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COVERING THE PERIOD  
JULY 1952 TO JUNE 1953

ORNL-1607



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HEALTH DIVISION

ANNUAL REPORT COVERING PERIOD JULY 1952 THROUGH JUNE 1953

J. S. Felton, M. D.

Date Issued  
\_\_\_\_\_

OAK RIDGE NATIONAL LABORATORY

operated by

CARBIDE AND CARBON CHEMICALS COMPANY

A Division of Union Carbide and Carbon Corporation

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- 32. C. L. Dunham, Jr., M.D., Chief, Medical Branch, Division of Biology and Medicine, U.S. A.E.C., Washington.
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HEALTH DIVISION ANNUAL REPORT

July 1, 1952 -- June 30, 1953

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

Dr. Jean S. Felton, medical director of the Health Division of the Oak Ridge National Laboratory for seven years, resigned July 15, 1953 to accept an associate professorship in the Department of Medicine at the University of Oklahoma Medical School, Oklahoma City, Oklahoma. He will also head the Employee Health Service and serve as a consultant to several major industries in the area. The excellent program in industrial health, which is now firmly established, is the result of his progressive efforts for constant improvement of health services to the employees of the Oak Ridge National Laboratory.

Dr. Thomas A. Lincoln, a member of the Health Division staff since August 1951 and Associate Medical Director since March 1, 1952, assumed the medical directorship as of July 15, 1953 and will continue and expand the established program. This Annual Report covers a year which was under the directorship of Dr. Felton, though the report was compiled and edited by his successor, Dr. Lincoln.

SCOPE OF PROGRAM

An active program in industrial health has been maintained at the Oak Ridge National Laboratory during the past year, with the objective 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. Completion of Cornell Medical Index Health Questionnaire

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2. Completion of medical and employment history
3. Laboratory examinations
  - a. Vision evaluation through use of the Bausch & Lomb Ortho-Rater.
  - b. Hearing evaluation through use of the Maico audiometer.
  - c. Complete blood count.
  - d. Urinalysis
  - e. Chest film (14 by 17" at 6')
  - f. Serodiagnostic test for syphilis (VDRL)
  - g. Electrocardiogram
4. Personality evaluation by clinical psychologist
  - a. Routine for all technical personnel
  - b. Referral by examining physician, as indicated.
5. Complete physical examination by staff physician.
6. Review of all laboratory and clinical findings by examining physician.
  - a. Health classification determined and forwarded to the Employment Section of the Personnel and Service Department.
  - b. Restrictions applied when indicated.
  - c. Special consultation with Employment Section and/or expected supervision on marginal cases.
7. Additional examinations and procedures when employee reports for work.
  - a. Complete blood count, urinalysis, chest x-ray, if interval between preliminary examination and employment date exceeds three weeks.
  - b. Determination of blood type and Rh factor.
  - c. Brief interview with examining physician for interval history
  - d. Immunization
    - 1.) Smallpox
    - 2.) Tetanus
    - 3.) Typhoid fever
  - e. Fitting and issuing of occupational eyewear, if indicated.

B. As An Employee Requiring Health Maintenance

1. Annual multiphasic screening
  - a. Complete blood count, urinalysis, and serodiagnostic test.
  - b. Ortho-Rater examination

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- c. Audiogram
- d. Electrocardiogram, including weight determination and blood pressure recording.
- e. Stimulating immunization injections as needed.
- 2. Special examinations, when indicated, because of special health hazard
  - a. Metallurgy
    - 1.) Vital capacity
    - 2.) Blood and urine beryllium determination
  - b. Cafeteria employees
    - 1.) Stool examination for ova and parasites
  - c. Lead burners
    - 1.) Blood and urine lead level determination when employed; then every three months for blood; and every month for urine.
  - d. Chemical Technology
    - 1.) Blood and urine mercury level determination when employed, then every three months.
    - 2.) Quarterly physical inspection by a physician.
    - 3.) Quarterly routine urinalysis and hemoglobin determination.
  - e. Examinations for those in heavy jobs.
    - 1.) X-ray film of lumbosacral spine.
  - f. Radiation exposee (L-4)
    - 1.) Complete blood count and urinalysis determinations semi-annually.
  - g. Cyclotron and Pile Operators
    - 1.) Slit lamp examination by consultant ophthalmologist semi-annually.
  - h. Other diagnostic procedures, as indicated.
  - i. Clinical photograph, in color and/or black and white, of unusual findings.
- 3. Health 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 of waiting room issue of the American Medical Association health magazine "Today's Health," and "Life and 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. Special orientation programs for trainees and other groups.
- j. Talks to employee groups relative to occupational and non-occupational health problems.
- 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 and loan 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 care for non-occupational illness or injury including diagnosis, emergency therapy, and referral to family physician when indicated.
- 3. Liaison between ill employee and private physician, hospital, Welfare Services Department, American Red Cross, Veterans' representative, Office of Vocational Rehabilitation, 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

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- C. Consultant services in psychiatry and clinical psychology.
- D. Others as selected.

