

**Annual report of the Collis P. Huntington Memorial Hospital for Cancer Research and of the laboratories of the Cancer Commission of Harvard University : 1923-24.**

**Contributors**

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# Cancer Commission of Harvard University

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TWELFTH ANNUAL REPORT

OF THE

COLLIS P. HUNTINGTON MEMORIAL HOSPITAL  
FOR CANCER RESEARCH

AND OF THE

LABORATORIES

OF THE

CANCER COMMISSION OF HARVARD UNIVERSITY

1923-1924

(FOR THE YEAR ENDING JUNE 30, 1924)

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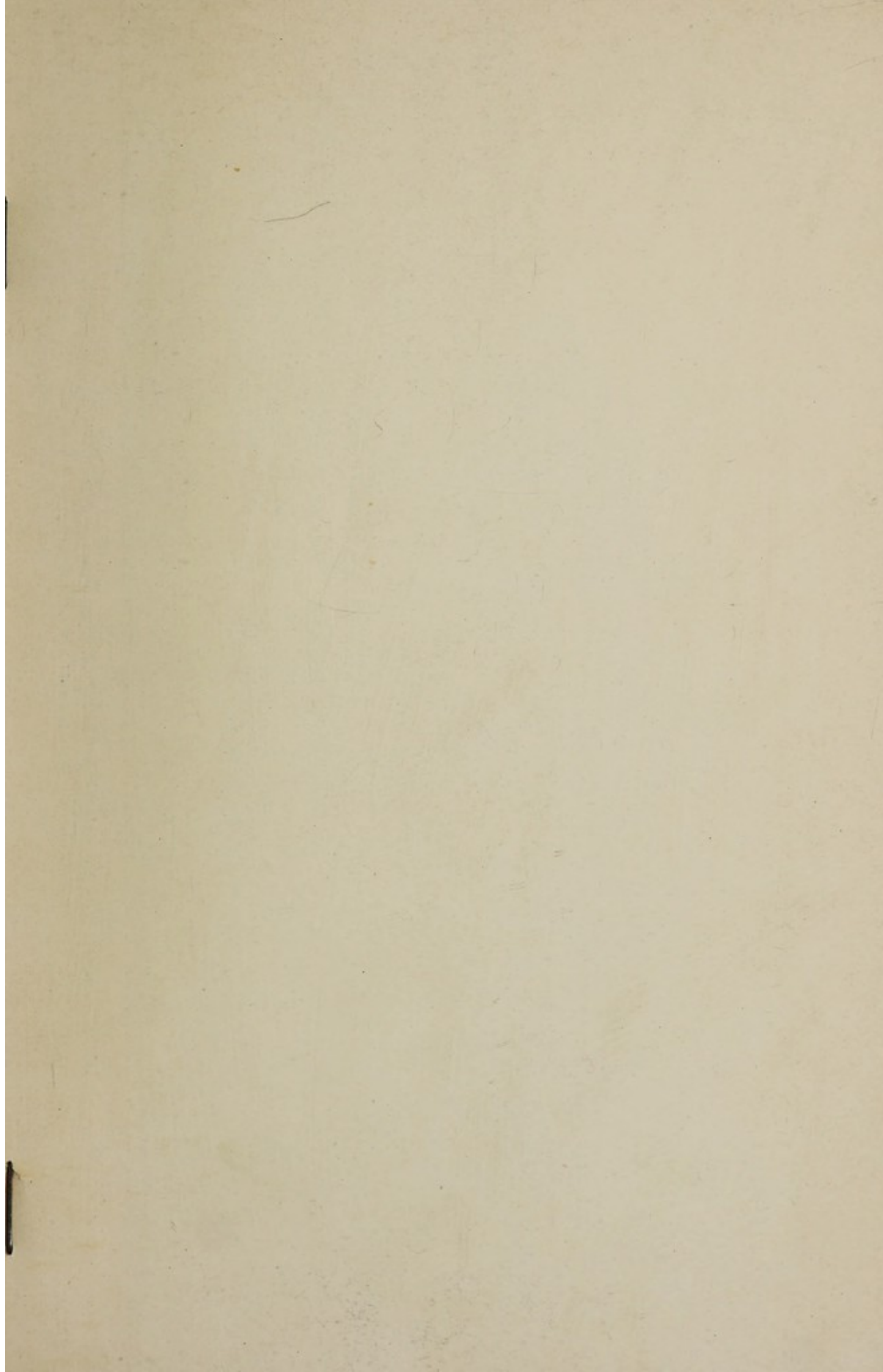
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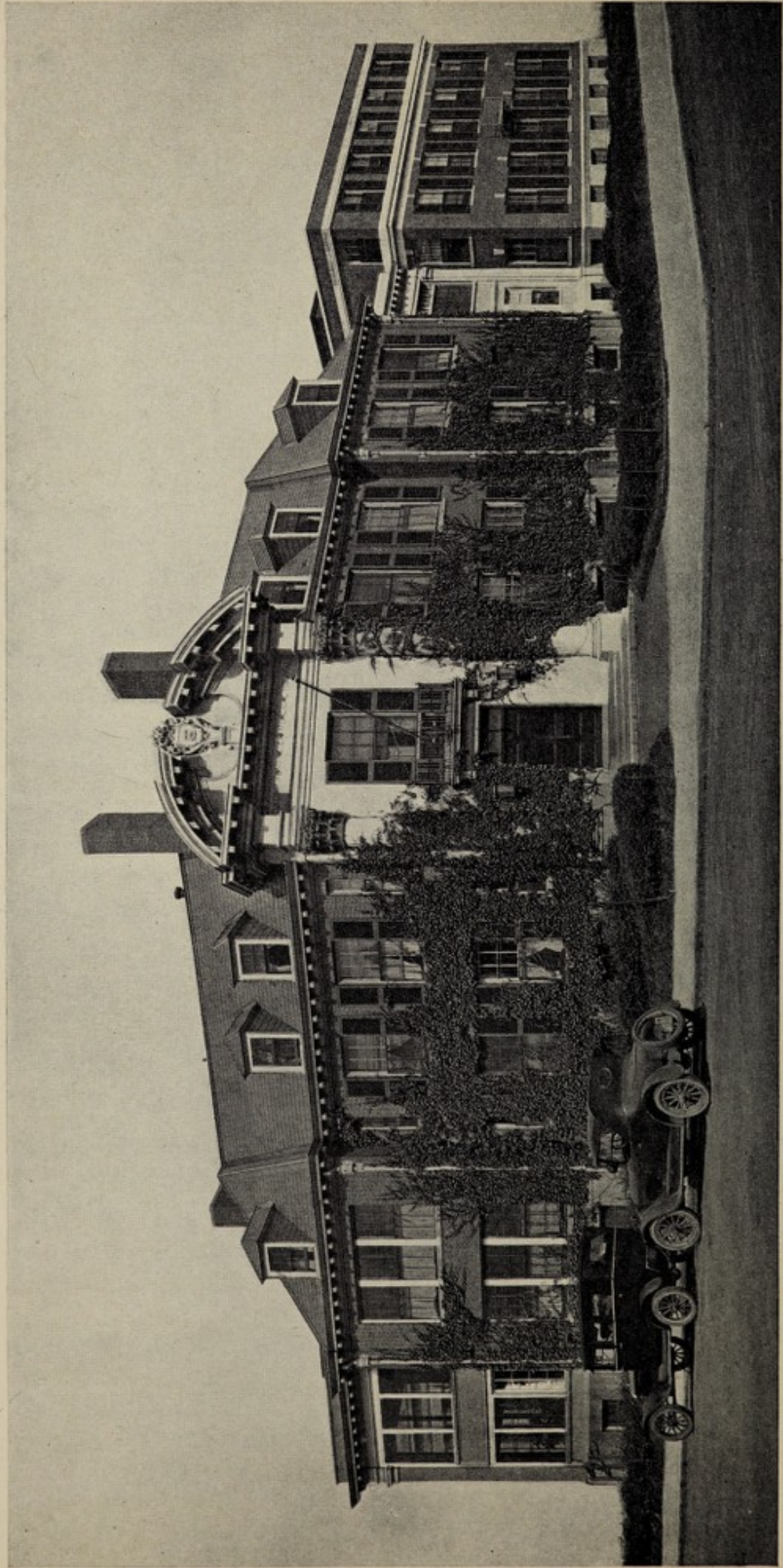
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THE COLLIS P. HUNTINGTON MEMORIAL HOSPITAL AND THE WARREN LABORATORY.  
COOLIDGE & SHATTUCK, ARCHITECTS.



