease, amazingly accurate even today.

After his time the open-minded scientific spirit of his teaching was replaced by rigid rules. Bedside teaching gave way to discourse on the lecture platform. Little advance was made in European medicine for the next two thousand years.

With the progress made in the study of anatomy in the 17th century, Franciscus Sylvius, a professor of clinical medicine in the University of Leyden, first described the small hard nodules called tubercles and associated them with tuberculosis. Among others who also recognized this characteristic of the disease were Drs. Richard Morton in England and Gaspard Bayle in France. In Austria Dr. Leopold Auenbrugger overcame some of the difficulties of diagnosis by his invention of percussion, the tapping on the chest which revealed abnormal sounds that could be recognized by the trained ear.

Then, late in the 18th century in a city of France, we find a young explorer in the field of medicine who was to clear up much of the confusion of the medical world in regard to tuberculosis.



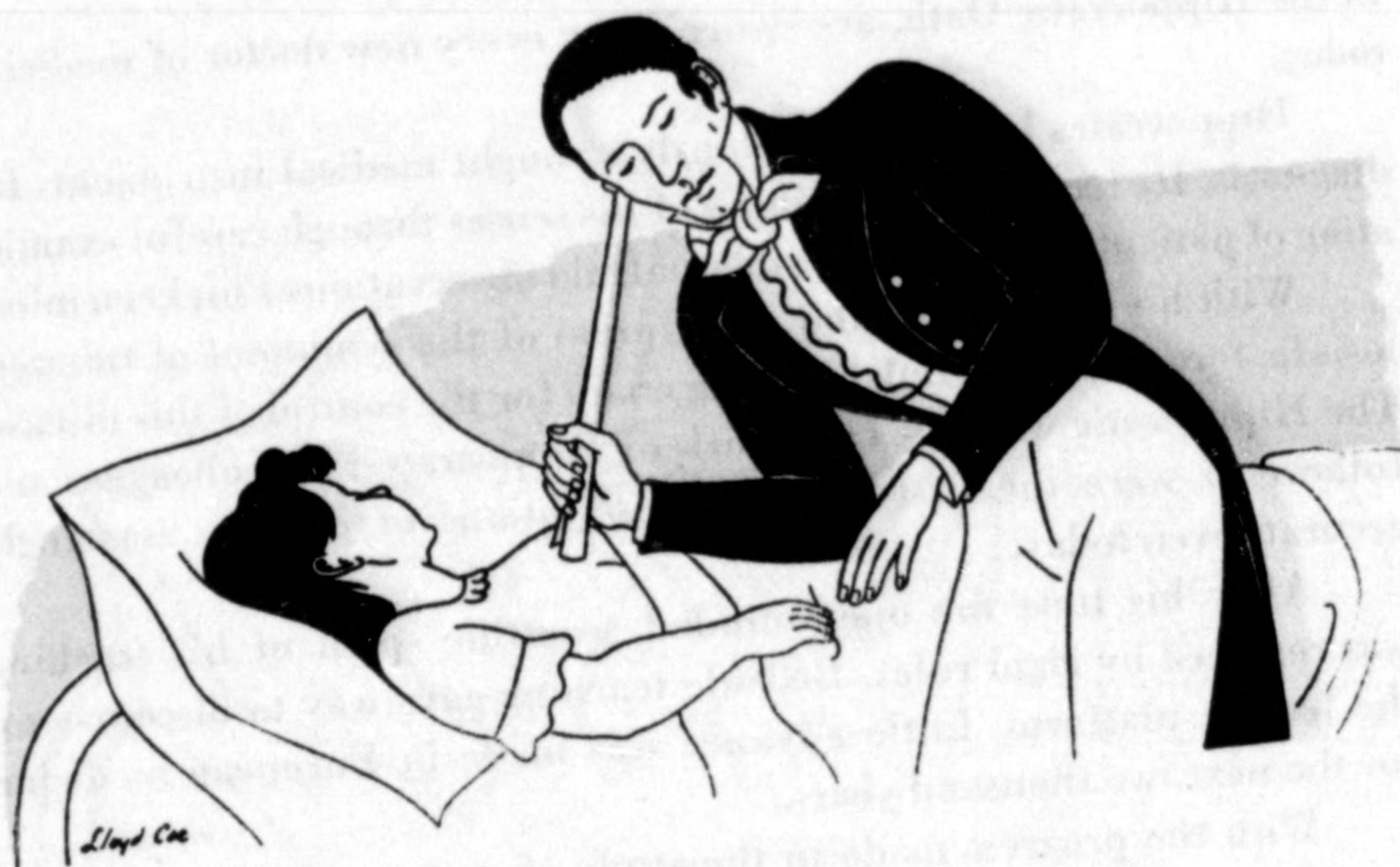
CLEAR CAME THE SECRET VOICES

THE SCENE was the Hôtel Dieu, the city hospital of Nantes, and the young student of medicine was René Theophile Hyacinthe Laënnec, just fourteen years old.

This boy who became a military surgeon for the Armies of the Republic at eighteen was born in the old seaport of Quimper in Brittany in 1781. Theophile's early ambitions were to be a poet and an engineer, but the scales were weighted in favor of medicine by the persuasion of an uncle who was a doctor.

In 1801 Laënnec set out for the great School of Medicine in Paris. During his years in Paris he often suffered with what he termed "asthma" (that fatally deceptive guise which tuberculosis often takes). He had a continual struggle against poverty, but awards he received in medicine and surgery helped out a little. His lectures and his numerous articles in the *Journal of Medicine*, of which he became one of the editors, aroused tremendous interest and built his reputation as one of the most brilliant young doctors of France.

Laënnec proved that the tubercle in any form, at any place in the body, meant tuberculosis; that scrofula was in reality tuberculosis of the lymph glands, and that some twenty other diseases called by various names actually were all tuberculosis. He recognized the possibility of latent tuberculosis—that the tubercles might be present yet not active in



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making the body sick. He believed, as did few of his time, that advanced tuberculosis could be cured.

In the chaotic days of 1814 when the Napoleonic Empire was crumbling, Laënnec gave most of his time to the care of sick and wounded soldiers. But his most intense efforts were always directed toward combating tuberculosis. His brother had died of it, and Laënnec also had ample opportunity to study the disease first hand as one out of every three patients in the hospitals had it. His deepest desire was to relieve suffering, and as this could be done effectively only after diagnosing the patient's sickness, it led him to his great invention.