### III MISCELLANEOUS

#### A. Termination Physical Examination for All Employees

1. The same as preliminary examination, exclusive of electrocardiogram, serology and psychological consultation.

#### B. Special Examination for Visitors

1. Visitors of 3 weeks or less: These individuals do not report to the Health Division.
2. Visitors of 3 weeks to 3 months: Complete blood count, urinalysis, and chest x-ray.
3. Visitors remaining over 3 months: The same procedures as for the preliminary physical examination without electrocardiogram, unless over age 40.

#### C. Special Examinations for Individuals at the Laboratory Under Contract:

The same procedures as for the preliminary physical examination without an electrocardiogram, unless over age 40. These include the following groups:

1. Atomic Energy Commission
2. Oak Ridge Institute of Nuclear Studies
3. General Electric Company
4. Catalytic Corporation
5. E. I. DuPont de Nemours & Company, Inc.

#### PERSONNEL SERVED

During this period, the total number of employees at the Laboratory approximated 3200 ± and in addition, the Health Division rendered services to personnel from General Electric Company, Catalytic Corporation, E. I. DuPont de Nemours & Company, Inc., Oak Ridge

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Institute of Nuclear Studies and the Atomic Energy Commission. These services, represented, in the main, pre-placement and termination physical examinations or dispensary visits.

PERSONNEL OF THE HEALTH DIVISION

The Division, headed by the Medical Director, has, when staffed to capacity, two additional staff physicians and seven nurses. There is one x-ray technician, four clinical laboratory technicians, an administrative clerk, three clerks, two secretaries, one ophthalmic dispenser, and three members rendering custodial services. A consultant clinical psychologist, at the present time, spends approximately four days weekly at the Health Division.

FACILITIES

The dispensary of the Health Division occupies 7448 square feet in Building 2013 in the west 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.

A small dispensary in the new research building, Building 4500, was opened December 1, 1952. (See Nursing Section, page 10).

SPECIAL ITEMS IN PROGRAM DEVELOPMENT

Changes in the Examination Program

Although an attempt has been made for some time to have all candidates for employment undergo a complete physical examination when they are first interviewed, a firm policy has now been established. This has been necessary since on several occasions the Laboratory has had to withdraw its employment offer because of an adverse health classification after the prospective employee had severed all his former connections and moved to Oak Ridge. By thoroughly evaluating, both physically and emotionally, the prospective employee when he is first interviewed, the above embarrassment is obviated and special recommendations can be made

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to the interviewer by the Health Division staff when the candidate is considered to be marginal.

All candidates for employment are now carefully examined at the time of their original interview. In addition, a personality evaluation is made by our Clinical Psychologist (see Psychological Services) on all technical personnel and, when possible, a brief interview is obtained with all other candidates.

Since most candidates being interviewed spend a relatively short time at the Laboratory and usually have many people to visit, it is important that the health examination be completed without delay. A member of the clerical staff now meets each candidate, carefully explains the entire examination procedure, and assists him whenever possible to avoid unnecessary delays.

When indicated, recommendations are made to the interviewer to help him in his evaluation of the prospective employee. The final classification is not made until all laboratory examinations have been completed and interpreted. When the accepted candidate returns to begin work, sometimes three or six months later, he is given only a brief physical and laboratory examination.

An orientation program for Division Directors, to acquaint them with our new examination program, was started in May 1953 and will be continued on an informal basis.

X-ray Section

The annual chest x-ray survey was again conducted in October 1952 with 2563 chest roentgenograms taken. This number does not include Laboratory employees located in the Y-12 area who received their examination at the Y-12 Dispensary. A copy of the interpretation was filed in their medical record at the Laboratory.

The office of the X-ray Section has been rearranged to accommodate the Bausch & Lomb Ortho-Rater, with the examinations being conducted by the Clinical Laboratory personnel. A new cabinet has been built for the storage of supplies.

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The problem of storage of films continues. Again, the micro-filming of all terminated films was considered but could not be attempted because of the high cost.

Five hundred lumbar spine roentgenogram interpretations were coded, using the cross-index code of F. J. Hodges and I. Lampe of the University of Michigan. This material may be incorporated into a later publication.

