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ANNUAL REPORT COVERING PERIOD  
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HEALTH DIVISION

ANNUAL REPORT COVERING PERIOD JULY 1949 THRU JUNE 1950

J. S. Felton, M. D.

Date Issued

MAR 5 1951

OAK RIDGE NATIONAL LABORATORY

operated by  
CARBIDE AND CARBON CHEMICALS DIVISION  
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ORNL - 943  
Annual Report

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ORNL - 943  
Annual Report

HEALTH DIVISION ANNUAL REPORT

July 1, 1949 - June 30, 1950

Jean S. Felton, M. D., Medical Director

SCOPE OF PROGRAM

An active program in industrial health has been maintained at the Oak Ridge National Laboratory during this period, with the objective in view of maintaining the best possible health status of the employed personnel. The specific component parts of this program are as follows:

I. INDUSTRIAL HEALTH PROGRAM AS IT RELATES TO THE INDIVIDUAL EMPLOYEE

The employee ordinarily is considered from three points of view: A. As a candidate for employment; B. As an employee requiring health maintenance; and C. As a sick or injured employee. The various procedures carried on under these divisions are as follows:

A. As a Candidate for Employment

1. Physical examination or inventory.
2. Visual examination through use of special rating equipment.
3. Audiometric study.
4. Personality appraisal through use of questionnaire.
5. Laboratory examinations.
  - a. Complete blood count.
  - b. Chest film.
  - c. Urinalysis.
  - d. Serodiagnostic test for syphilis.
  - e. Vital capacity (of workers with beryllium).
  - f. Special food handler examination.
  - g. Electrocardiogram.
  - h. Rh factor.
  - i. Blood typing.
  - j. Other diagnostic procedures as indicated.

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6. Immunization
  - a. Smallpox and typhoid fever vaccinations.
  - b. Tetanus immunization for employees in laboring or craft occupations.
7. Recommendations regarding:
  - a. Placement by matching physical capacities against physical demands of the job.
8. Fitting and issuing of occupational eyewear.

B. As An Employee Requiring Health Maintenance

1. Repeat physical appraisal.
  - a. Annual physical examination (Or multiphasic screening).
  - b. Post-sickness absentee examination.
  - c. Food handler inspection.
  - d. Periodic examination of workers exposed to special hazards (non radioactive).
  - e. Job transfer examination and recommendation.
2. Repeat laboratory examination
  - a. Repeat blood count (frequency determined by special physical condition of worker or work assignment).
  - b. Chest film (frequency determined by physical condition or work assignment).
  - c. Serodiagnostic test (frequency determined by worker's physical condition).
  - d. Urinalysis (frequency determined by worker's physical condition or work assignment).
  - e. Vital capacity (frequency determined by worker's job assignment).
  - f. Electrocardiogram (frequency determined by worker's age or physical condition).
3. Health promotion (education)
  - a. Creation (or procurement) and distribution of posters.
  - b. Creation (or procurement) and distribution of pamphlets.
  - c. Procurement and maintenance of moving signs.
  - d. Preparation of 3 dimensional table-size exhibits.
  - e. Procurement and waiting room use of the American Medical Association health magazine "Today's Health."
  - f. Preparation of a weekly column for the Oak Ridge National Laboratory News.

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- g. Meeting with supervision or management to clarify job adjustment of the worker.
  - h. Weekly orientation program for new employees.
  - i. Preparation and distribution of special health promotional materials to colored employees.
  - j. Talks to employee groups relative to occupational health hazards.
- 4. Industrial hygiene surveys for occupational hazards control (non-radiation hazards control).
  - 5. Recommendation for the installation of, and follow-up of local exhaust ventilation systems (industrial hygiene engineering).
  - 6. Plant sanitation surveys.
  - 7. Medical rehabilitation.
  - 8. Procurement of popular medical treatises (bibliotherapy).

C. As a Sick or Injured Employee

- 1. Medical and/or surgical care of occupational illness or injury, including over-exposure to radiation, under workmen's compensation laws.
- 2. Emergency medical and/or surgical care for non-occupational illness or injury.
- 3. Liaison between ill employee and private physician, hospital, Welfare Services Department, American Red Cross, Veterans' representative, Office of Vocational Rehabilitation, Committee for Crippled Children and Disabled Adults, etc.
- 4. Counseling services for workers presenting job maladjustments involving emotional disturbances (mental hygiene procedures).
- 5. Conference with management or supervision, in order to effect a better work adjustment for the emotionally disturbed employee.

II. CONSULTATION SERVICES PROCURED FROM OUTSIDE AGENCIES OR INDIVIDUALS

- A. Consultant services in cardiology.
- B. Consultant services in radiology.
- C. Consultant services in psychiatry.
- D. Others as selected.

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### III. MISCELLANEOUS

- A. Termination physical examination for all employees.
- B. Maintenance of complete clinical records on all employees, present and terminated, in addition to some records on construction, loan, and other Oak Ridge organization employees.

#### PERSONNEL SERVED

During this period, the total number of employees at the Laboratory approximated  $\pm$  2000 and in addition, the Health Division rendered services to personnel from the J. A. Jones Construction Company, the Austin Company, the Atomic Energy Commission, and N.E.P.A. These services, in the main, represented isolated examinations or dispensary visits and during the latter part of this fiscal year, represented the rendering of services for which credit had been received, on the basis of \$4.00 per procedure (visit) per employee, toward the Health Division budget.

#### PERSONNEL OF THE HEALTH DIVISION

The Division headed by a medical director, has, when staffed to capacity, two additional staff physicians and seven nurses. There is one x-ray technician, three clinical laboratory technicians, a health education artist and assistant, an industrial hygiene engineer, a statistician, two record clerks, one administrative clerk, one ophthalmic dispenser (in charge of the entire occupational vision program involving safety glasses), one stenographer, and one secretary to the Medical Director. In addition, there have been two members rendering custodial services.