It was in the year 1819, and a young girl lay sick of some heart disorder in the Necker Hospital in Paris. As Dr. Laënnec leaned close, trying to listen to the sounds of her heart blanketed under corpulent flesh, she shrank from him in confused modesty. Anxious to find the cause of the trouble, yet baffled by both her obesity and her modesty, Laënnec left the hospital and walked in the garden pondering the case.

His attention was attracted by a group of children playing. Some were tapping at one end of a log, while the others were listening in delight at the opposite end. Immediately Laënnec realized the acoustic principle involved in their play. He sped back to the hospital and his patient, snatched up some paper, rolled it into a tight cylinder, and putting one end of the tube against her chest, pressed his ear against the other end. The result was extraordinary! Clearer — more distinct by far than he had ever heard before — came the secret voices of the chest.

Laënnec called his invention the "stethoscope" (from the Greek meaning *chest-examiner*). It was not long before he set about improving it, because a paper stethoscope soon wore out, especially with the enthusiastic use he gave it. He listened to the chest sounds of patients no matter what their ailments — smallpox, fever, paralysis or gout! In order to make a more durable instrument he learned to turn a lathe, and he experimented with many kinds of wood before deciding that beech and linden were the best sound carriers.

Always when Laënnec listened with his stethoscope he made notes on the varying tone, pitch and kind of sound associated with different diseases. His early interest in music, which had made his ear sensitive to sounds, was a most valuable help in these medical studies.

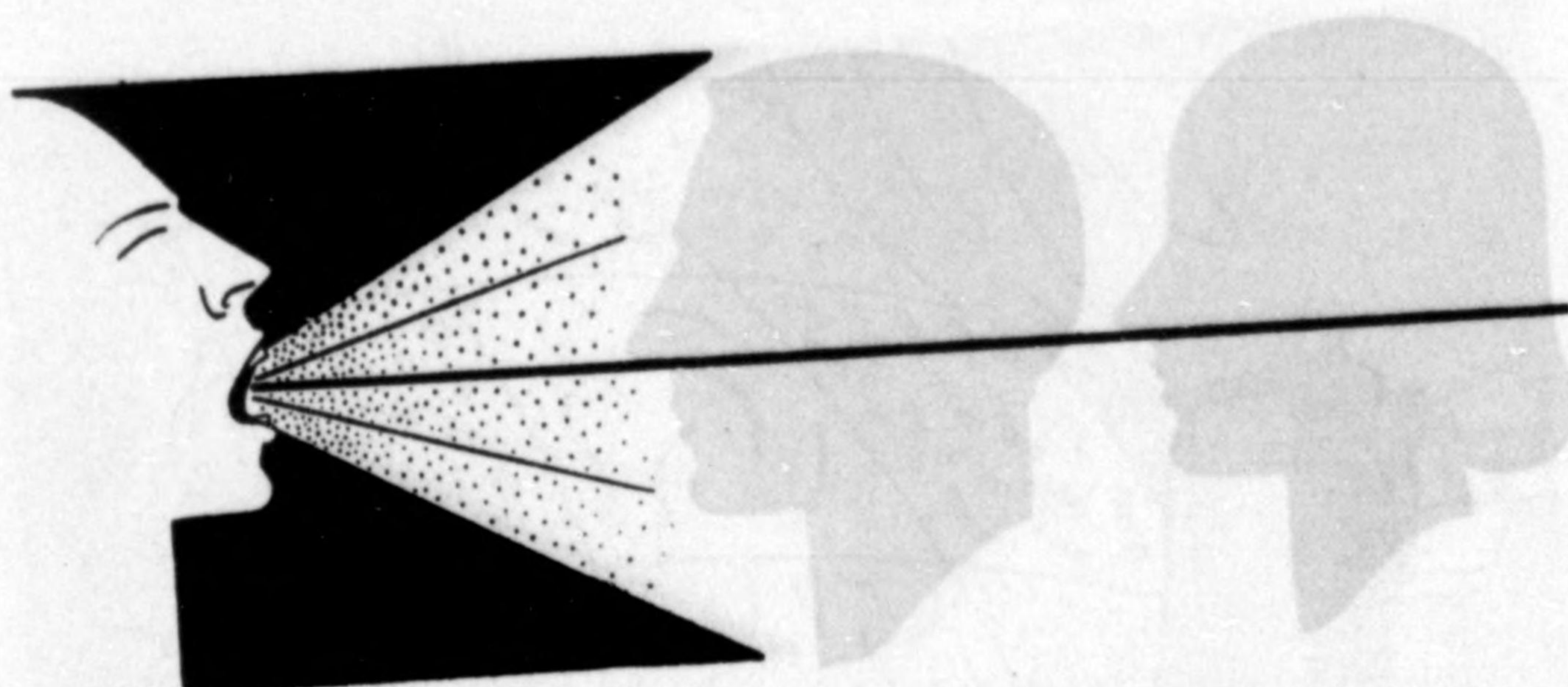
In 1819 he published his immortal work on diagnosis of diseases of the chest. His achievements were set down, and also his failures, for

the latter would warn others and prevent them from wasting time on false trails.

It was not until he had reached the age of thirty-eight that he suspected that he himself had tuberculosis. He retired to Kerlouarnec, the old family estate which his later prosperity had enabled him to restore. Here he spent two fairly quiet years, walking in the woods with his dogs, riding horseback, and helping the sick poor of the little Brittany village. His health improved slightly, and not realizing that more complete and longer rest was absolutely necessary, he returned to Paris.

Again patients crowded his consulting room, and his lectures at the Necker Hospital were thronged with physicians from all Europe. In 1826, a relapse sent him on his last retreat to Kerlouarnec, where he died on August 13th.

Thus one great scientist fell in the battle against tuberculosis. But not before he had put into the hands of others vital weapons to help in its destruction: the stethoscope which aided all future doctors in diagnosis of the disease, and his great book which marks the beginning of our exact knowledge of its nature.