Nursing Service

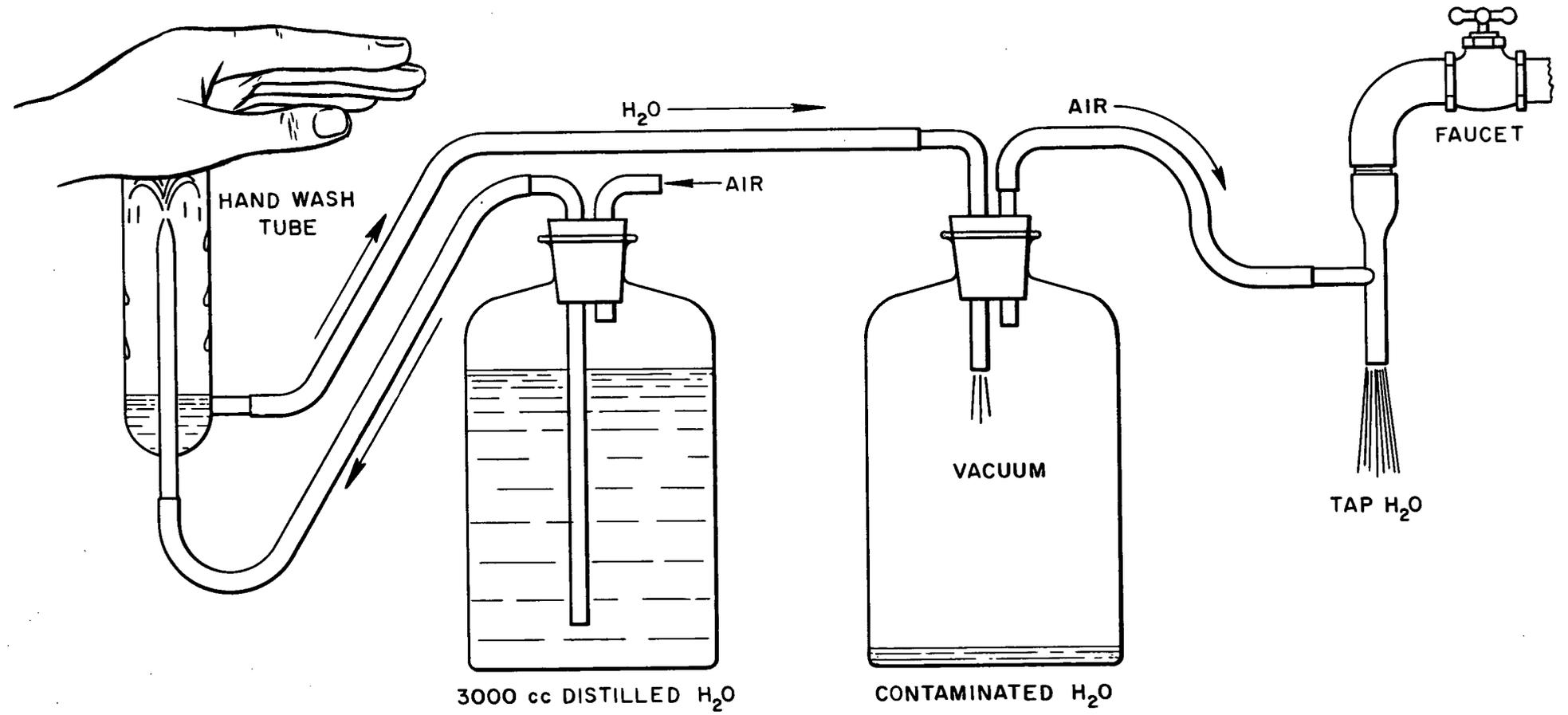
The only new equipment added to the Treatment Room was a special suction wash bottle used for hand decontamination. (See drawing # 1 ). The entire hand decontamination procedure has been revised with emphasis being placed on simple, gentle cleansing, followed by isolated irrigations.

The nurses Standing Orders have been revised and rewritten during the past year. The interval for typhoid-paratyphoid stimulating injections has been increased from one to three years.

During the influenza epidemic of February and March 1953, approximately 1500 employees were innoculated with polyvalent influenza virus vaccine. The employee furnished his own vaccine, under special arrangements with a local pharmaceutical house.

Two weight reduction classes for women were guided by Mrs. Stooksbury, regular nurse at the 4500 Dispensary. A total of 27 overweight women were helped by group participation and instructions in intelligent methods for weight control. Miss McCaleb worked with a small group of men on the B shift. Diet counseling, group meetings and individual support characterized her program. Many of the participants in each group lost significant amounts of weight and all profited by the nutrition counseling.

A smaller dispensary (see Figures 1 and 2) was opened during December 1952 in the new research building located at the east end of the Laboratory area. Facilities include a comfortable waiting room, a small but completely equipped treatment room and two small single bed rooms. Minor injuries and illnesses are cared for by







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a day shift nurse, with referral of more serious cases to the main dispensary for care by the staff physicians. The number of dispensary visits varies from 20 to 80 per day.

Clinical Laboratory

During the preceding year the Clinical Laboratory was visited by a total of 7,668 employees. On these employees, 5,078 complete blood counts, 5,668 urinalyses, and 2,528 electrocardiograms were accomplished, and 2,848 specimens of blood were drawn and sent to the Tennessee State Department of Health laboratory for serological examination. A total of 998 blood and urine specimens was collected in the field, thus saving many employee-man hours.

A single hematology and urinalysis report form, see Figure No. 3, with an attached multiphasic screening form for scoring abnormal findings, was designed, combining three previously separate clerical procedures. After the hematology and urinalysis report has been completed by the Clinical Laboratory, the abnormal findings are recorded on the multiphasic screening form, the two forms separated, with the hematology and urinalysis forms being sent to the physicians and the multiphasic screening forms given to the clerk for completion.

Changes in Electrocardiographic Procedure

Previously, the routine electrocardiogram included the standard limb leads and three unipolar chest leads,  $V_1$ ,  $V_4$  and  $V_6$ . The three unipolar extremity leads (AVR, AVL and AVF) have been added. All previous electrocardiograms were taken from the clinical record of the employee and attached to the current electrocardiogram, so that a comparison study could be made when they were reviewed by the physician. New folder-type mounting cards were put into use in order to give greater protection to the electrocardiogram when it was filed in the permanent medical record of the employee.