# Cancer Commission of Harvard University

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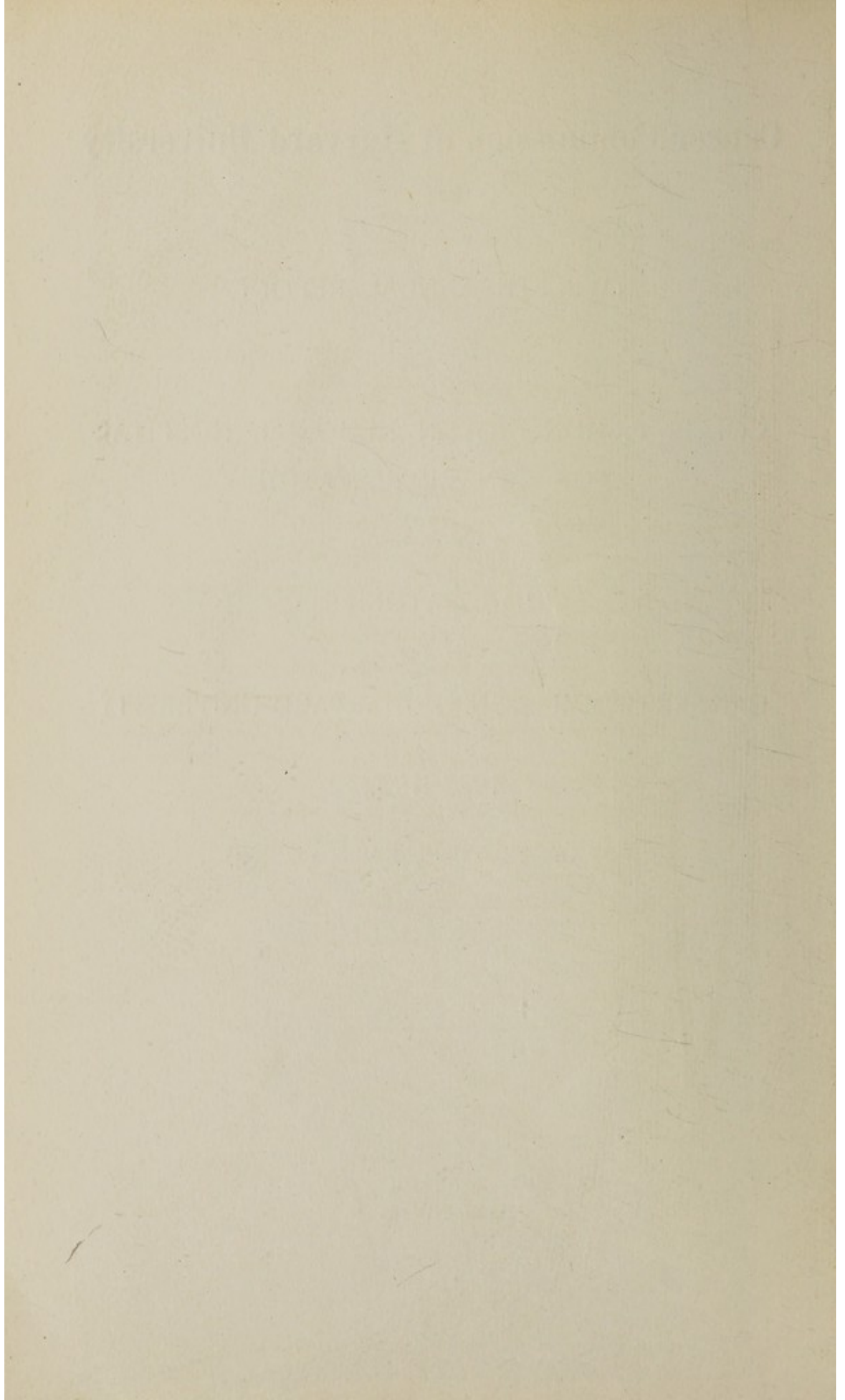
1923-1924

(FOR THE YEAR ENDING JUNE 30, 1924)



BOSTON  
MASSACHUSETTS





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### FORM FOR DONATIONS AND BEQUESTS

I give, devise and bequeath unto the President and Fellows of Harvard College, the sum of \$.....to be used for the work of the Cancer Commission of Harvard University.

In case the Commission should decide at any time that the cause and treatment of cancer had been sufficiently determined I authorize them to devote this bequest to some other unsolved problem of medicine.