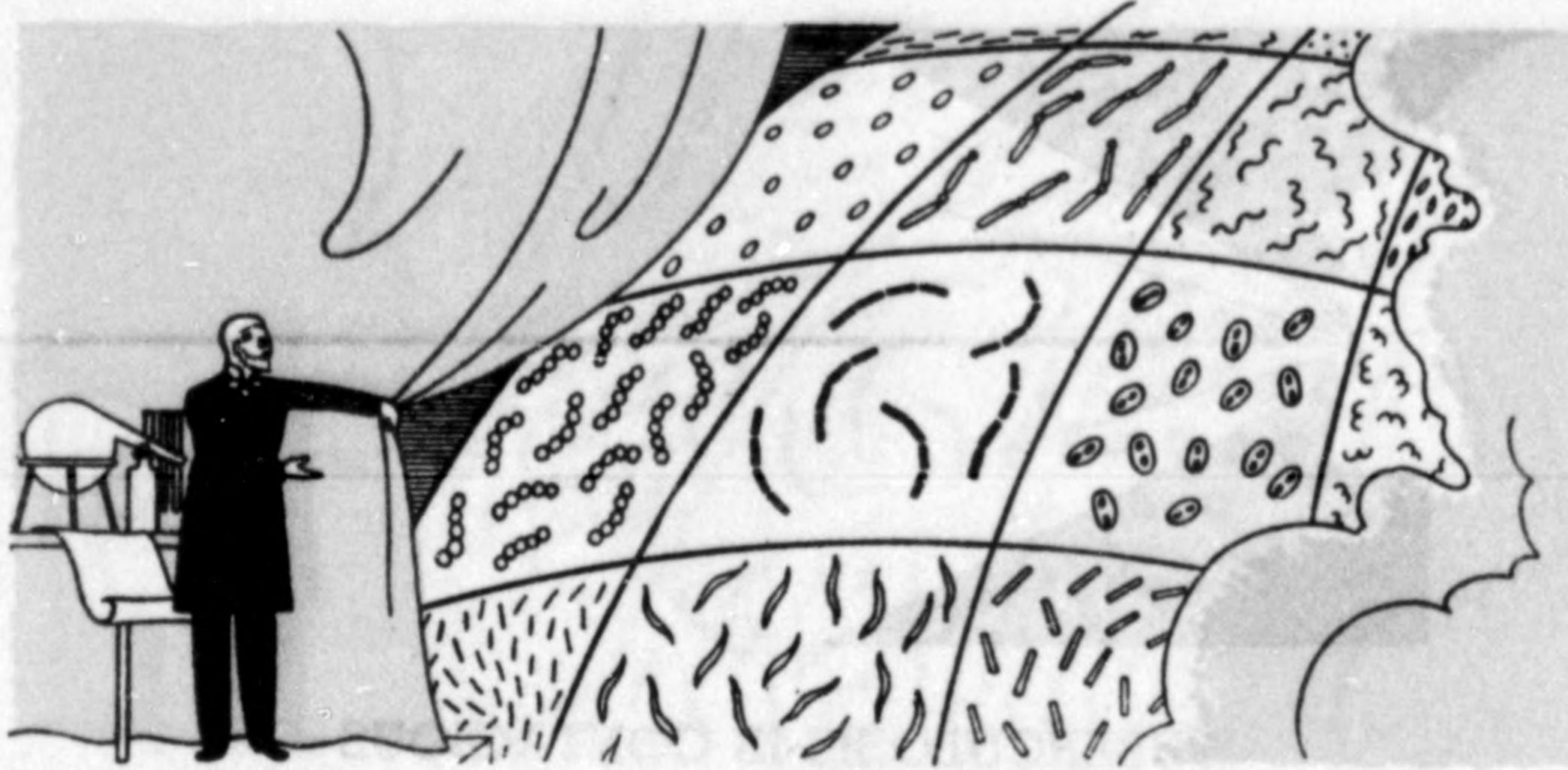
TUBERCULOSIS IS CONTAGIOUS

JUST ONE YEAR after Laënnec's death, in 1827, a child was born in another little French town who was to add a further link in the great chain to control tuberculosis. Jean-Antoine Villemin, a medical graduate of the University of Strassburg in 1852, later became a professor at the École de Val de Grâce in Paris. Under his quiet manner he burned a passion for scientific truth. He had proof to support him when he told the world that tuberculosis was contagious, that it was due to one specific agent, and that it could be produced by inoculation from man to the lower animals.

Patiently and diligently he had carried out numberless experiments from 1865 to 1868. One of these experiments consisted of taking pieces of wool which he contaminated with the sputum of tuberculous patients. This wool he used for beds in the cages of his guinea pigs. Invariably the little animals caught the infection. What the specific cause was Dr. Villemin could not say. But he did prove that tuberculosis reproduces itself, and is not the result of many and different external and internal causes as was generally believed.

Villemin's discovery encountered ridicule and abuse. "Tuberculosis caused by only *one* specific thing?" scoffed medical leaders. "If that were so we would have to go on an endless search for a specific cause and a specific remedy for *every* infectious disease!" These words, though said in scorn, turned out to be the truth.

Yet what *was* the cause of tuberculosis? What caused all the grievous diseases of man? Did they come out of the air? From the ground? From dirt, mud, miasma? Strange as such ideas seem now, they were believed by everybody until one great man rose to refute them.



A STRANGE WORLD IS DISCOVERED

LOUIS PASTEUR, the dynamic French chemist, found the amazing answer to what caused infectious disease. He did not find the specific cause of tuberculosis, but he did discover a new world, greater by far than Columbus' discovery in its effect upon the welfare of mankind. He discovered the new-old world of bacteria.

Born in 1822, he became interested in chemistry while he was at school. After graduation from the École Normale in Paris, he became Professor of Physics at the Lyceum at Dijon, and his work in crystallography made him known among the chemists of his day.

During the 1850's while he was Professor and Dean of the Faculty of Sciences in Lille, he was begged by the wine-growers to help them find the cause and remedy of a disastrous disease that was spoiling their wines. He accepted the challenge.

Before his time fermentation was looked upon as a strange and obscure process. Pasteur penetrated its mystery when he realized that yeast was something living and multiplying, and that each fermentation, whether in beer, wine, vinegar or sour milk, was produced by a special microbe. Then his imaginative mind saw a similarity in the twin mysteries of fermentation and contagion, and his experiments proved that minute, living organisms were the cause of contagious diseases.