During the year, the electrocardiograph was serviced several times and its cabinet was refinished. A duplicate set of lead wires were obtained to insure uninterrupted operation of the machine. The

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### OAK RIDGE NATIONAL LABORATORY

1. PRE-PLACEMENT      3. TERMINATION      5. P. E. (OTHER)  
2. ANNUAL P. E.      4. JOB TRANSFER      ② L-4

NAME Doe, John      BADGE 5440      DEPT. 3090      REQUEST \_\_\_\_\_  
SEX  M      DATE 4-2-53

R.S.C. 5 100 000      GRAVE NO. 158      PLATELETS PER CU. MM. 100%      COLOR INDEX 0.9  
W.B.C. 7500

CELL TYPE	THROMB.	PLATELETS	NEUTR.	LYMPH.	MONO.
NORMAL PERCENT	0-1	2-4	0	0-1	3-8
CELL COUNT	100	2	0	2	69

R.B.C. MORPHOLOGY      NORMAL       ABNORMAL       BLOOD TYPE      RHO \_\_\_\_\_      RHO' \_\_\_\_\_      RHO'' \_\_\_\_\_

REMARKS \_\_\_\_\_

---

#### URINALYSIS

APPEARANCE      ALBUMIN      MICROSCOPIC EXAM. HPF

CLEAR       NEGATIVE       CENTRIFUGED       UNCENTRIFUGED

CLOUDY       POSITIVE       BACTERIA \_\_\_\_\_

TURBID       SUGAR      CASTS \_\_\_\_\_

COLOR      NEGATIVE       CRYSTALS \_\_\_\_\_

AMBER       POSITIVE       EPITHELIAL CELLS \_\_\_\_\_

YELLOW       ACETONE \_\_\_\_\_      R.B.C. 2-3

PH REACTION acid      OCCULT BLD. \_\_\_\_\_      W.B.C. 5-10

SPEC. GRAV. 1.018      OTHER TESTS \_\_\_\_\_

SIGNATURE B. Justice

### MULTIPHASIC SCREENING WORK SHEET

1. PRE-PLACEMENT      3. TERMINATION      5. P. E. (OTHER)  
2. ANNUAL P. E.      4. JOB TRANSFER      ② L-4

NAME Doe, John      BADGE 5440      DEPT. 3090      REQUEST \_\_\_\_\_  
SEX  M      DATE 4-2-53

<input type="checkbox"/> KAHN 1. NEGATIVE 2. POSITIVE	<input type="checkbox"/> HEALTH QUESTIONNAIRE _____ ANSWERED "YES"	<input checked="" type="checkbox"/> CBC ① NORMAL 2. POLYCYTHEMIA... MORE THAN 6,000,000 3. LEUKOCYTOSIS... MORE THAN 10,000 4. LEUKOPENIA... LESS THAN 4,000 5. LEUKEMIA 6. OTHER 7. ANEMIA (<4.0M OR 60%) 8. REVERSAL
<input type="checkbox"/> CHEST X-RAY 1. NEGATIVE 2. POSITIVE	<input type="checkbox"/> ELECTROCARDIOGRAM 1. NORMAL 2. ABNORMAL	<input checked="" type="checkbox"/> URINE ① NEGATIVE 2. ALBUMIN 3. SUGAR 4. R.B.C. MORE THAN 10 5. W.B.C. MORE THAN 10 6. CASTS 7. OTHER
<input type="checkbox"/> WEIGHT 1. NORMAL 2. OVERWEIGHT 3. UNDERWEIGHT	<input type="checkbox"/> VISION 1. NORMAL 2. ABNORMAL	
<input type="checkbox"/> BLOOD PRESSURE 1. NORMAL 2. HIGH (ABOVE 150/90)	<input type="checkbox"/> OTHER X-RAYS 1. NORMAL 2. ABNORMAL	
<input type="checkbox"/> AUDIOGRAM 1. NORMAL 2. IMPAIRED	<input type="checkbox"/> BALLISTOCARDIOGRAM 1. NORMAL 2. ABNORMAL	

P      H      E      W      S      O  
 0 1 2 3 4 5    0 1 2 3 4 5    0 1 2 3 4 5    0 1 2 3 4 5    0 1 2 3 4 5    0 1 2 3 4 5

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electrocardiogram table was remodeled so that it could serve both as a soft surfaced electrocardiogram table and as a hard, firm-surfaced ballistocardiogram table.

A brief study was made of 104 ballistocardiograms, using the Dock Ballistocardiograph, on employees over 40 years of age. After review of these, it was the opinion of the staff physicians that insufficient additional information was obtained to warrant continuing this procedure.

#### Mercury Worker Examinations

The Clinical Laboratory's function in the periodic examination of the employees working with, or in contact with, mercury consists of:

1. Urinalysis
2. Hemoglobin determination
3. Preparation of bottles for collection of 24-hour urine samples for chemical analysis for mercury.
4. Sending an aliquot portion of each 24 hour sample to the laboratory conducting the mercury analyses.