THE  
CANCER COMMISSION OF HARVARD UNIVERSITY  
FOUNDED BY CAROLINE BREWER CROFT  
JUNE 16, 1899

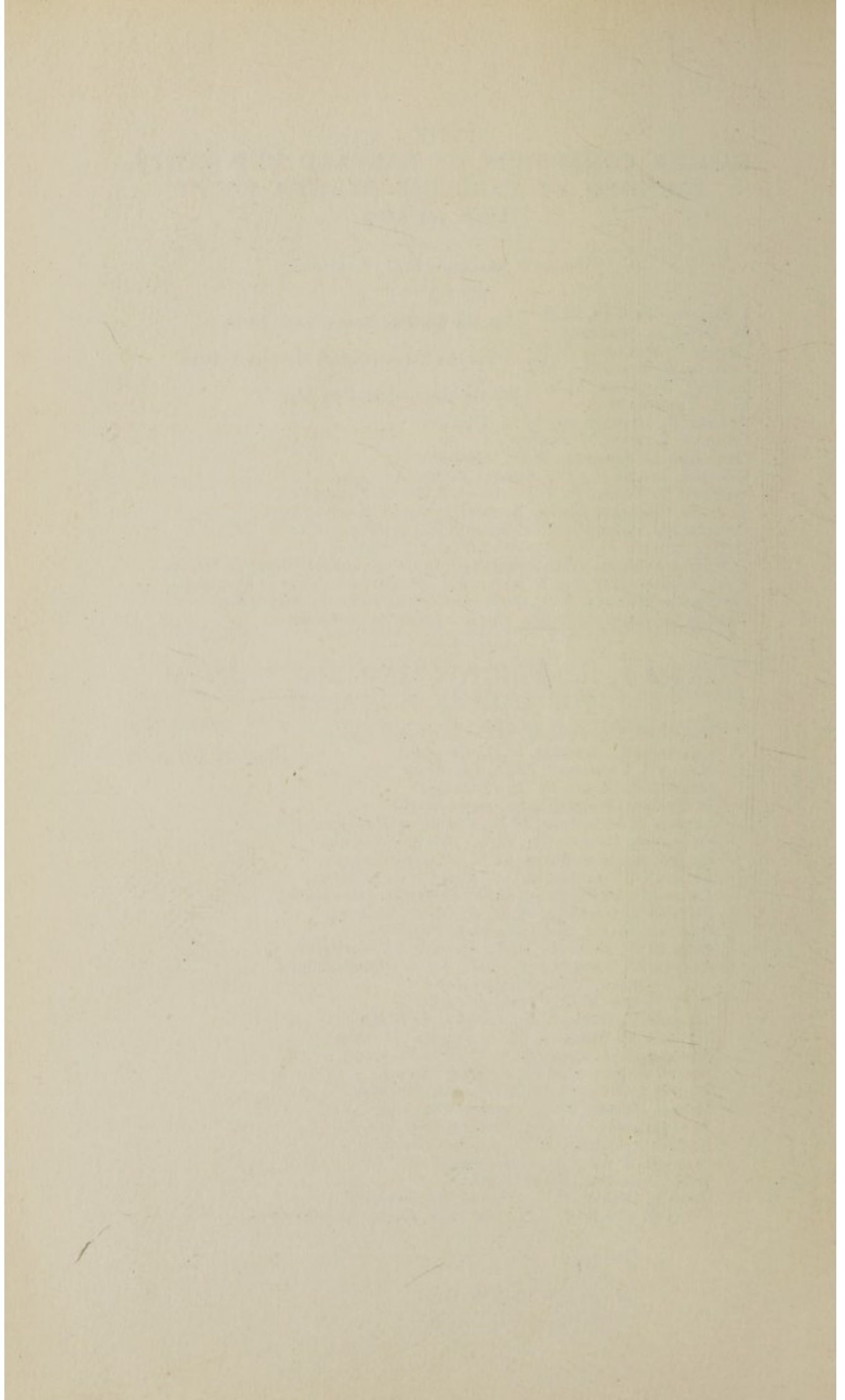
HENRY P. WALCOTT, M.D., *Chairman*

J. COLLINS WARREN, M.D. } For the Caroline Brewer Croft Fund.  
M. DOUGLAS FLATTERY }  
HENRY P. WALCOTT, M.D. } For the Corporation of Harvard College.  
EDWARD H. BRADFORD, M.D. }  
S. BURT WOLBACH, M.D. } For the Harvard Medical School.  
E. E. TYZZER, M.D. }  
ROBERT B. GREENOUGH, M.D., *Director*.  
CHARLES JACKSON, *Treasurer*.  
CHANNING C. SIMMONS, M.D., *Secretary*.  
WILLIAM DUANE, PH.D., *Research Fellow in Physics*.  
WILLIAM T. BOVIE, PH.D., *Research Fellow in Biophysics*.  
E. LEON CHAFFEE, PH.D., *Research Fellow in Biophysics*.  
CHARLES E. BARR, A.M., *Research Fellow in Biophysics*.  
HENRY LYMAN, M.D., *Research Fellow in Chemistry*.  
J. HOMER WRIGHT, M.D., *Pathologist in Charge of Free Diagnosis Service*.  
PAUL RUPERT GAST, PH.D., M.S., *Assistant Research Fellow in Biophysics*.  
WALTER S. HUGHES, S.B., *Assistant Research Fellow in Biophysics*.  
TREVOR G. BROWNE, M.D., *Research Fellow in Pathology*.

COLLIS P. HUNTINGTON MEMORIAL HOSPITAL  
FOR CANCER RESEARCH

ROBERT B. GREENOUGH, M.D., *Surgeon in Charge*.  
CHANNING C. SIMMONS, M.D., *Surgeon*.  
HENRY A. CHRISTIAN, M.D., *Consulting Physician*.  
GEORGE R. MINOT, M.D., *Physician*.  
D. CROSBY GREENE, M.D., *Laryngologist*.  
LAWRIE B. MORRISON, M.D., *Consulting Roentgenologist*.  
GEORGE A. LELAND, JR., M.D., *Assistant Surgeon*.  
GEORGE GILBERT SMITH, M.D., *Assistant Surgeon*.  
ERNEST M. DALAND, M.D., *Surgeon to Out-Patients*.  
LELAND S. MCKITTRICK, M.D., *Surgeon to Out-Patients*.  
THOMAS E. BUCKMAN, M.D., *Assistant Physician*.  
RAPHAEL ISAACS, M.D., *Assistant Physician*.  
EDWARD W. HERMAN, M.D., *Assistant Laryngologist*.  
ARTHUR M. GREENWOOD, M.D., *Assistant Dermatologist*.  
M. C. SOSMAN, M.D., *Roentgenologist*.  
R. G. VANCE, M.D., *Roentgenologist*.  
WILLIAM L. DAVIS, M.D., *Surgical Assistant*.  
WILLIAM M. SHEDDEN, M.D., *Surgical Assistant*.  
EDWARD P. HAYDEN, M.D., *Resident Surgeon*.  
JOSEPH V. MEIGS, M.D., *Resident Surgeon*.  
JOHN S. LAWRENCE, M.D., *Resident Physician*.  
DANIEL HIGBEE, M.D., *Resident Physician*.  
BENJAMIN BROCK, M.D., *Resident Physician*.  
RAYMOND REITZEL, M.D., *Resident Physician*.  
RICHARD B. CATTELL, *House Officer*.  
W. J. PAUL DYE, *House Officer*.  
ANNA L. GIBSON, R.N., *Matron-Superintendent*.  
MYRA B. CONOVER, R.N., *Assistant Matron-Superintendent*.





REPORT OF THE CHAIRMAN  
TO THE  
CANCER COMMISSION OF HARVARD UNIVERSITY

GENTLEMEN: I submit herewith the reports of the various heads of departments of the staff of the Cancer Commission of Harvard University, for the fiscal year ending June 30, 1924.