Pasteur did not release this startling knowledge of a dangerous germ-laden world without trying to give practical help to control it. And indeed he proved that harmful germs could be destroyed. The process

which he evolved for destroying them by means of heat became known as *pasteurization*.

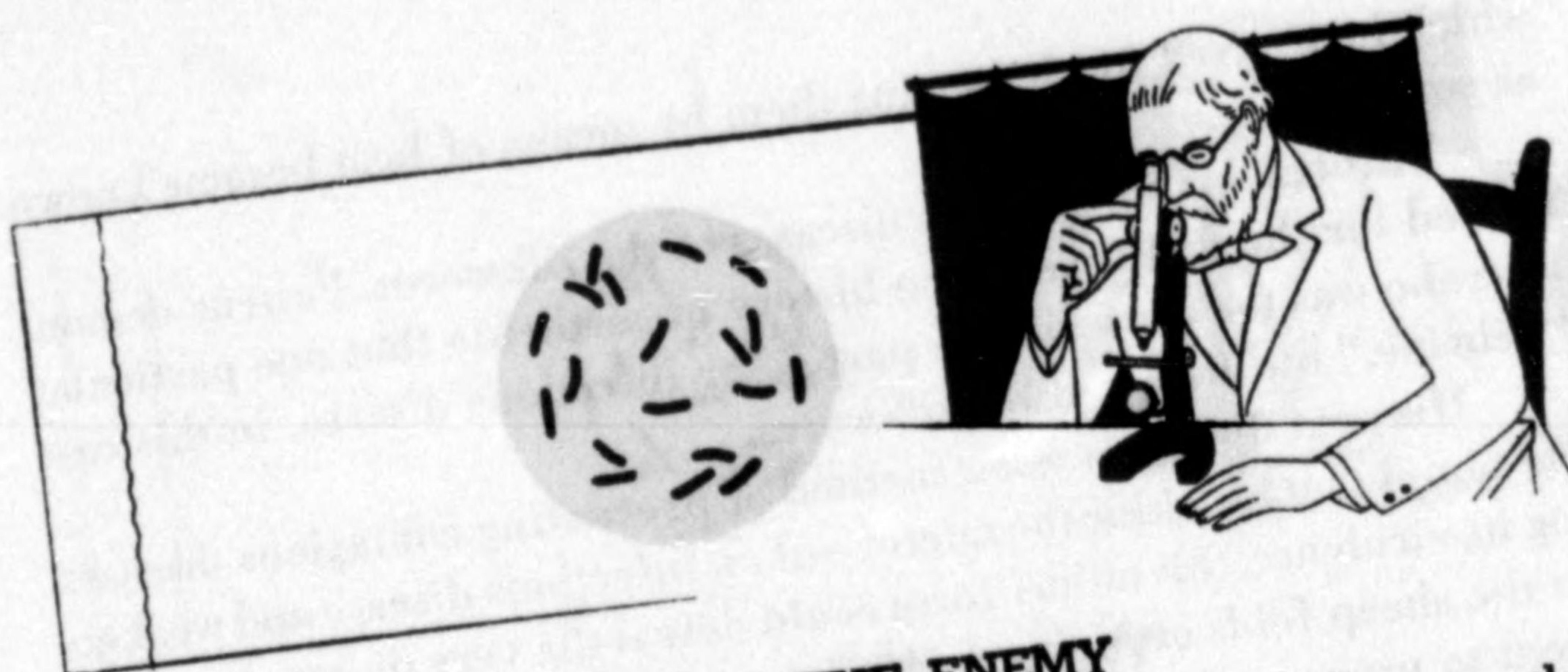
Through his study of the diseases of the silkworm, Pasteur demonstrated for the first time in the history of medicine that one particular microbe was the cause of one particular infectious disease, in this case "pébrine," the disease of the silkworm.

His next discovery was a method of preventing contagious diseases. He found that by taking the microbe of an infectious disease and weakening its virulence, this milder form could defeat the very disease it caused. In the sheep folds of Melun in 1881 he made his world-famous experiment to prove immunization. The sheep he inoculated with his anthrax vaccine did not get anthrax, while those which were not vaccinated died of the disease.



The application of Pasteur's "germ theory" opened a new era in the treatment of wounds and surgery. The renowned English surgeon, Sir Joseph Lister, working on the French chemist's theory that a doctor might carry deadly germs from sick patients to healthy people, developed antiseptic surgery.

One of Pasteur's greatest contributions to the world was his vaccine against hydrophobia (rabies). The crowning tribute to this great Frenchman was the establishment by the Government of the Pasteur Institute — a dispensary for the treatment of hydrophobia and a center for teaching and research on contagious diseases. Pasteur was Director of the Institute from its opening in 1888 until the day of his death on September 28, 1895.



BEHOLD THE ENEMY

IN THE WORLD of bacteriology discovered by Pasteur, another daring scientist found a long sought enemy. Robert Koch, born in 1843, one of thirteen children of a humble mining engineer of Klausthal, Germany, was the discoverer of the cause of tuberculosis.

Koch had studied at Göttingen University under the great anatomist Jacob Henle, and as a student had won an award for research work. He had volunteered as a surgeon in the Franco-Prussian war. In 1872, he was the young district physician of Wollstein, a small town near the Polish frontier. But what time, and what facilities did a practicing physician in a small border town have for research? He studied and thought things out as best he could, and then a birthday present launched him on his voyage of discovery. It was a microscope given to him by his wife, Emmy, who had scrimped and saved to give him the thing he desired most in the world.

Starting with the microscope, young Dr. Koch fashioned a laboratory in a corner of his consulting room. It consisted of a black curtain drawn against the rest of the room, a microtome, a homemade incubator and the precious microscope. In this humble laboratory he performed the scientific feat of demonstrating the life-history of a germ. It was the *Bacillus Anthracis* he had captured, which causes the fatal disease of anthrax in cattle, sheep, horses, oxen, and is communicable to man. Koch's discovery was confirmed by Pasteur, who had evolved his immunity theory from his own work on anthrax.