A study of the method used by the K-25 laboratory for the chemical analysis for mercury in urine specimens was made and the cost of the materials and labor involved in transferring this procedure to the Health Division's Clinical Laboratory was estimated. After thorough study, no change in the present policy seemed indicated.

#### Additional Procedures of the Clinical Laboratory

Ortho-Rater and audiogram examinations were added to the duties of the Clinical Laboratory personnel. The audiometer room (see Figure 4 ) was remodeled and lined with acoustical board in an attempt to decrease extraneous noise.

The study on gastric analyses without intubation was continued and the procedure was revised. Due to the amount of ether used in the quinine chloride extraction and the amount of obnoxious fumes from other blood chemistry procedures, a small exhaust hood was installed.

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The Clinical Laboratory's participation in the clinical investigation of hypertension in the Negro included such procedures as the Fishberg concentration test, urea clearance, the phenolsulfonphthalein excretion test, complete blood count, urinalysis, blood non-protein-nitrogen test and electrocardiogram.

Various methods for hemoglobin determination were reviewed and a method employing the Cenco-Sheard Sanford photometer was standardized in the event of the mechanical failure of the Dick-Stevens hemoglobinometer, which is now in use. Further investigations of hemoglobin methods and normal hemoglobin values are planned.

As a part of the National Diabetes Detection Week, about 1700 blood sugar determinations were made. Approximately 100 blood specimens were collected and tested each day.

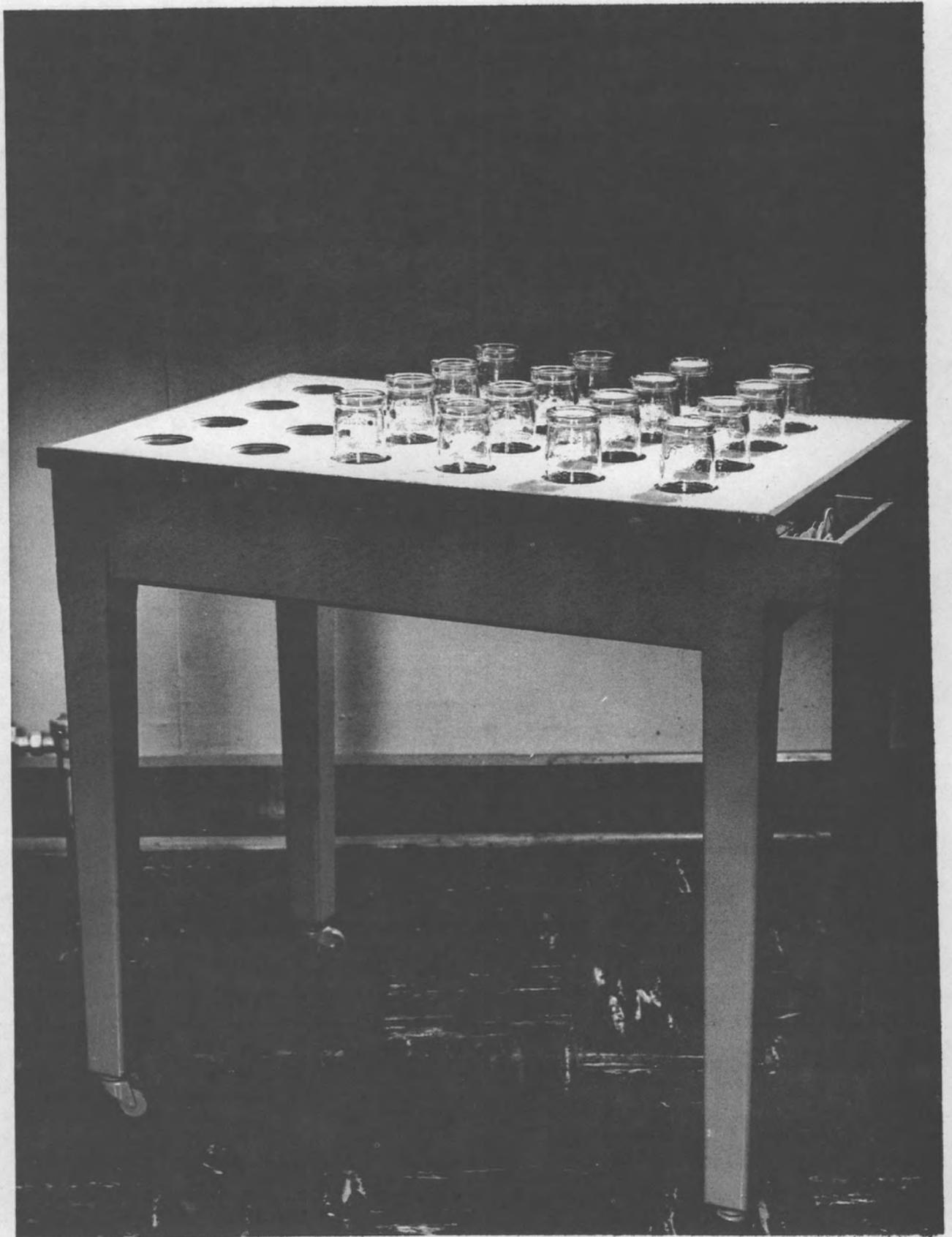
Throughout the year, various small projects were undertaken, such as:

1. Reticulocyte staining methods were reviewed. New microscope oculars were made by the Research Shops to aid in the counting of reticulocytes.
2. An automatic pipette-washer was designed and constructed by the Engineering and Maintenance Division.
3. The method for collecting urine specimens was changed. The employee now collects the specimen, labels it, and places it in a specially designed table, located in the rest room (see Figure 5 ). The specimens thus collected are then periodically transferred to the Clinical Laboratory for analysis.