#### FACILITIES

The dispensary of the Health Division occupies 7448 square feet in Building No. 2013 in the east end of the present Oak Ridge National Laboratory site. Complete diagnostic facilities exist in the X-ray Section and Clinical Laboratory (exclusive of facilities for tissue examination) and a well equipped minor surgery and treatment room are available for medical care. Figure 1, attached, shows a floor plan of the present dispensary facilities.

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## SPECIAL ITEMS IN PROGRAM DEVELOPMENT

### Clinical Records

Records of all visits made by visiting personnel, such as consultants, employees of other Oak Ridge plants, etc., are recorded in Clinical Records. Personnel visiting for three months or over are given a complete physical examination, including laboratory procedures. Special Clinical Records have been initiated and maintained for A.E.C., J. A. Jones Company, and Austin Company personnel. The results of the visits made by these individuals have been recorded on the punch card statistical record system.

Visits made at the Y-12 Dispensary by ORNL personnel stationed in the Y-12 Area are recorded in the Health Division Clinical Records by means of duplicate reports submitted to the dispensary from the medical facility at Y-12.

### X-ray Section

During the year pre-placement lumbar spine films were taken on all candidates for employment who would be engaged in laboring or craft work. The interpretation of these films has assisted in identifying old injuries in contra-distinction to newly incurred vertebral changes. In September 1949, the annual chest survey was accomplished in approximately one week's time with all roentgenograms, on standard 14 by 17 inch film, being completed in about three weeks. The survey revealed no findings relating to the particle problem as such, and there were no positive findings not explained by inter-current infections or pre-existing pulmonary or cardiac conditions.

### Clinical Laboratory

In an effort to re-organize the work scene and to eliminate unnecessary routine examinations not sufficiently productive of pertinent information, new procedures were instituted. The card seen on page 6 was submitted for completion to all divisions so that the Health Division could be notified of the actual job exposure of each individual employee. The results obtained diminished the number of blood and urine examinations conducted previously, so that only those actually in contact with radioactive materials are now having the semi-annual laboratory examination.

NAME _____	DATE _____
<p>The Health Division would appreciate the completion of the following information in order to have our files accurate for use in connection with clinical laboratory procedures in 1951.</p>	
<p>( ) Never associates with radioactive material.</p>	
<p>( ) Frequently visits areas where others work with radioactive material, but does not work there.</p>	
<p>( ) Works in area where others work with radioactive material, but seldom or never associates with radioactive material.</p>	
<p>( ) Frequently associates with radioactive material. Building number _____.</p>	

During the year a photometer was procured and placed in use for the conducting of red blood cell counts. This has proved to be a time saving device and these counts, which previously required a full afternoon for one technician to accomplish, can now be completed in one hour.

The laboratory has changed the procedure in connection with serodiagnostic tests for syphilis in that a presumptive Kahn test, in place of the standard Kahn test, is now run as part of all pre-placement and annual physical examinations. This test is more sensitive, and consumes less time in its execution.

Again, the Clinical Laboratory of the Health Division was approved for serologic examinations by the Tennessee State Department of Public Health.

With the time saved through work re-organization, additional procedures have been possible such as:

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1. Electrocardiograms as part of the pre-placement and annual physical examination (prior to this time such studies were conducted only on employees age 40 and over).
2. An improved food handler examination on cafeteria and canteen employees which now includes:
  - a. Stool examination, quarterly, for -
    - (1) Parasites and ova
    - (2) Bacteriologic examination for Shigella.
    - (3) Bacteriologic examination for Salmonella, and Eberthella groups.
  - b. Semi-annual Kahn tests
3. Additional blood chemistry and bacteriologic examinations have been carried on in cooperation with, and at the request of private physicians, on Laboratory employees.
4. Completion of a blood typing program, in cooperation with the Oak Ridge chapter of the American Red Cross.

#### Nursing Service

During the year, the staff nurses, under the direction of the Chief Nurse, have conducted a concentrated campaign to encourage all employees to receive tetanus toxoid injections, to be followed by stimulating injections. Although exact figures are not available at the present time, it can be estimated that 95 per cent of all personnel in heavy jobs, where a potential tetanus infection exists as a sequelum to injury, have been immunized against tetanus.

#### Health Education

The health education program has continued with the preparation of posters, three-dimensional exhibits, health columns in the ORNL News, and the preparation of an employee handbook, "Instructions to Patients." New technics have been developed in the preparing of the exhibits wherein ceramics, plaster of paris, clay, three-dimensional perspective, relief, scale models, and photographs have been utilized.

PROGRAM IN NEGRO HEALTH

Annual observance of National Negro Health Week was held in April, 1950, during which time the services of members of the Health Division staff were extended to the Oak Ridge community. During evening hours a syphilis survey was conducted among the Negro residents of Oak Ridge and talks and demonstrations were given.