After about five years' labor on the problem, Koch gave his demonstration at the University of Breslau before the botanist, Ferdinand Cohn, Julius Cohnheim, the pathologist, and their colleagues. He was almost unknown to the research society he addressed. Yet he held these

famous men spellbound as he carried them step by step through the crystal-clear evidence he had gathered on the secret life of the germ that causes anthrax.

Through the influence of Cohn and Cohnheim, he was appointed to the staff of the Imperial Health Bureau in Berlin. Here he had opportunity to direct the full powers of his intellect to charting the unknown and chaotic seas of the bacteriological world.

He laid the scientific foundation for bacteriology with his "Four Postulates," without which no bacteriological experiment is held to be valid. These were: 1. To prove that a specific germ is the cause of a specific disease, it must be present in all cases of the disease. 2. This germ must be grown outside the body in "pure culture" (i.e. isolated from all other germs). 3. By inoculation in healthy animals, this germ from the pure culture must cause its specific disease. 4. This germ must again be obtained from these inoculated animals, and again grown in pure culture.

Koch invented a technique for the growing of individual microbes separately which he called his "poured plate" method. Up to this time, germs had usually been grown in liquid media, and germs of various kinds were so mixed together that it was almost impossible to separate them. His invention was a mixture of solidified gelatin and beef broth. When the germ grew into a colony of similar germs, some of these could be put on a slide and studied under the microscope. In this way, Koch drew the strange world of bacteria nearer to human understanding and control.

But no scientist ever rests on his laurels. His life is one of endless effort. The joy of success, the disappointment of failure, are feelings of a moment, soon lost in contemplation of the next project.

Throughout his life no subject interested Koch more than tuberculosis. In spite of his demonstration that many diseases are caused by germs, the medical world generally still believed that tuberculosis was due to a variety of causes; that cold, humidity, dust, damp earth, could bring it about.

Again and again Koch sought the specific germ. Day after day he brought infectious material from the Royal Charité Hospital for study in his laboratory. He examined it under the strongest microscope, but he could not find the germ. He inoculated guinea pigs and rabbits with it, and always they died of tuberculosis, but never could he see the germ that

killed them. He used stains and dyes that had revealed other elusive germs, and still he failed.

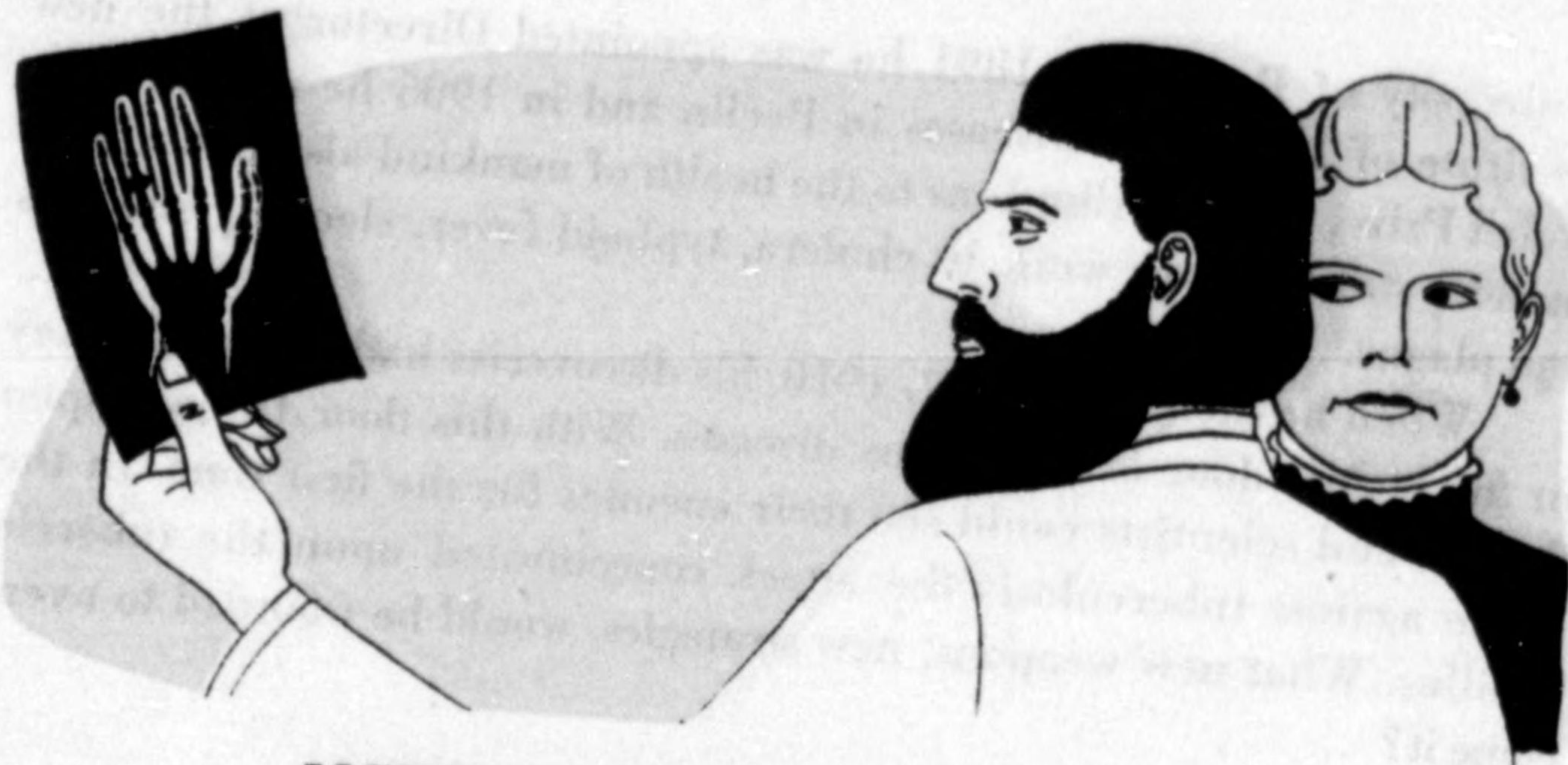
But he did not give up. It is the creed of the scientist to go on in spite of failure, in spite of danger, regardless of how hopeless the outcome seems. With persistent courage Koch went on. And then one day he tried a new combination of dyes. He added potash to his methylene blue, counterstained the tuberculous tissue with vesuvin, and — there was the enemy! Robert Koch's near-sighted eyes were the first in the world to behold it. What did it look like? It looked like a thin rod, stained blue, 110,000th of an inch long and one-third as wide, and Koch called it the tubercle bacillus.