A review of the work of the Commission has been prepared by the Director as a part of his report. This includes a brief statement of the general policy established by the Commission, and calls attention to several possible lines of activity which now present themselves for further extension of its work and to the financial support which will be needed for this purpose.

Respectfully,

HENRY P. WALCOTT, *Chairman.*

July 1, 1924.



THE REPORT OF THE DIRECTOR  
TO THE  
CANCER COMMISSION OF HARVARD UNIVERSITY

GENTLEMEN: I have the honor to submit the following report on the work of the Cancer Commission of Harvard University for the twelve months ending July 1, 1924.

The regular work of the hospital and of the laboratories has been continued and a number of reports have been made by the various members of the Staff. The notable features of the year's work have been the development of the high voltage X-ray Department, the organization of the Medical Laboratory Department and the installation and operation of the X-ray apparatus presented to the hospital by the John Hancock Mutual Life Insurance Company, which has been employed both for diagnosis and for low voltage X-ray therapy.

The report for the fiscal year ending July 1, 1923, was prepared and printed in January, 1924. This report showed a gross deficit for the year of \$4,206.40. Owing to the change in the accounting system adopted July 1, 1923, the 1922-23 accounts were made to include thirteen months of hospital expense and fourteen months of salaries, whereas the income side of the account included only twelve months of income. The inclusion of these extra items was a necessary part of the change of the accounting system and the actual operation of the hospital and of the laboratories for the twelve months' period was accomplished without a deficit. The change in the accounting system has proved most satisfactory. Monthly reports are provided by the Bursar's office giving in detail the departmental receipts and expenditures and a much more accurate idea of the actual financial condition of the Commission's affairs is now obtainable than under the previous system. It has not however resulted in any material diminution of accounting expense.

The work of the fiscal year 1923-24 was carried on on estimates prepared and approved in May, 1923, and in general these estimates have been closely followed, although in certain depart-



ments the expenses have exceeded the figures presented at that time. Notably is this the case in three departments—Administration, House and Property and X-ray.

Under "Administration" is included the cost of clerical service which is required especially for the maintenance of the record system. Competent clerical service commands at present greater salaries than the Commission has been obliged to pay in the past and with normal increase in the work of the hospital and of the laboratories augmentation of the clerical staff has been necessary, and salaries have had to be increased also. A re-organization of this department has now been put through and all of the clerical work has been placed under the supervision of one chief clerk. In this way it is hoped that economy and more efficient service can be obtained. It should be noted also that under "Administration" has been charged off \$5,500.00 of accounts receivable, these being unpaid accounts more than one year old which have been carried as assets under the previous accounting system.

Under "House and Property" have been charged the items such as heat, light and power, supplied from the University power plant.

As has been pointed out in other reports these items are not at all under the control of the Cancer Commission and the costs are determined by the university engineers and allotted to the different institutions which depend upon this service.

With the new accounting system a subdivision of the accounts of the Physics Department was made into three Departments —

- (1) Radium Plant
- (2) Short Wave Length Therapy
- (3) X-ray Diagnosis

The cost of maintenance of the Radium Plant remained as in former years. The expenses of the Short Wave Length Therapy were increased materially by the breakage of X-ray tubes and amounted to nearly \$6,000 in the year, although yielding in revenue \$4,400. The operation of the new department of X-ray Diagnosis cost \$3,100 and registered only \$600 revenue so that the total cost of these two X-ray Departments was a considerable addition to the Commission expense.



### *Finances*

\$103,500 was received as the second and final installment of the Elizabeth Worcester Mills Fund in August, 1923. Another bequest of \$2,078.89 under the will of Albert G. Geiger, available principal and interest, on the approval of the Corporation, was received under date of April 25, 1924. Annual subscriptions for the current year amounted to \$33,812.82 and the hospital receipts for the year were \$48,691.46, a very slight increase over the year before.

The use of the deep X-ray has supplanted somewhat the use of radium and receipts for radium treatment have fallen off to an extent greater than the X-ray receipts have increased. This is undoubtedly due to the fact that hospitalization of cases that are to receive deep X-ray treatment diminishes materially the number of beds available for treatment with radium.

Reports have been received from the heads of different departments which I will summarize as follows:

#### *Bio-Physics — Dr. Duane*

The work of Dr. Duane's department has been divided this year into three sub-departments — the radium plant, Short wave length X-ray Therapy, and X-ray Diagnosis.

*The radium plant* has taken charge of the collection of emanation and preparation of applicators not only for the Huntington Hospital but for the Massachusetts General Hospital as well. The arrangement started a year ago has continued and the Huntington Hospital has had the use of the emanation from the Massachusetts General Hospital radium when it was not in service elsewhere.

Dr. Duane and his assistants have devised an automatic clock control to provide for hourly automatic pumping of the emanation in place of daily operation by hand. This device diminishes the amount of time required of the operator and serves to diminish the risk of exposure as well.

*Short wave length X-ray therapy:* the high voltage X-ray plant has functioned satisfactorily and has been employed as a rule with two X-ray tubes running simultaneously, making it possible to give as many as six treatments per day. Each case receives, as a rule, four exposures of two to three hours on suc-



cessive days. This requires hospitalization of the patient for a full treatment but some fractional treatments have been given without requiring the patient to remain in the hospital. The results of the high voltage treatment appear to be similar to those obtained with other forms of X-ray apparatus although undoubtedly more powerful and more penetrating in their action. Benefit is obtained by the use of this apparatus in many of the deeper manifestations of malignant disease but that the results are more enduring has not yet been demonstrated. A further disadvantage in the use of the high voltage machine results from the risk of serious damage to the skin and subcutaneous tissues under repeated treatments. Late, deep X-ray burns have resulted in certain cases in which the patient's individual sensitiveness to X-ray appeared to be greater than normal.

*The low voltage X-ray* apparatus presented by the John Hancock Mutual Life Insurance Company has been installed and is in use giving low voltage treatments, and for making X-ray examinations. This apparatus makes it possible for us to complete the examination of new patients within the hospital, whereas up to this time we have been dependent upon either the Peter Bent Brigham Hospital or Dr. L. B. Morrison for such service. The cost of operation of this department at present exceeds the receipts but it is hoped to get it on a more self-supporting basis.

Under Dr. Duane, investigations have been carried on on the measurement of X-ray dosage and a number of papers have been published. With the aid of several National Research Fellows research on the physics of secondary and tertiary radiation have also been carried on and work has been done upon a special testing apparatus to be used for the protection of X-ray workers.

Dr. Duane received the first Leonard Prize of five hundred dollars (\$500) of the American Roentgen Ray Society for research in X-radiation.