Clinical Records

Information on all dispensary visits are recorded by a tabulating clerk on IBM dispensary visit cards (see Figure 6 ). A revised coding system using the "Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death, 6th Revision," volumes 1 and 2, enables the clerk to quickly and accurately record identifying data, reasons for visits, procedures, and diagnoses. The new IBM card was designed to show both reasons for

13a



5440 DOE JOHN

3090

NAME

BADGE

DATE

TELEPHONE

- X-ray ( )
- Audiogram ( )
- Pgy ( )
- Electrocardiogram ( )
- Ortho-Rater ( )
- Prg ( )
- Ballistocardiogram ( )
- Occup. Vision ( )
- Special Study Int. ( )
- Multiphasic Work Sheet ( )
- Blood Pressure \_\_\_\_\_
- Psychodiag. Proc. ( )
- Clinical Lab. Proc. ( )
- Height \_\_\_\_\_
- Cornell ( )
- CBC
  - RBC
  - Hgb
  - WBC
  - Diff
- Weight \_\_\_\_\_

- Urine
  - Kahn
  - Kahn, Premarital
  - Rh Factor
  - Blood Typing
- Basal Metabolism
- Feces
  - Parasites & ova Culture
  - Occult Bld.
- Gastric Analysis
  - G.A. Intubation
  - Hematocrit
  - PSP
  - Platelet Count
- Sed Rate
  - Sputum
  - Bacteriology \_\_\_\_\_
  - Blood Chem. \_\_\_\_\_

IBM 1001

File No. 9-52

Misc. \_\_\_\_\_

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visits and also procedures, i.e., laboratory work, x-ray, etc., on the same card. A place was included on the IBM card for revisits -- thus eliminating all revisits codes. These cards are forwarded to the Tabulating Section at Y-12.

A quarterly and annual report requested by the Industrial Relations Division, and any other reports which may be requested, are secured from information recorded on the IBM cards. These have included, during the past year, a report on all overweight employees, showing name, age and other personal data, a study of all normal and abnormal electrocardiograms, and an evaluation of the possible effects of the influenza vaccine given to Laboratory employees in February and March 1953. An evaluation of multiphasic screening procedures accomplished over the period September 1, 1951 to September 1, 1952 was secured from the Tabulating Section, Y-12. This information is being compiled for the year September 1952 to 1953 and will be used for comparison purposes.

All clinical records on terminated employees, formerly kept in the Health Division, are now sent to the Central Files vaults where they are to be permanently filed.

#### Occupational Vision Section

The program in the procurement and issue of occupational eyewear continues. Currently the following types of safety glasses are being issued:

1. Type of glasses
  - a. Spectacle and goggle type
  - b. Face and eye shields
  - c. Respirators
  - d. Clip-ons
2. Types of frames
  - a. Plastic and metal
    - 1.) With and without side shields
    - 2.) With and without adjustable nose pads
  - b. All plastic (including lenses)
    - 1.) Opaque
    - 2.) Clear goggle frames

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- c. Special frames inserted in filter masks, respirators and clip-ons.
- 3. Lenses -- hardened
  - a. White
    - 1.) Plano
    - 2.) Prescription
  - b. Tinted, pink
    - 1.) Prescription only.
  - c. Green sun lens type
  - d. Glass blowers
    - 1.) Cobalt and didymium (cobalt, plano only)
  - e. Welders, all shades

It is to be noted that a marked reduction in replacement of lost glasses has been achieved since the name of the employee has been stamped on the frame of the safety spectacle. This reduction is estimated to amount to about 75% of former replacements (based on replacements this year compared with last year's).

#### Clinical Photography

During the year a miniature camera was acquired to supplement the Coreco color camera in order to obtain full figure color photographs. The Bausch & Lomb retinal camera was used in conjunction with the special ophthalmological examination (see page 5 g-1.) ) to record any lenticular changes in the patient's crystalline lens. This was done in the ophthalmologist's office immediately after examination with the slit lamp.

#### Psychological Services

During the past fiscal year, a psychological evaluation of prospective Laboratory employees was added to the preliminary physical examination conducted by the Health Division. This procedure was routinely used with all candidates for employment who had completed a minimum of four years of college, while those below this educational level were evaluated only at the request of the examining physician or, in some instances, of the Division for whom the person would be working.

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This evaluation consisted of a psychological interview using both a developmental and a mental status approach, together with whatever other examining procedures seemed warranted. Usually, a Rorschach Psychodiagnostic test was found sufficient, although other projective techniques were utilized if needed.

Results of this evaluation were used primarily to detect the presence of serious mental illness or of emotional instability of such a degree as to compromise the individual's ability to maintain a reasonable psychological adjustment. In some instances, information resulting from the psychological evaluation was found useful in placing the individual in a situation in which he would work to greatest advantage.