ATTENDANCE AT PROFESSIONAL MEETINGS

The staff members attended professional meetings, in addition to AEC or Carbide and Carbon Chemicals Division conferences as follows:

- W. H. Baumann: American Industrial Hygiene Association meeting, Chicago, April 1950.  
Industrial Hygiene Foundation meeting, Pittsburgh, Nov. 1949.  
Tennessee Section, American Industrial Hygiene Association meeting, Copperhill, Tenn., March 1950.
- C. J. Bozzi, M. D.: Interim Session, A.M.A., Washington, D. C., Dec. 1949.
- E. F. Buyniski, M. D.: Industrial Hygiene Foundation meeting, Pittsburgh, Nov. 1949.
- J. S. Felton, M. D.: Ad Hoc Committee meeting of A.M.A. and U. S. Public Health Service, Chicago, January 1950, on research in health education in industry.  
Industrial Health Congress of the A.M.A., New York, February 1950.  
Tennessee Section, American Industrial Hygiene Association meeting, Copperhill, Tenn., March 1950.  
American Association of Industrial Physicians and Surgeons meeting, Chicago, April 1950.  
Annual Scientific Assembly, A.M.A., San Francisco, Calif., June 1950.
- Mrs. A. K. Hipshire, R. N.: Workshop on supervisory problems of industrial nursing, University of Pittsburgh, Pittsburgh, May 1950.

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Papers were read by staff members at the following meetings:

W. H. Baumann: Tennessee Section, American Industrial Hygiene Association, Copperhill, Tenn., March 1950. (A Practical Control Program of Health Hazards in a Metallurgical Research Laboratory).

J. S. Felton, M. D.: American Medical Writers Association, St. Louis, Mo., Sept. 1949.

Tennessee State Dental Association Meeting, Chattanooga, May 1950. (Relationships in Dentistry).

Two talks on Industrial Nursing to the senior class at the Vanderbilt University School of Nursing, Nashville, May 1950.

#### PUBLICATIONS

The following papers were published during the fiscal year 1949-1950.

W. H. Baumann: A Practical Control Program of Health Hazards in a Metallurgical Research Laboratory. Am. Ind. Hyg. Assoc. Quart. 10:143 (Sept.) 1950.

J. S. Felton, M. D.: Social Implications of Illness as Seen in Industry. J. Social Casework, p. 271 (July) 1950; and Tenn. Welfare Rec. 12:129 (July) 1950.

The Unusual in Industrial Health at an Atomic Energy Research Laboratory. Miss. Valley Med. J. 72:23 (Jan.) 1950.

The Integration of the Worker. Social Work in the Current Scene: Selected Papers, 76th Annual Meeting, National Conference of Social Work, June 12-17, 1949. Copyright 1950, Columbia University Press, New York.

The Aims of a Research Laboratory Health Service. The Branched Chain 8:44 (Jan.) 1950.

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Careers in Industrial Hygiene. Occ. Trends 1:7  
(May-June) 1950.

J. S. Felton, M. D., and M. D. Owen: Occupational Adjustment of the  
World War II Veterans at an Atomic Energy  
Research Laboratory. Ind. Med. & Surg. 19:13  
(Jan.) 1950.

J. S. Felton, M. D., and T. L. Tuck, Jr., R. T.: The Mechanics of  
Conducting a Chest Survey Employing Standard  
Size Film in Specialized Industry. X-ray Tech.  
21:341 (May) 1950.

M. D. Owen: Contributions of Vacations to Employee Health. Ind. Med.  
& Surg. 19:192 (April) 1950.

STATISTICS

Number of visits to the Dispensary for fiscal 1949 - 1950	
Total number of visits by ORNL employees	35118
Total number of visits by J. A. Jones Company employees	567
Total number of visits by AEC employees	369
Total number of visits by Austin Company employees	193
Total number of visits by other employees	826
Average number of patients visiting the Dispensary monthly	3613
Average percent of all ORNL employees visiting the Dispensary	121.6
Number of visits per employee per year	16.6
Number of illness-absences per employee per year	1.1
Average monthly severity rate (days lost per absence)	3.7
Average monthly disability rate (days lost per thousand days scheduled)	17.8
Average monthly frequency rate (absence per thousand per days scheduled)	4.8
Average monthly ratio of occupational to non-occupational procedures	1:0.869
Total number of procedures accomplished for fiscal year, 1949-1950	48062
Non-occupational injury	1199
Non-occupational injury, revisit	1316
Non-occupational illness	9406
Non-occupational illness, revisit	4650
Occupational injury or exposure, chemical	106
Occupational injury or exposure, chemical, revisit	253
Occupational injury or exposure, chemical, alleged or questionable	10
Occupational injury or exposure, chemical, alleged or questionable, revisit	15

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Occupational injury or exposure, not otherwise classified	1431
Occupational injury or exposure, not otherwise classified, revisit	3785
Occupational injury, not otherwise classified, alleged or questionable	7
Occupational injury, not otherwise classified, alleged or questionable, revisit	17
Occupational injury or exposure, radiation	6
Occupational injury or exposure, radiation, revisit	6
Occupational injury or exposure, radiation, alleged or questionable	6
Occupational injury or exposure, radiation, alleged or questionable, revisit	2
Occupational illness, not otherwise classified	3
Occupational illness, not otherwise classified, revisit	9
Absence due to illness or injury, non-occupational	2539
Absence due to illness or injury, occupational	17
Physical Examinations	
Industrial Hygiene	595
Job transfer	37
Periodic health	719
Periodic health, revisit	21
Preplacement	352
Rehire	102
Termination	351
Other	143
Food handler	64
Audiogram	1635
Blood donation	71
Electrocardiogram	992
Occupational Vision Section procedures	2957
X-ray Section procedures	5028
Special study interview	220
Psychodiagnostic tests	56
Psychodiagnostic tests, revisit	30
Consultation, occupational condition	54
Consultation, occupational condition, revisit	32

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Consultation, non-occupational condition	1720
Consultation, non-occupational condition, revisit	203
Consultation, without patient, occupational	41
Consultation, without patient, occupational, revisit	11
Consultation, without patient, non-occupational	319
Consultation, without patient, non-occupational, revisit	32
Pre-marital serodiagnostic test	34
Pre-marital serodiagnostic test, revisit	8
Immunization	2266
Immunization, revisit	11
Diagnostic procedure for private physician	78
Diagnostic procedure for private physician, revisit	86
Clinical laboratory	4906