#### *Bio-Physics — Dr. Bovie*

The work in Dr. Bovie's laboratories has included teaching and research. He has conducted four courses in the Bio-Physics



Department of Harvard College and he has given two courses in Bio-Physics in the Medical School. These courses have dealt chiefly with the investigation of problems in bio-physics and are, therefore, adapted especially to advanced students, although it has been found that a certain amount of elementary instruction in physics and biology was often necessary. Dr. Bovie is planning to write a Text Book on Bio-Physics in the near future.

The immediate applicability of Dr. Bovie's investigations to the cancer problem at first sight appears remote. There is great public interest in the nature of the actual cause of cancer and many articles appear in the public press upon this subject. At the present time, however, cancer must be regarded as a peculiar manner of growth of previously normal body cells. Our knowledge of the conditions which stimulate, retard or control growth of normal body cells is extremely limited. The work that Dr. Bovie is doing promises to shed some light upon these problems and from the control of the growth of normal cells to the control of cancer cells should be an easy step. It is for this reason that Dr. Bovie's investigations of the organization of protoplasm, the effects of surface tension phenomena, the photo-chemical changes in proteins produced by ultra-violet light, the electrical responses of the optic nerve to stimulation by light, and the photo-electric phenomena of plant growth all give promise of contributing to this general field of knowledge.

Eleven papers have been published from Dr. Bovie's laboratory during the year and other reports are in process of preparation. While these investigations are of the greatest importance in contributing to knowledge of growth of cells and thus are of importance in the cancer problem, they are important also in many other fields of science. It is greatly to be desired that the importance of this work should be recognized and the department of Bio-Physics established on a more permanent basis. While the importance of this subject is recognized in many other communities, endowment sufficient for its independent maintenance at Harvard has not yet been secured. Such a degree of independence will, however, undoubtedly come in time and until that time arrives it is believed that the support of these investigations is a proper and valuable function of the Cancer Commission.



### *Bio-Chemistry*

Dr. Lyman reports that the work of his department has been carried on by his assistant, Mrs. M. L. Pearse, during his own absence on account of illness. Under Dr. Lyman's direction studies have been made of the nitrogen metabolism of cancer patients and in normal individuals, and a definite increase in undetermined nitrogen has been found in cancer cases confirming observations of other investigators; whereas other urinary constituents show no such increase. For the coming year certain investigations upon the physico-chemical changes in the blood of cancer patients will be undertaken.

### *Free Diagnosis Service*

The Free Diagnosis Service maintained by the State of Massachusetts has continued to be conducted for the State Health Department by the Cancer Commission, and has been under the charge of Dr. J. Homer Wright. This service has attained a position of established value in the State, and a steadily increasing number of specimens have been sent in. During the past year improved methods of preparation have been introduced and the material thus made available for study and for teaching is of the highest value.

In addition to the State Service all of the pathological material of the Huntington Hospital goes through Dr. Wright's hands and special studies of groups of cases have been made in cooperation with members of the clinical staff.

Dr. G. Trevor Browne has held the position of Assistant in Pathology on a part time basis and has divided his work between the Pathological Department of the Harvard Medical School and the laboratory of the Cancer Commission.

### *Medical Laboratory*

During the year 1923-24 the organization of the Clinical Laboratory of the Medical Department of the Huntington Hospital was completed and an efficient group of clinical research workers assembled under Dr. G. R. Minot. There are many problems in cancer which can be studied by the chemical, serological and microscopic methods of clinical investigation which have been developed in medical science in the past few



years. Some of this work was already established in connection with the employment of radiation in the treatment of leukemia and Hodgkin's disease, in which the study of the blood of the patient is the most important element in diagnosis and prognosis. Data of the greatest value were obtained also from the study of the blood of patients subjected to radiation either with radium or with the heavy X-ray. From these studies contributions of the utmost importance have been made by Dr. Minot and his co-workers, dealing not only with the diagnosis and treatment of these diseases but with the precautions necessary to prevent injury from radiation either to the patient or to the operator of the X-ray or radium apparatus.

During the past year these investigations have been continued and their scope enlarged and it is believed that this department of the Commission's activities is one which promises much for further accomplishment, and is deserving of vigorous support. A close relation has been established between the medical laboratory and the Department of Medicine of the Harvard Medical School and as in other departments of the Hospital this relationship is fostered on account of its educational value for students and its promotion of close cooperation with the School and with the other hospitals and laboratories which are affiliated.

#### *Hospital Departments*

The general conduct of the hospital during the past year is the same as in years gone by and no change in general policy has been necessary. The number of new patients coming to the hospital continues to increase year by year and a wealth of clinical material passes through the institution which provides opportunity for the study of selected groups of cases which is unsurpassed. The method of special assignment of groups of cases to different members or groups of members of the staff is continued and reports have been prepared and published in various medical journals which reflect credit upon the institution as well as upon the individuals concerned.

The arrangement made with the John Hancock Mutual Life Insurance Company has continued and has been extended to include the examination of their employees as well as their policy holders for suspected cancer. It is believed that this is a



type of public service which may be productive of great good, not only for the safeguarding of the health of the individual but for its educational value as well.

The Matron-Superintendent of the hospital, Miss Gibson, has continued her excellent and economical administration of the physical affairs of the institution. During a part of the year the Assistant Matron-Superintendent, Miss Conover, was away on other duty but has now returned to take up her regular work as an able and efficient assistant to the Matron-Superintendent.

The increased cost of operation of certain departments has been the inevitable result of the increased number of patients and of the increase in our resources to deal with their diseases. Insofar as the Matron-Superintendent's departments are concerned, however, the estimates of May, 1923, have proved surprisingly accurate.

In response to the request of the Chairman of the Commission a statement of the work of the Cancer Commission has been prepared, as a part of this report; this statement includes a brief history of the development of the work of the Commission and gives a summary of the work going on in the investigation of the cause of cancer and of its treatment, and a forecast of the work which is desired to undertake in the near future and of the support needed to make it possible thus to extend the work of the Commission.

#### THE CANCER COMMISSION OF HARVARD UNIVERSITY

The Cancer Commission of Harvard University was founded in 1899 on a bequest by Caroline Brewer Croft for the study of the cause and the treatment of cancer. In 1912 other funds were contributed to the work of the Commission and the Collis P. Huntington Memorial Hospital was built for the study and treatment of cancer patients. During the earlier years of the Commission's work investigations were carried on in the laboratories of the Harvard Medical School which had to do with the then much discussed question of a possible parasitic cause of cancer. As sufficient evidence to support such a theory was not obtained, investigations were taken up of the spontaneous and



inoculable tumors of animals, especially rats and mice, and under Professor E. E. Tyzzer contributions of great value were made to the tumor problem.

With the construction of the Huntington Hospital and the advent of radium and x-ray as agents for the treatment of cancer, a new department of investigation came into existence, that of Bio-Physics. For this work the Harvard Cancer Commission was peculiarly well equipped by reason of its personnel, which included Professor William Duane, an acknowledged expert in the physics of radio-activity and Professor W. T. Bovie, a trained biologist who had studied the phenomena of plant and animal growth by physical methods. Under this department the application of x-ray and radium to the effective treatment of cancer was studied in the hospital and methods for its safe administration were devised; while in the laboratory investigations of the effects of radiation on the living tissues of plants and animals were made at the same time.