A second psychological service contributed involved diagnostic problems among present employees. When requested by the examining physician, a psychodiagnostic study was made and the findings incorporated into recommendations to the employee and his physician.

In formulating a diagnostic opinion, a variety of procedures were available including interview methods, projective techniques, and various psychological tests, as well as the services of psychiatric and psychologic consultants. In some cases presenting unusual diagnostic difficulties, referral has been made to various area clinics and psychiatric hospitals.

During the past year brief counseling services have been made available to employees having problems -- often concerning interpersonal relationships among several employees, or between supervisory and non-supervisory personnel. Advisory services are also offered in relation to job placement, administrative and other supervisory problems.

Contributions have been made during this year, to several research projects. One, which was completed recently, involved an extensive psychologic investigation of the personality characteristics and emotional adjustment of a sample of 40 physicists and chemists from the Laboratory. A second, still in progress, is concerned with

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a longitudinal study of the personality development of a group of reactor students as this relates to both academic and job success.

Health Education

The activities of this Section have continued and health education materials have been prepared in the form of exhibits, posters, and columns in the ORNL News. (See Figure 7).

Dr. Thomas A. Lincoln continued a weight reduction program as begun in March of 1952. Two more groups were guided in weekly meetings with friendly group discussions of the origin and nature of eating habits, nutrition counseling, and a lay orientation to the pathology which often accompanies chronic obesity. Daily weight records were kept on charts in the Health Division. The entire weight reduction program is being reviewed and new groups are planned, utilizing more direct diet counseling. One aspect of the obesity problem, "Why Does the Fat Man Eat So Much?" was reviewed by Dr. Lincoln for the Carbide physicians during one of their regular meetings in February of 1953.

Dr. Jean S. Felton presented a series of four talks on the importance of early reporting of injuries to various craft groups and two talks on "The Pitfalls and Precautions of Mercury Handling," were given to groups in the Chemical Technology Section. During the year the Medical Director and the Associate Medical Director participated in the orientation program for new employees. They also gave several talks to various groups throughout the Laboratory, on request, on various general health topics.

Clinical Investigation Section

The study of hypertension in the Negro employee is continuing. The Fishberg concentration test, urea clearance, PSP and blood non-protein-nitrogen were performed on a small number of the entire group.

Dr. E. Y. Williams, psychiatrist with the Freedman's Hospital, Washington, D. C., visited the Laboratory in September 1952 and January 1953. He had interviews with 102 randomly chosen Negro employees in an effort to evaluate the employee's life and job

# THE PICTURE OF HEALTH

*A Urinalysis  
Urine*

The URINALYSIS is One Step  
IN DIAGNOSIS OF KIDNEY OR  
BLADDER DISORDERS

RESULTS OF TESTS ARE AS FOLLOWS—  
SUGAR INDICATES DIABETES  
ALBUMIN . . . . . KIDNEY DISEASE  
RED BLOOD CELLS . . . . . BLEEDING  
WHITE BLOOD CELLS . . . . . INFECTION  
CASTS . . . . . KIDNEY DISEASE

The Health Division will  
Inform You if Your Urinalysis  
(Urine Test) Shows These Results



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adjustment. The results of these interviews will later be correlated, if possible, with the incidence and severity of hypertension.

Administrative Section

Dr. C. E. Black joined the Health Division on June 30, 1952 but resigned December 31, 1952 to enter private practice in Indiana.

Dr. W. N. Tauxe transferred from the K-25 Medical Department on March 1, 1953.

The sub-contract with Howard B. Hurt, Ph. D., Clinical Psychologist, was re-evaluated at the time he received his doctorate degree and the acquisition of this degree was considered in the new sub-contract. Currently Dr. Hurt is at the Health Division about four days each week.

The part-time contract with P. M. Dings, M. D., was terminated in October 1952.

Mrs. Jane Weeks, statistician, resigned October 24, 1952.

Attendance at Professional Meetings

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

Jean S. Felton, M. D.:

October 12, 1952 - American Academy of Ophthalmology  
and Otorhinolaryngology, Chicago.

November, 1952 - Industrial Hygiene Foundation,  
Pittsburgh.

January 1953 - Tennessee State Nurses Association,  
Knoxville.

January 1953 - Society for the Advancement of Management,  
East Tennessee Chapter, Knoxville

February 1953 - American Academy of Occupational  
Medicine, Rochester, New York

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March 1953 - National Rehabilitation Association, Memphis  
April 1953 - AEC Industrial Medical Meeting, Los Angeles  
June 1953 - Annual meeting, American Medical Association,  
New York City  
June 1953 - National League of Nursing, Cleveland, Ohio

Charles E. Black, M. D.

December 1952 - Interim meeting, American Medical  
Association, Denver

Thomas A. Lincoln, M. D.

November 1952 - Industrial Hygiene Foundation, Pittsburgh  
October 1952 - Central Neuro-Psychiatric Association,  
Nashville

Papers were read by staff members at the following  
meetings:

Jean S. Felton, M. D.

American Academy of Ophthalmology and Otorhinolaryngology  
"Visual Health Maintenance at an Atomic  
Energy Laboratory."