Disposition following dispensary visit

Number of visits followed by a return to regular work	40010
Number of visits followed by a return to modified work	4712
Number of employees instructed to remain off work following illness-absence	2147
Total number of applicants for employment accepted	437
Total number of applicants for employment accepted conditionally	10
Total number of applicants for employment rejected	7
Number of employees referred to a private physician or sent to a hospital	715

Personnel attending patients:

Number of visits where care was rendered by nurse alone	20945
Number of visits where care was rendered by nurse and physician	2214
Number of visits where care was rendered by physician alone	8464
Number of visits where care was rendered by technician	15770
Number of visits where care was rendered by psychologist	669

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RECOMMENDATIONS

1. It is requested that a solution be reached for the permanent storage of clinical records of personnel having terminated employment at ORNL.
2. Microfilming of roentgenograms taken by the X-ray Section of the Health Division of ORNL should be accomplished as soon as deemed feasible by the Division of Biology and Medicine, AEC, Washington, see attached Memorandum, Medical Files, Health Division, ORNL, Figure 2.
3. That the Medical Director be invited to attend all negotiations between the trade union and management involving discussions of health insurance policies, their underwriting, benefits, costs, and acceptance.

FIGURES

1. Floor plan of Dispensary
2. Copy of Memorandum, Medical Files, Health Division, ORNL
3. Graph - Percent of Employees Visiting Dispensary
4. Graph - Severity Rate
5. Graph - Disability Rate
6. Graph - Frequency Rate
7. Sample of typical health education poster.
8. Sample of typical health column in ORNL News.
9. Cover and sample sheets from booklet, "Instructions to Patients."
10. Sample of typical health education exhibit.

J. S. Felton, M. D.  
Medical Director

January 26, 1951

# HEALTH DIVISION FLOOR PLAN BUILDING N°2013

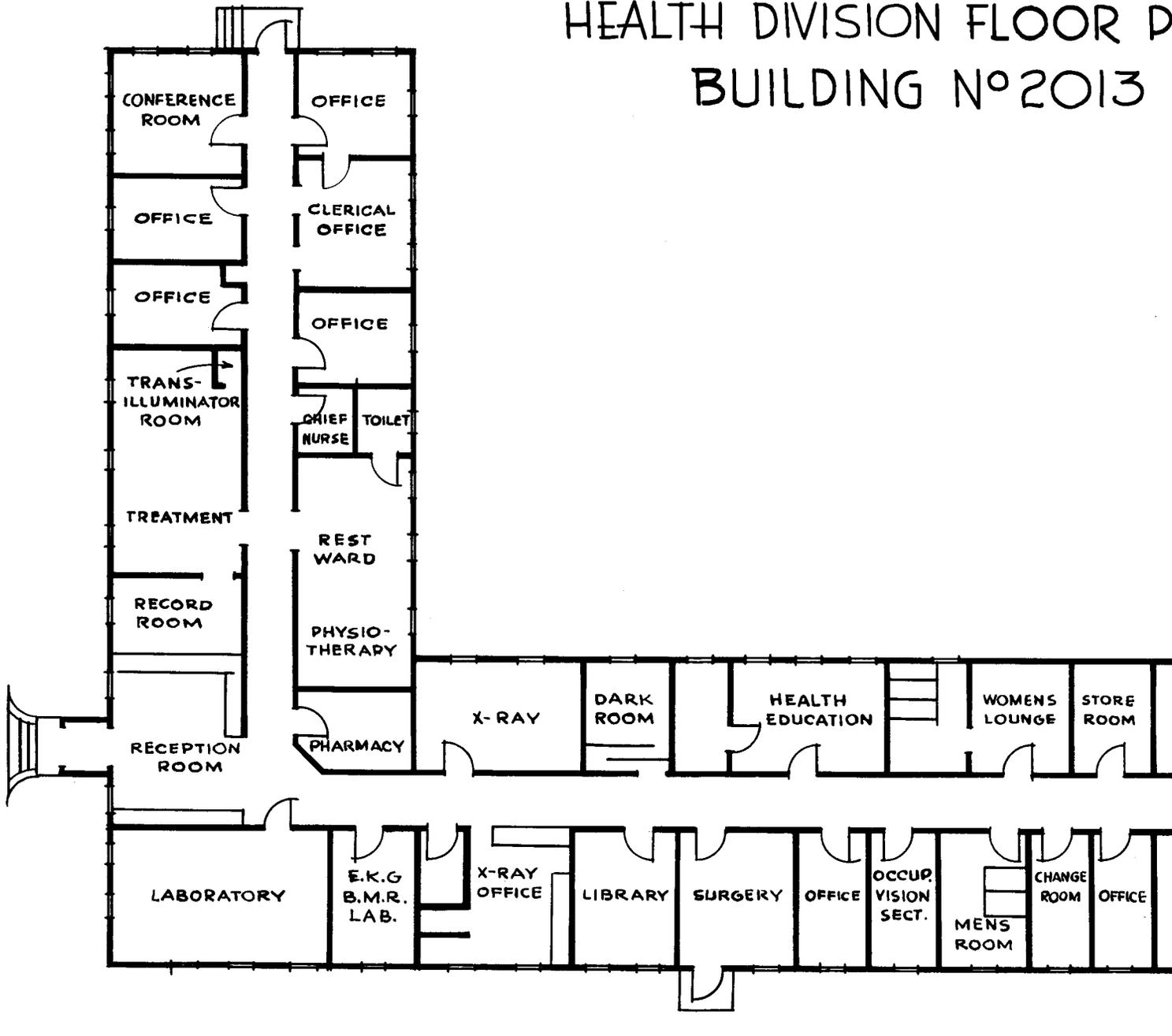


FIG. I

Intra-Laboratory Correspondence  
OAK RIDGE NATIONAL LABORATORY

To: Medical Files

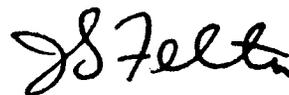
Date: November 22, 1950

From: J. S. Felton, M. D.