In 1922, the J. Collins Warren Laboratory of Bio-Physics was completed and for the first time all of the work of the Commission was assembled under one roof with facilities for the effective treatment of patients with x-ray, radium or surgery as might be desired, as well as laboratories for the investigation of the various problems in chemistry, pathology and bio-physics which presented themselves as likely to contribute toward the solution of the cancer problem.

Bio-physics deals with the organization of living tissues in the light of present day physical conceptions of the elementary composition of matter and although as yet in its infancy as a separate branch of science, it promises to yield results of the most fundamental importance in connection with the growth of living tissues and with such functions as nutrition and reproduction upon which growth depends. For the further development of this line of investigation, funds have been contributed to permit the erection of a glass-house as an addition to the laboratory of bio-physics and when this is completed plant and animal growth can be studied in the laboratory in the same way that patients with cancer are studied in the hospital.

During the past year a special laboratory has been assigned to the new department of clinical investigation under Dr. G. R. Minot. This medical laboratory has a corps of



investigators trained in the application to clinical problems of the methods of physiological, chemical and physical science and studies of great importance have been made of the effects of radiation upon the normal individual, and upon the fundamental blood diseases which are closely allied to malignant growths. Work has also been done in the broad field of cellular biology by making use of the blood cells as test objects and studying their growth and form in relation to disease and to different therapeutic methods.

Up to the present time 176 papers have been published in scientific journals embodying the results of the work of the different members of the Cancer Commission. The policy established by the Commission is as follows: to carry on investigation both in the laboratory and in the clinic, with a view to the study of the nature of cancer, to the development of new methods of treatment of this disease, and to the better utilization of the methods now available. These methods have been applied in the actual treatment of patients afflicted with cancer. Records of the results of treatment have been made, a follow-up system has been established in order that knowledge of the end-results of treatment may be made available for record, and reports of series of cases of cancer in its different locations have been prepared and presented from time to time. It is believed that only in some such manner as this can certain and reliable progress be made in dealing with this complex problem.

With the completion of the work for the fiscal year 1923-1924, certain lines of development have become highly desirable for the further extension of the usefulness of the Commission.

An increase of \$20,000 a year in the general funds available for the maintenance of the regular work of the Commission is greatly needed. The work of the past year resulted in a deficit of nearly \$10,000 and there is no part of the program of the past year's work, either in the laboratory or in the clinic, which can be abandoned, without interfering seriously with the program already established. Salaries and wages now paid by the Commission are far below those available in similar institutions in other cities and the cost of materials appears to be slowly but steadily increasing. For the effective utilization of the new glass-house in the laboratory of Bio-Physics, additional funds will also be greatly needed.



A development of the Department of Pathology is much to be desired. At present our resources permit the employment only of half of the time of a junior pathologist. The work of the institution would merit the full time appointment of a pathologist with the necessary assistants and technicians, amounting in all to at least \$10,000 a year. While much assistance has been given to us by Dr. Wolbach, the Professor of Pathology in the Harvard Medical School, and by Dr. J. H. Wright, Associate Professor of Pathology and Pathologist in charge of the State Diagnosis Service, this has been done voluntarily and without compensation.

A chemical laboratory has been maintained in the institution by Dr. Henry Lyman. Dr. Lyman's work has been interrupted unavoidably in the past three years. He has continued his interest and has maintained a technician for the study of certain bio-chemical problems, but circumstances have caused very little activity in this department. Recent developments in bio-chemistry appear to warrant a much more intensive study of certain phenomena in relation to cancer. It is believed that a full-time chemist working in cooperation with the surgical, medical and pathological departments would contribute materially to an increase in our knowledge of cancer. Such a department would cost at least \$10,000 a year and funds for the organization of this work are not available at present.

The problem of increasing the resources of the institution by \$40,000 a year is a difficult one. Already annual subscriptions to the amount of about \$40,000 are being received. An increase of the invested funds of the Commission sufficient to give this return would have to be in the neighborhood of a million dollars. Such a sum would have to be regarded as an investment, the returns from which would presumably be slow.

It is believed, however, that if suitable funds were available the result of their careful expenditure would be to increase materially our knowledge of cancer, and it is upon such an increase in knowledge that all prospect of the effective control of the condition ultimately must be based. Without more funds the staff of the Commission cannot broaden their lines of work and take up such new investigations as offer promise of valuable returns. To maintain progress in this work it is essential to



have sufficient money adequately to maintain the present work, and to permit of its elastic expansion as new fields develop.

Cancer is increasing and for the benefit of mankind cooperative intensive studies are urgently demanded. The solution of the problem of cancer cannot be bought with money but its advent can be hastened by this means. Investigations may at times seem far removed from the immediate problem but the foundations of all the great advances in cure and prevention of disease have been laid by basic scientific studies. Success will follow only if workers have special knowledge and training and if biological, chemical, pathological and clinical studies can be made co-ordinately. Such work demands the continued activity in research centers of as many workers as possible who can be given the necessary salaries and supplies. Money wisely spent for serious study of these subjects may confidently be expected ultimately to lead to a decreasing mortality from cancer, and to the control of this disease.

ROBERT B. GREENOUGH, *Director.*

July 1, 1924.

REPORT OF THE SURGEON  
TO THE  
CANCER COMMISSION OF HARVARD UNIVERSITY

GENTLEMEN: The work of the Collis P. Huntington Memorial Hospital was carried on during the fiscal year of 1923-1924 by the following staff:

ROBERT B. GREENOUGH, M.D., *Surgeon in Charge.*  
 CHANNING C. SIMMONS, M.D., *Surgeon.*  
 HENRY A. CHRISTIAN, M.D., *Consulting Physician.*  
 GEORGE R. MINOT, M.D., *Physician.*  
 D. CROSBY GREENE, M.D., *Laryngologist.*  
 LAWRIE B. MORRISON, M.D., *Consulting Roentgenologist.*  
 GEORGE A. LELAND, JR., M.D., *Assistant Surgeon.*  
 GEORGE GILBERT SMITH, M.D., *Assistant Surgeon.*  
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 EDWARD W. HERMAN, M.D., *Assistant Laryngologist.*  
 ARTHUR M. GREENWOOD, M.D., *Assistant Dermatologist.*  
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 WILLIAM L. DAVIS, M.D., *Surgical Assistant.*  
 WILLIAM M. SHEDDEN, M.D., *Surgical Assistant.*  
 EDWARD P. HAYDEN, M.D., *Resident Surgeon.*  
 JOSEPH V. MEIGS, M.D., *Resident Surgeon.*  
 JOHN S. LAWRENCE, M.D., *Resident Physician.*  
 DANIEL HIGBEE, M.D., *Resident Physician.*  
 BENJAMIN BROCK, M.D., *Resident Physician.*  
 RAYMOND REITZEL, M.D., *Resident Physician.*  
 RICHARD B. CATTELL, *House Officer.*  
 W. J. PAUL DYE, *House Officer.*  
 ANNA L. GIBSON, R.N., *Matron-Superintendent.*  
 MYRA B. CONOVER, R.N., *Assistant Matron-Superintendent.*