Now at last the enemy was out in the open! But Dr. Koch was a cautious and vigilant man. He must test the enemy by his own severe tests of the four postulates to make certain that this was the great foe itself. But he encountered more difficulties. The tubercle bacillus would not grow in the media he had used for the growth of other germs. He tried many substances, failed, and tried again. And then at last, with a preparation of the blood serum of cattle, he succeeded. After watching for fifteen long days he saw the sprouting of that garden of evil — a colony of tubercle bacilli.

On March 24, 1882, he convicted the tubercle bacillus before the distinguished Physiological Society of Berlin. Although there were many former doubters among that audience, and although meetings of the Society were always stormy scenes of debate, when Koch finished reading his paper not a single question was raised. Silence followed — the awe of silence with which men greet an overwhelming revelation. Koch's discovery proved beyond all doubt that tuberculosis was caused by one specific germ — the tubercle bacillus.

In 1890 Koch thought he had found a remedy for tuberculosis in tuberculin, a laboratory product he made of boiled glycerine extract of the tubercle bacillus. This raised vain hopes, for it did not prove to be a cure. Tuberculin, however, became a valuable aid in diagnosis. Dr. Clemens von Pirquet in Vienna and Dr. Charles Mantoux in Paris used tuberculin for tests that showed whether or not living tuberculosis germs were in the body. A skin reaction to tuberculin did not prove that a person had the disease tuberculosis. It did show the necessity for further careful check-up.

The Chair of Hygiene and Bacteriology was created for Koch at the



LIGHT FOR THE EYES OF SCIENCE

IT WAS Friday evening, November 8, 1895, when a famous physicist made a discovery that revolutionized the fight against disease. Professor Wilhelm Conrad Roentgen was alone in his laboratory in the Physical Institute of the University of Würzburg, Germany. He was making experiments on radiation, trying to fathom the mysteries of the cathode rays. The usual apparatus was set up, the Hittorf-Crookes vacuum tube, a Ruhmkorff induction coil and a mercury interrupter. Over the tube Roentgen had placed a shield of black cardboard and drawn the shades so that the room was in complete darkness. Then he switched on the current.

Something strange happened. A sheet of paper treated with barium platinocyanide that was lying on the desk near the tube began to glow. What caused it? The room was still totally dark, except for just that one spot — that strangely glowing paper. No light ever seen caused this glow; no electricity in any known form. It was some mysterious ray coming from the tube, invisible as the wind, with only the effect produced on the sensitized paper to show its presence.

Roentgen lost no time wondering, theorizing or philosophizing. He set to work investigating. He subjected the new ray to hundreds of tests. He found that it could penetrate not only the black cardboard, but wood, cloth, rubber—substances through which no other light could go. Holding his hand between the tube and the fluorescent paper, he found that these strange rays could even penetrate flesh. Under the shadowy outline of the fingers, his bones showed clear and startling.

Roentgen told no one of his discovery. He worked alone in his

laboratory for many weeks, hardly interrupting his thrilling experiments to eat or sleep. This "dark light" was such a phenomenon that its discoverer could scarcely believe it himself. Many other scientists must have seen what Roentgen saw, working along the lines of research of Hertz and Lenard on cathode rays. But it is not the unheeding sight of the eyes that reveals wonders. It is the keenness of the curious and searching mind. Only Roentgen probed the significance of that glowing paper.

One day he conceived the idea of substituting a photographic plate for the sensitized paper. With his wife's hand as a model, he made a photograph such as had never been seen before: a skeleton hand with a ring on one finger!

On December 28th, Roentgen made the first report of his discovery to the Physical Medical Society of Würzburg. He called it simply a new kind of ray, and spoke of it as "X"-ray because of its unknown quality.

His report was printed and distributed during the early days of January, 1896, and was republished in many countries. What a New Year's present to the world! Scientists returning from their Christmas holidays went to work in their laboratories and became as excited as schoolboys when they attained the same results as Roentgen. None ever forgot the peculiar, rather startled feeling he had when he first beheld the shadow of his own living bones.

This "new photography" stirred the imagination of the world. The layman was as interested as the scientist. Newspapers and magazines carried articles and eerie pictures. In New York, Thomas A. Edison arranged an exhibit at the Electrical Exhibition and people flocked to it to "see their own bones." Many were amused and many were fearful. Some whose feelings of modesty were shocked declared that such exposure of their bones was indecent. It was an exciting and dramatic time.

The most significant consequence of the great discovery was its effect upon medicine. The X-ray was first used for accurate diagnosis of injuries to and diseases of the bones. Before long, however, technical improvements of the apparatus permitted studies of other parts of the body. The fighters against tuberculosis took up the new weapon. With it they looked through the chest and saw exactly what damage the tubercle bacillus was causing in the lung. The germ no longer had any hiding place. Here was an astonishing means of detecting the disease long before any outward symptoms appeared. It was to become the most vital weapon in the attack on tuberculosis.