Subject:

Word was received today from Mr. Hennessy, of the Legal Section, AEC, who stated that it would be agreeable to record our x-ray films on microfilm, i.e., 35 mm. size. Such films, or records, are admissible as evidence in the courts of Tennessee, but each roll must carry the certification of the technician who took the film. There should be a copy of such certification at the beginning and end of each roll, and the actual certificate should be preserved in the file.

It would be desirable, prior to the beginning of such a microfilming program, that one check with the Union Carbide and Carbon Corporation records office and also the AEC records office to corroborate the authenticity of this type of record.



J. S. Felton, M. D.  
Medical Director

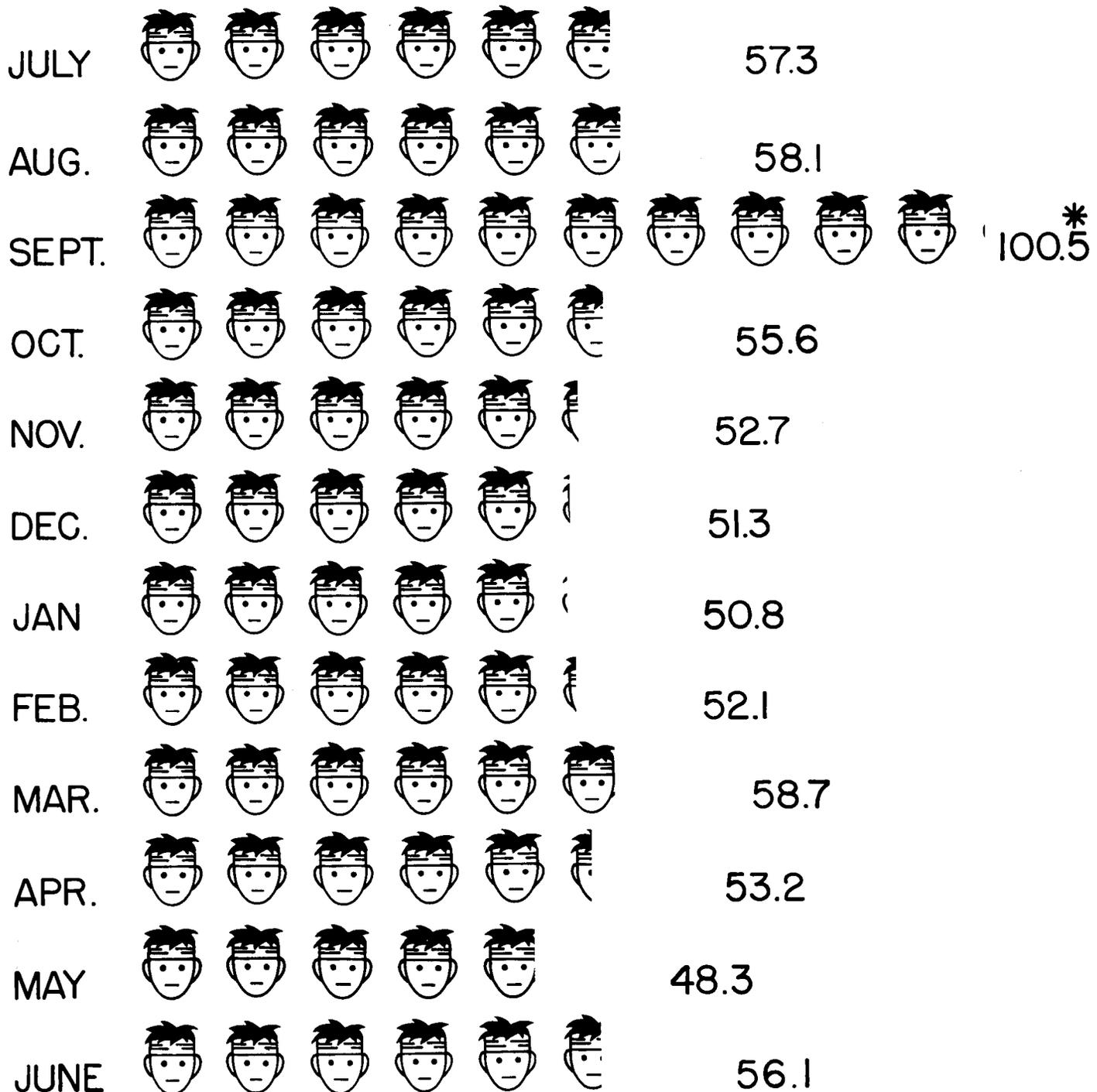
JSF:as

FIG. 2

FIG. 3

# PERCENT OF EMPLOYEES VISITING DISPENSARY

EACH SYMBOL REPRESENTS 10%



\*ANNUAL CHEST SURVEY HELD DURING THIS MONTH.