In addition to the regular staff members of several departments of the Harvard Medical School have given valuable aid in the capacity of consultants. We wish especially to thank Dr. G. S. Derby, Dr. R. B. Osgood, Dr. Philip D. Wilson and Dr. C. Morton Smith. Since the installation of the new X-ray apparatus, given to the Hospital by the John Hancock Mutual Life Insurance Company, Dr. L. B. Morrison has not been called upon to treat cases requiring low voltage radiation, as in former years, or to do the diagnostic work. He has, however, taken an active interest in the X-ray department in the capacity of a



consultant to the Hospital. The department has been in charge of Dr. M. C. Sosman, who later resigned owing to press of work at the Peter Bent Brigham Hospital, and his place was filled by Dr. R. G. Vance.

During the year 1629 new cases were examined at the hospital, 30 more than in the previous year. There were 7,391 Out-Patient visits as compared to 7,748 in 1923-24 and 6,342 In-Patient days as against 6,115 in the last fiscal year.

Forty-two policy holders of the John Hancock Mutual Life Insurance Company were examined for suspected carcinoma, of which 12 were found to be suffering from the disease.

The following table shows the number of cases treated yearly since the foundation of the hospital:

<i>Year</i>	<i>Number Patients</i>	<i>O.P.D. Visits</i>	<i>In-patient Days</i>	<i>Operating Expenses</i>	<i>Total Hospital Earnings</i>
1912-1913	190*	482	5,372	\$23,358.41	\$4,053.19
1913-1914	360*	1,634	5,529	26,115.62	4,607.72
1914-1915	509*	3,676	5,725	25,278.78	9,811.08
1915-1916	508†	3,833	6,118	26,888.36	13,078.08
1916-1917	571†	4,488	6,602	29,266.00	15,176.46
1917-1918	767†	4,286	6,660	29,791.39	16,006.98
1918-1919	901†	4,420	6,484	33,692.45	20,744.18
1919-1920	1,286†	6,105	7,054	47,361.97	30,147.13
1920-1921	1,420†	6,820	6,511	66,157.03	39,143.41
1921-1922	1,636†	7,331	5,466	65,450.60	46,930.12
1922-1923	1,599†	7,748	6,115	72,332.09	47,714.00
1923-1924	1,629†	7,391	6,342	80,233.14	48,691.46

\*Old and new patients.

†New patients only.

The classification of new patients presenting themselves at the clinics during the year is presented below in tabular form, arranged according to the classification of diseases adopted by the Boston hospitals and based on the numbers in the International List of Causes of Death.

	<i>Male</i>	<i>Female</i>	<i>Total</i>
<b>CARCINOMA</b>			
Breast .....7-47a	0	95	95
<b>Buccal Cavity.....7-43a</b>			
Cheek.....	12	3	15
Jaw, lower.....	13	2	15
Jaw, upper.....	10	2	12
Lip.....	46	1	47
Palate.....	6	1	7
Submaxillary gland.....	1	0	1
Tongue, floor of mouth.....	52	4	56
Tonsil.....	18	4	22
Total.....7-43a	158	17	175
<b>Female Genital Organs.....7-46a</b>			
Cervix uteri.....	0	162	162
Ovary.....	0	11	11
Uterus.....	0	24	24
Vagina.....	0	8	8
Vulva.....	0	9	9
Total.....7-46a	0	214	214
<b>Male Genital Organs.....7-49a</b>			
Penis.....	7	0	7
Prostate.....	5	0	5
Total.....7-49a	12	0	12
<b>Peritoneum, Intestines, Rectum, etc.....7-45a</b>			
Intestine.....	2	4	6
Peritoneal Carcinomatosis.....	0	1	1
Rectum.....	26	12	38
Sigmoid.....	1	0	1
Total.....7-45a	29	17	46



	Male	Female	Total
<b>CARCINOMA (Continued)</b>			
Skin.....7-48a			
Abdomen.....	1	0	1
Arm.....	1	1	2
Cheek.....	56	44	100
Chin.....	2	1	3
Ear.....	21	2	23
Eyebrow.....	1	1	2
Eyelid.....	15	13	28
Face.....	3	2	5
Foot.....	0	1	1
Forehead.....	13	16	29
Hand.....	5	2	7
Leg.....	0	1	1
Lip.....	14	2	16
Mastoid Region.....	3	0	3
Neck.....	9	4	13
Nose.....	31	36	67
Scalp.....	1	3	4
Temple.....	3	1	4
Total.....7-48a	179	130	309
<b>Stomach, Liver, etc. ....7-44a</b>			
Esophagus.....	12	8	20
Hypopharynx.....	1	0	1
Nasopharynx.....	2	0	2
Pharynx.....	3	3	6
Stomach.....	4	5	9
Total.....7-44a	22	16	38
<b>Urinary Organs.....7-49a</b>			
Bladder.....	3	0	3
Kidney.....	1	0	1
Urethra.....	0	2	2
Total.....7-49a	4	2	6
<b>Other Sites.....7-49a</b>			
Antrum.....	0	3	3
Branchial Cleft.....	5	1	6
Ethmoid.....	3	0	3
Larynx.....	27	0	27
Pelvis, metastatic.....	0	1	1
Thyroid gland.....	1	0	1
Total.....7-49a	36	5	41

	<i>Male</i>	<i>Female</i>	<i>Total</i>
<b>CARCINOMA (Continued)</b>			
Cylindroma.....7-49c	0	1	1
Lacrimal gland .....			
<hr/>			
Embryoma.....7-49g			
Testicle.....	1	0	1
<hr/>			
<b>SARCOMA (Unspecified)</b>			
Antrum.....7-49f	1	0	1
Breast.....7-47f	0	1	1
Choroid.....7-49f	0	1	1
Eyelid.....7-48f	1	0	1
Hand.....7-48f	1	0	1
Kidney.....7-49f	0	2	2
Nose.....7-49a	1	0	1
Palate.....7-43f	1	0	1
Angiosarcoma			
Finger.....7-48f	1	0	1
Leg.....7-48f	1	0	1
Scalp.....7-48f	1	1	2
Fascial Sarcoma			
Leg.....7-48f	0	1	1
Fibrosarcoma			
Arm.....7-48f	0	1	1
Back.....7-48f	1	0	1
Groin.....7-49f	1	0	1
Hand.....7-48f	1	0	1
Rectal Region.....7-45f	0	1	1
Scalp.....7-48f	0	1	1
Sciatic nerve.....7-49f	1	0	1
Melanotic Sarcoma			
Alveolar process.....7-43f	1	0	1
Axilla.....7-48	1	0	1
Back.....7-48f	1	1	2
Eye.....7-49f	0	1	1
Foot.....7-48f	0	1	1
Forehead.....7-48f	0	1	1
Neck.....7-48a	0	2	2
Scalp.....7-48f	1	0	1
Osteogenic Sarcoma			
Femur.....7-49f	1	1	2
Jaw.....7-43f	1	0	1
Metacarpal.....7-49f	3	0	3
Pelvis.....7-49f	2	0	2
Rib.....7-49f	1	0	1
Scapula.....7-49f	1	0	1
Tibia.....7-49f	0	1	1
<b>Total.....</b>	<b>25</b>	<b>17</b>	<b>42</b>