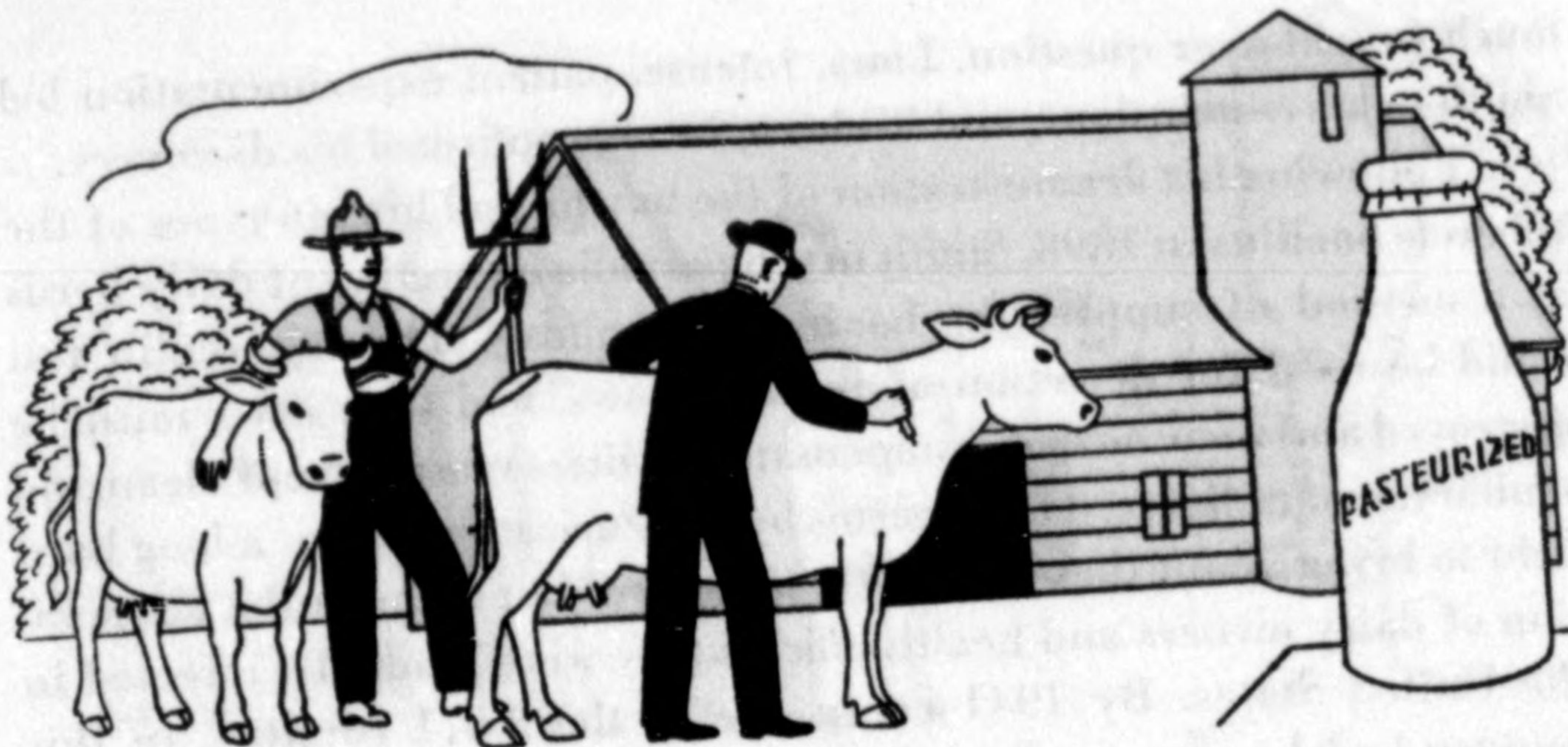
The man who made all this possible was already well-known in scientific circles at the time of his discovery. He was born in Lennep, Germany, in 1845. His father and mother were of well-to-do merchant families, and when Roentgen was three years old they moved to Apeldoorn, Holland. He spent his schooldays here and in the Zürich Polytechnic School. It was in Switzerland that he met two persons destined to play important parts in his life. One was Anna Bertha Ludwig, who became his wife in 1872; the other a young professor of physics, August Kundt, who first interested him in physics and brought him as assistant to the Physical Institute at Würzburg.

Although Roentgen had taken degrees of mechanical engineer and doctor of philosophy, his career lay in research in physics. He was Professor of Physics at the Universities of Strassburg, Hohenheim, Giesesen, and became Director of the Würzburg Physical Institute in 1888. His deepest happiness in life, as is the way of scientists, lay in his work. "The inner satisfaction over a problem successfully solved means more than any outside recognition," he would say to his students.

But the quiet simplicity of his life was interrupted by the world's acclaim over his discovery. At a lecture before the Würzburg Physical Medical Society in January, 1896, his colleagues voted to call his new rays "roentgen rays" in his honor. The Medical Faculty gave him an Honorary Degree of Doctor of Medicine. He was requested to give a personal demonstration before Kaiser Wilhelm II in Potsdam, and was decorated by the Kaiser personally. In 1900, at the special request of the Bavarian Government, he accepted the post of Head of the Physical Institute of the University of Munich. The following year he received the first Nobel Prize ever awarded for physics.

Roentgen's greatest happiness and pride were in the priceless benefits conferred on humanity by his discovery of the mighty X-ray. He was well aware of its monetary value, but gave it freely, deriving no personal profit from it. His generosity enabled scientists to work unhampered by patents and licenses, and was responsible for the rapid development of the use of the X-ray in many fields beside medicine. It was used in industry to reveal defects in material and machinery; it was used to detect adulterated foodstuffs, spurious porcelains, paintings and jewels.

When Roentgen died on February 10, 1923, he left a lighted way for the eyes of science. By this light the men who were hunting down tuberculosis saw a means of eliminating this disease from the earth.



BOVINE TUBERCULOSIS UNDER CONTROL

THE GREAT discoveries that advanced medicine were by no means immediately used nor were they at once universally accepted. This took time, and in the meanwhile other men were working separately to add to the growing knowledge about tuberculosis.

One of these was a brilliant young American scientist, Dr. Theobald Smith, born in Albany, New York, in 1859. In 1883 he graduated from the Albany Medical College and the following year joined the staff of the pathological laboratory of the Federal Bureau of Animal Industry in the United States Department of Agriculture. Lacking the necessary means for travel abroad to study the new fascinating science of bacteriology as so many young doctors were doing, he taught himself in the humble attic laboratory of the Government Bureau in Washington.

Theobald Smith was a born researcher and did notable work on hog cholera, swine plague and Texas fever of cattle. His discovery of the causes of these diseases and their consequent control saved the food supply of the nation which had been seriously threatened. In his study of Texas fever, wherein he demonstrated conclusively that the disease was transmitted by ticks, he opened the way for others to discover that disease is often spread by insect carriers.

Dr. Smith believed that the investigation of diseases of animals was of great usefulness in the study of human diseases, and his belief bore fruit when he established the difference between bovine and human tuberculosis. In proving the difference between two types of Koch's tubercle bacillus, the human type and the bovine type, Smith settled a

much fought-over question. Long, intense, patient experimentation led Smith to his conclusions, and his hero, Koch, confirmed his discovery.