# SEVERITY RATE

## *DAYS LOST PER ABSENCE*

EACH SYMBOL REPRESENTS 1 DAY

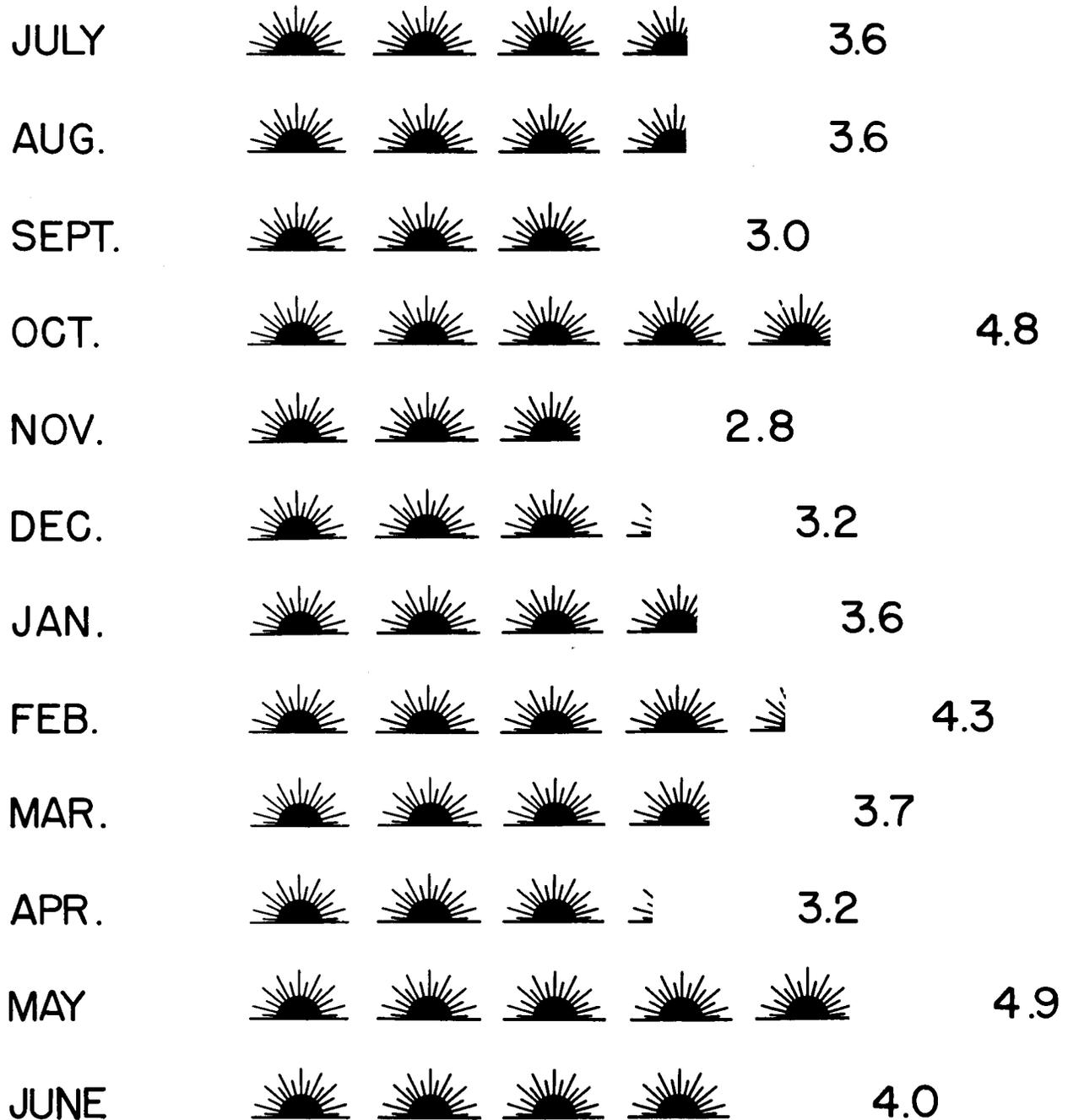


FIG. 4

# DISABILITY RATE

*DAYS LOST PER 1,000 DAYS SCHEDULED*

EACH SYMBOL REPRESENTS 5 %

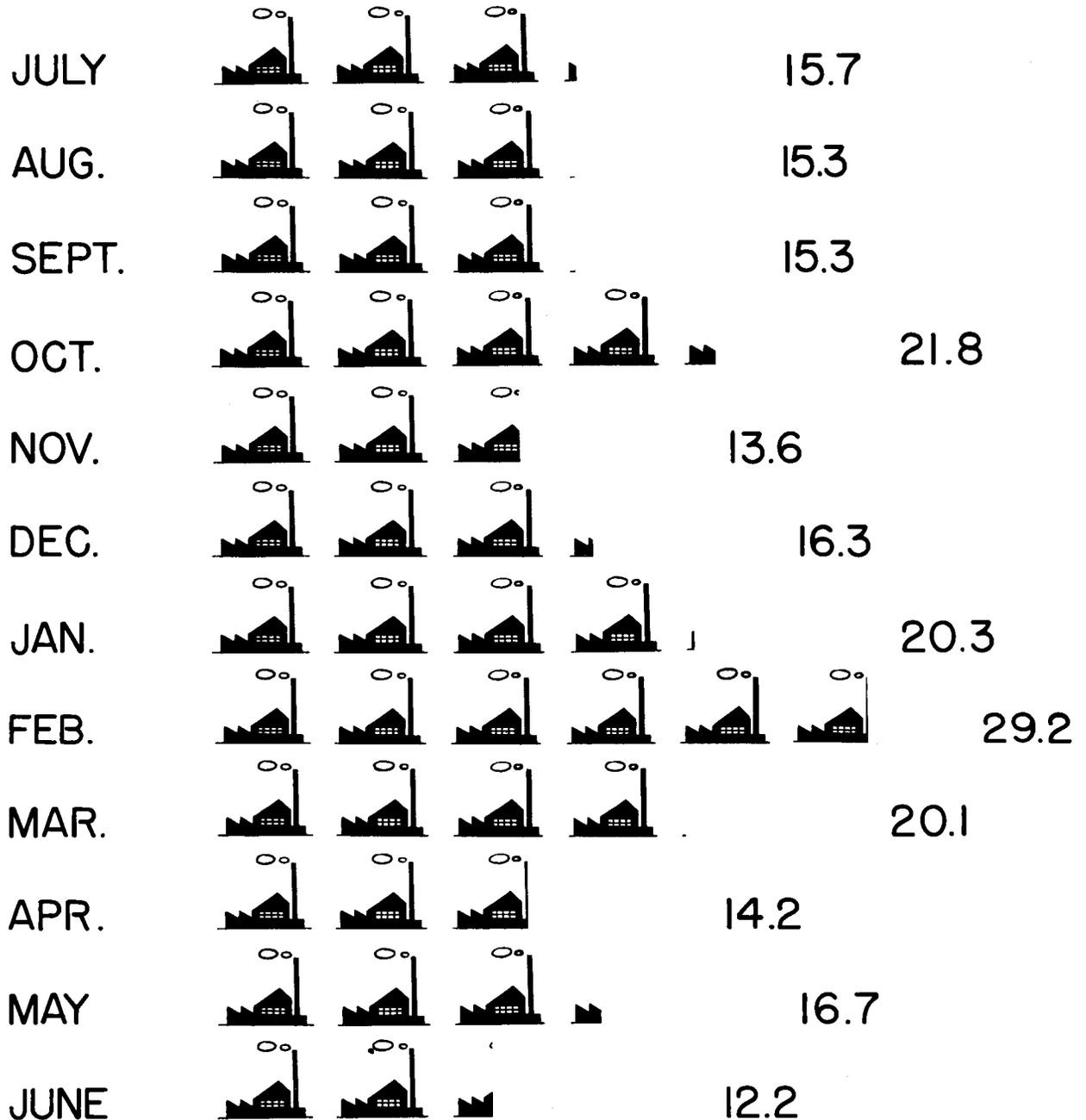


FIG. 5