Central Neuro-Psychiatric Association "Progressive  
Industry and the Worried Employee" (paper  
read by Dr. Lincoln).

AEC Industrial Medical Meeting "A Preliminary Study of  
Personality Factors Affecting on the Job  
Competence of Research Scientists."

National League of Nursing "How Can We Guide All  
Employees Toward Better Health?"

RECOMMENDATIONS

1. 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, U. S. AEC,  
Washington, D. C.

The following articles were published by Dr. J. S. Felton during the fiscal year:

Visual Health Maintenance at an Atomic Energy Laboratory.  
Tr. Am. Acad. Ophth. 56:655 (July-Aug.) 1952.

Industrial Medicine and the Group Clinic - A Mutually Advantageous Relationship. Arch. Indust. Hyg. and Occ. Med. 6:147 (Aug.) 1952.

The Education of the Industrial Physician. The Case Study Method Adapted to In-Plant Training in Occupational Medicine. Indust. Med. and Surg. 21:567 (Dec.) 1952.

Forecasting the Number of Employee Visits to an Industrial Health Service. Indust. Med. and Surg. 22:1 (Jan.) 1953.  
(With M. D. Owen).

Nursing in Industry. Nursing Outlook 1:222 (April) 1953.

Space and Labor-Saving Devices in the Industrial Dispensary.  
VII. Portable Clinical Laboratory Equipment for Field Use.  
Arch. Indust. Hyg. and Occ. Med. 7:413 (May) 1953.

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STATISTICS

Number of visits to the Dispensary for fiscal year 1952-1953	53,618
Total number of visits by ORNL employees	50,949
Total number of visits by DuPont Co. employees	542
Total number of visits by AEC employees	189
Total number of visits by other employees	1,938
Average number of patients visiting the Dispensary monthly	2,134
Average number of ORNL employees on payroll per month	3,190
Average percent of all ORNL employees visiting the Dispensary	62.4%
Number of visits per employee per year	15.9
Number of illness-absences per employee per year	.1
Average monthly severity rate (days lost per illness-absence)	4.6
Average monthly disability rate (days lost per 1000 days scheduled)	17.9
Average monthly frequency rate (absence per 1000 days scheduled)	3.6
Average monthly ratio of occupational to non-occupational procedures	1:1.5
Total number of procedures accomplished for fiscal year 1952-1953	72,033
Non-occupational injury	1431
Non-occupational injury, revisit	1103
Non-occupational illness	12,411
Non-occupational illness, revisit	5225
Occupational injury or exposure, chemical	143
Occupational injury or exposure, chemical, revisit	287
Occupational injury or exposure, chemical, alleged or questionable	15
Occupational injury or exposure, chemical, alleged or questionable, revisit	13
Occupational injury or exposure, not otherwise classified	2010
Occupational injury or exposure, not otherwise classified, revisit	4089
Occupational injury, not otherwise classified, alleged or questionable	20
Occupational injury, not otherwise classified, alleged or questionable, revisit	25

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Occupational injury or exposure, radiation	9
Occupational injury or exposure, radiation, alleged or questionable	8
Occupational injury or exposure, radiation, alleged or questionable, revisit	3
Occupational illness, not otherwise classified	44
Occupational illness, not otherwise classified, revisit	130
Absence due to illness or injury, non-occupational	3249
Absence due to illness or injury, occupational	102
<b>Physical Examinations</b>	
Industrial hygiene	772
Job transfer	82
Periodic health	2074
Preplacement and preliminary	809
Rehire	161
Termination	663
Food handler	5
Other	273
Audiogram	2999
Blood donation	109
Clinical laboratory procedures	7668
Electrocardiogram	2568
Ballistocardiogram	104
Field clinical laboratory procedures	998
Occupational Vision Section procedures	3966
X-ray Section procedures	5564
Special study interview	320
Clinical photograph	92
Psychodiagnostic services	120
Consultation, occupational condition	43
Consultation, non-occupational condition	1710
Consultation, without patient, occupational	692
Consultation, without patient, non-occupational	2244
Home visit	1
Pre-marital serodiagnostic test	59
Immunizations	5875

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Diagnostic procedure for private physician	551
* Non-occupational examination	564
* Emergency Squad	2
Psychological consultation	244
Psychiatric consultation	50
Vocational rehabilitation	3
Clinical laboratory industrial hygiene exam.	350
Special ophthalmological exam	23

\* These two procedures began January 1, 1953

Disposition following dispensary visit:

Number of visits followed by a return to regular work	62,691
Number of visits followed by a return to modified work	2,800
Number of employees instructed to remain off work following illness-absence	8
Total number of applicants for employment accepted	1,764
Total number of applicants for employment accepted conditionally	6
Total number of applicants for employment rejected	18
Number of employees referred to a private physician or sent to a hospital	115

Personnel attending patients:

Number of visits where care was rendered by nurse alone	31,217
Number of visits where care was rendered by nurse and physician	2,855
Number of visits where care was rendered by physician alone	11,869
Number of visits where care was rendered by technician	23,328
Number of visits where service was rendered by psychologist	422
Number of visits where service was rendered by psychiatrist	84