Following his demonstration of the bovine and human types of the tubercle bacillus in 1898, Smith urged periodic inspection of dairy herds as a method of suppressing bovine tuberculosis. The tuberculin test could be used for detection of infected cows, and such cows must be destroyed and their owners compensated. Dairies must be kept clean and sanitary, and milk freed from germs by pasteurization. It was a long hard fight to bring about these measures of control but through the cooperation of dairy owners and health officers they were gradually effected in the United States. By 1941 every one of the 3,071 counties in this country had become accredited: that is — in no county was the percentage of cattle reacting to tuberculin greater than 0.5 per cent. Today it is an accepted fact that tubercle-free herds of dairy cattle and pasteurization of milk are the great safety guards against bovine tuberculosis infection of man.



DAWN OF HOPE

DURING the era of great medical discoveries on *causes* of various diseases, *treatment* also had its pioneers. Outstanding among these was Dr. Edward Livingston Trudeau. Even before Koch's discovery of the tubercle bacillus, young Dr. Trudeau was trying out a new form of treatment in the United States. With little more than faith and enthusiasm to sustain him, he founded sanatorium care for tuberculosis in America.

Born of well-to-do parents in New York in 1848, Trudeau lived abroad until he was seventeen. Although his father and grandfather were physicians, young Trudeau showed no early interest in medicine, preferring an easy life of pleasure with his friends in Paris and New York. It was to win the respect and love of Charlotte Beare, a Long Island clergyman's daughter, that he decided to study medicine. He graduated from the College of Physicians and Surgeons of New York, served his internship at The Strangers' Hospital, and in 1871 married the girl of his choice.

One sorrow marred his early years, the death of a beloved brother from tuberculosis. Trudeau tended him through a four months' illness. He strictly obeyed the doctor's orders, giving his brother the cough medicine prescribed and keeping the windows of his room tightly shut. As for himself, he took no precautions whatever, for tuberculosis was

still generally believed to be inherited and not contagious. Seven years after his brother's death, when he was twenty-four years old, Trudeau was told that he too had tuberculosis. It was like a death sentence, for in those days the disease was considered inevitably fatal. He wrote in his autobiography: "All my dreams of achievements were shattered now, and in their place only exile and the inevitable end."

Yet what Trudeau thought the end was in reality a beginning. He went to the Adirondack Mountains to die in the surroundings he loved, but instead, he found life there.

For the first year he lay dangerously ill, but rest, good food, the constant open-air life, gradually had a beneficial effect. Although doctors had long recommended sea voyages and sunny climes for tuberculous patients, Trudeau with his family braved winters in the mountains and his health improved. His characteristic joy in life found expression in hunting, fishing, driving, reading, the good-fellowship of the mountain guides and sportsmen who came for the hunting season. His first intimation of the paramount importance of *rest* came when he noticed that on days following the exertion of a fox-hunt he was sick and feverish. After this realization, his faith in the *rest cure* was firmly established.

Now that Trudeau's pioneer experiment on himself was successful, he began to think how others could be benefited in the same way. An idea crystallized when he read an account of Dr. Hermann Brehmer's sanatorium for tuberculosis in Goerbersdorf, Germany.

Dr. Brehmer, even as a young medical student, had believed that: "tuberculosis of the lung in the beginning is always curable." He believed that patients in the early stage of the disease should be treated in a separate institution. This led to his establishment of the first "sanatorium," where his new method of treatment consisted of abundant food, fresh air and graded exercises. A patient of his, Dr. Peter Dettweiler, who later became his assistant, was the first to grasp the great importance of rest. The opening of Dettweiler's sanatorium at Falkenstein was the beginning of the era of "rest cure."

An English doctor, George Bodington, had also tried out these modern methods of treatment some years previously. However, the bitter attacks to which he was subjected discouraged him, and it was Brehmer who forced the change in medical opinion and is recognized as the discoverer of sanatorium care for the tuberculous.

Inspired by the German doctor's example, Trudeau decided to

build a sanatorium at Saranac Lake. With private subscriptions from friends, both rich and poor, the first little cottage was completed in 1885. It was a wooden building of one room and a tiny porch, furnished with a wood stove, two cots, a washstand, two chairs and a kerosene lamp. Its first patients were two young factory girls, Alice and Mary Hunt, who arrived from New York in wretched health, poorly clad, frightened and weak after the long journey. This pioneer cottage, situated in a forest forty-two miles from the nearest railroad, was afterwards known as "The Little Red." Here began sanatorium treatment in America.

Again while reading one of his medical journals, Trudeau came upon thrilling news. It was an account of Koch's discovery of the tubercle bacillus. "The glamor of its possibilities in the prevention and cure of the disease took a strong hold on my imagination," he wrote.

Nothing would do but that he try out Koch's tests for himself. Trudeau's small laboratory at Saranac was the first in America devoted solely to the study of tuberculosis. Through his work here he converted many of the incredulous. Physicians who had not believed in "germs" now sent him specimens for laboratory diagnosis. Thus cases came to be detected earlier, and early treatment gave improved chances for recovery.

Rich and poor flocked to the wilderness sanatorium for treatment. Robert Louis Stevenson came with his mother. He was not a very good patient, for he hated the cold and in spite of regulations for open windows and outdoor life, he shut himself up in his cozy cottage with all the windows tightly closed. Here he wrote several essays and worked on "The Master of Ballantrae." Stevenson and Trudeau became good friends, and when Stevenson left after a six months' stay, he sent him his books, in one of which he wrote:

"Trudeau was all the winter at my side:
I never spied the nose of Mr. Hyde."

No misfortune or grief ever had the power to dim Trudeau's valiant spirit. Besides fighting tuberculosis in himself for years, he had suffered the loss of his brother and daughter from the disease. Yet he always preached hope and courage. He taught that rebellion availed nothing, that self-imposed discipline was the only way for the tuberculous invalid to survive.

This great, warm-hearted physician died in 1915 at the age of sixty-seven. He had lived to see the truth of his beliefs demonstrated in the growth of his Saranac Lake Sanatorium, which sent thousands of cured