# FREQUENCY RATE

*ILLNESS ABSENCES PER 1,000 DAYS SCHEDULED*  
EACH SYMBOL REPRESENTS 1 DAY

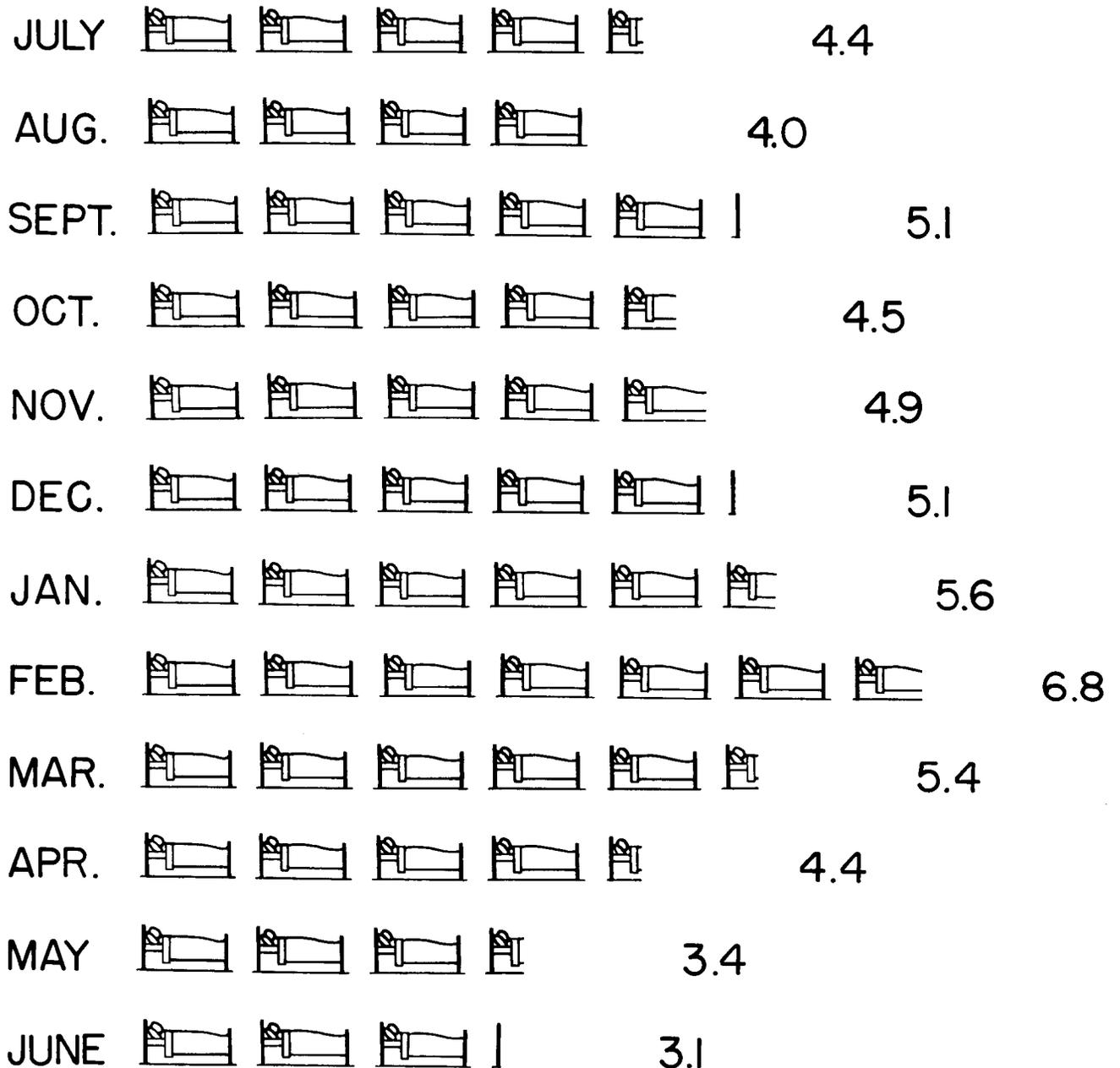


FIG. 6

When spring has sprung  
and you're outside  
To cuts and wounds  
you're open wide  
And LOCKJAW may  
be lurking too  
But TETANUS SHOTS  
will bring you thru

SEE YOUR HEALTH DIVISION



FIG. 7



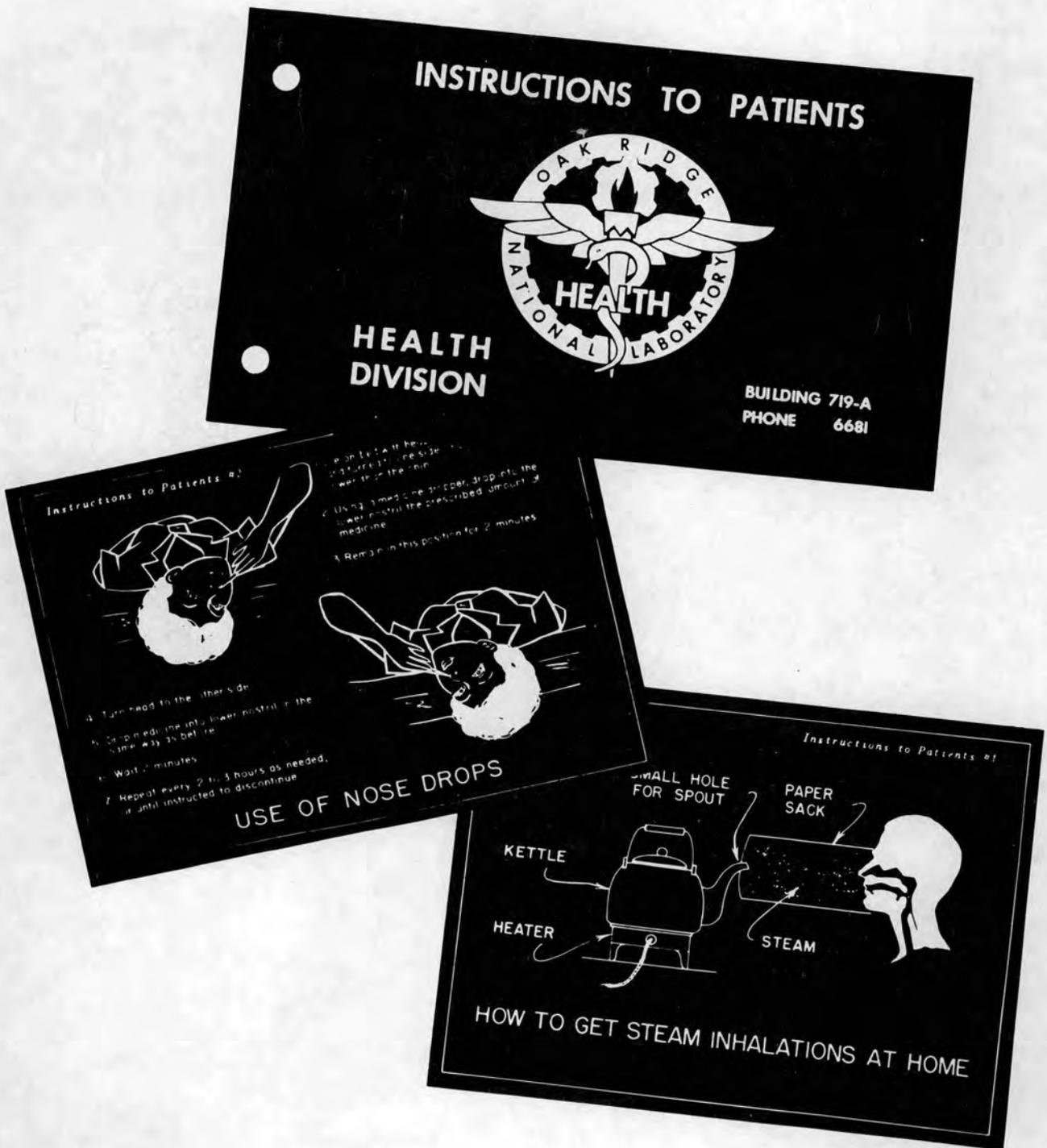
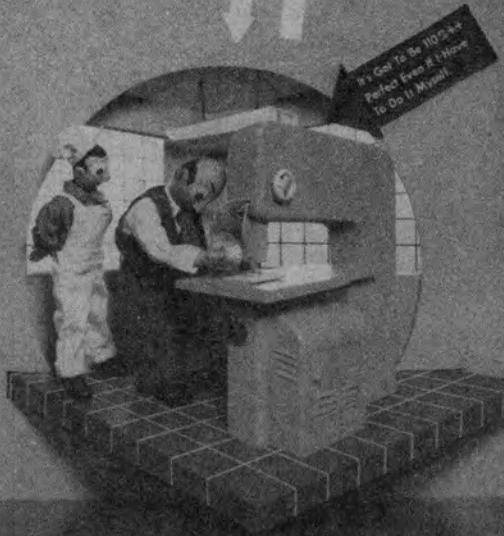


FIG. 9

# TRIANGLE OF WORRY



Worry, Tension, Headache And  
Ulcer Are The Price You Pay.  
— Is It Worth It?

FIG. 10