	<i>Male</i>	<i>Female</i>	<i>Total</i>
ENDOTHELIOMA			
Lymph Nodes.....7-49b	1	0	1
HEMANGIO-ENDOTHELIOMA			
Shoulder.....7-49b	0	1	1
HYPERNEPHROMA			
Kidney.....7-49e	1	1	2
MALIGNANT DISEASE (Unspecified)...7-49	4	3	7
MALIGNANT LYMPHOMA.....7-65.2	18	9	27
LYMPHOSARCOMA.....7-65.2	5	2	7
MIXED MALIGNANT GROWTH			
Parotid.....7-43g	1	4	5
MULTIPLE MYELOMA.....7-49k	1	0	1
NEUROBLASTOMA			
Eye.....7-85	0	2	2
Total.....	31	22	53

NON-MALIGNANT TUMORS			
Adamantinoma			
Jaw.....7-49f	2	1	3
Adenofibroma			
Breast.....7-142	1	1	2
Adenoma			
Nose.....7-97	1	0	1
Thyroid.....7-60	0	1	1
Angioma			
Lip.....7-108	4	1	5
Skin.....7-154	5	11	16
Palate, parotid, tongue.....7-108	3	2	5
Angioma cavernosum			
Forehead.....7-154	1	1	2
Lip.....7-108	0	1	1
Neck.....7-154	0	1	1
Multiple.....7-154	0	1	1
Cyst Mucous			
Lip.....7-108	2	0	2
Cyst-adenoma, papillary			
Breast.....7-142	0	2	2
Epulis			
Jaw.....7-155	1	2	3
Forward.....	20	25	45

	<i>Male</i>	<i>Female</i>	<i>Total</i>
<b>NON-MALIGNANT TUMORS (Continued)</b>			
Brought forward.....	20	25	45
<b>Fibroma</b>			
Ear.....7-86	0	1	1
Mouth.....7-108	1	0	1
Nose.....7-97	1	0	1
Palate.....7-108	1	0	1
Multiple.....7-154	0	1	1
Vulva.....7-141	0	1	1
<b>Fibromyoma</b>			
Uteri.....7-139	0	16	16
<b>Giant Cell Tumor</b>			
Ilium.....7-155	1	0	1
Jaw.....7-43a	0	1	1
Thumb.....7-43f	0	1	1
<b>Keloid</b>			
Buttocks.....7-154	1	0	1
Chest.....7-154	2	1	3
Chin.....7-154	1	0	1
Ear.....7-86	1	0	1
Elbow.....7-154	0	1	1
Groin.....7-154	1	0	1
Hand.....7-154	1	1	2
Leg.....7-154	1	0	1
Neck.....7-154	1	0	1
Thigh.....7-154	1	0	1
Wrist.....7-154	0	1	1
<b>Lipoma</b>			
Cheek.....7-154	1	0	1
Thigh.....7-154	0	1	1
Multiple.....7-154	1	0	1
<b>Lymphangioma</b>			
Eyelid.....7-154	1	0	1
Palate.....7-99	0	1	1
<b>Lymphoma, benign</b>			
Neck, groin.....7-50	1	0	1
<b>Neurofibromatosis</b>			
Hand.....7-154	0	1	1
<b>Osteoma</b>			
Orbit.....7-85	0	1	1
<b>Papilloma</b>			
Lip.....7-108	4	1	5
Skin.....7-154	13	15	28
Tongue.....7-108	1	0	1
Uvula.....7-109	0	1	1
Vagina.....7-141	0	1	1
<b>Polyp</b>			
Cervix uteri.....7-139	0	5	5
Vocal cord.....7-98	1	0	1
Wen.....7-154	7	7	14
<b>Total.....</b>	<b>64</b>	<b>84</b>	<b>148</b>



	Male	Female	Total
<b>SPECIAL SKIN DISEASES</b>			
Acne Rosacea . . . . . 10-154	0	2	2
Acne Vulgaris . . . . . 10-154	1	0	1
Cicatrix . . . . . 10-154	1	2	3
Clavus . . . . . 10-154	1	0	1
Eczema . . . . . 10-154	3	1	4
Erythremia . . . . . 10-154	0	1	1
Folliculitis . . . . . 10-154	0	1	1
Intertrigo . . . . . 10-154	0	2	2
Keratosis (unqualified) . . . . . 10-154	50	32	82
Lichen planus . . . . . 10-154	1	0	1
Lupus . . . . . 10-154	1	0	1
Lupus erythematosus . . . . . 10-154	1	2	3
Nevus araneus . . . . . 10-159	1	0	1
Nevus cellular . . . . . 10-159	0	1	1
Nevus papillaris . . . . . 10-159	2	5	7
Nevus pigmentosus . . . . . 10-159	4	5	9
Nevus pilosus . . . . . 10-159	2	1	3
Nevus vascularis . . . . . 10-159	0	1	1
Nevus (unqualified) . . . . . 10-159	1	4	5
Pruritis . . . . . 10-154	0	1	1
Psoriasis . . . . . 10-154	2	0	2
Sarcoid . . . . . 10-154	1	0	1
Sycosis vulgaris . . . . . 10-154	1	0	1
Verruca . . . . . 10-154	14	8	22
Xanthoma palpebrarum . . . . . 10-154	0	2	2
Total . . . . .	87	71	158
<b>OTHER CONDITIONS</b>			
<b>SECTION I. SPECIFIC INFECTIOUS DISEASES,</b>			
<b>GENERAL DISEASES</b>			
Abscess			
Breast . . . . . 1-142	0	1	1
Peritonsillar . . . . . 1-109	0	1	1
Tongue . . . . . 1-108	1	0	1
Actinomycosis			
Lung, chest wall . . . . . 1-30	1	0	1
Tongue . . . . . 1-30	0	1	1
Epidermophytosis			
Multiple . . . . . 1-30	1	0	1
Lupus vulgaris . . . . . 1-36	1	1	2
Syphilis . . . . . 1-38	9	4	13
Tuberculosis			
Epiglottis . . . . . 1-31	1	0	1
Larynx . . . . . 1-31	3	0	3
Lungs . . . . . 1-31	1	0	1
Lymph nodes, axillary . . . . . 1-36.3	1	0	1
Lymph nodes, cervical . . . . . 1-36	3	4	7
Palate . . . . . 1-36	1	0	1
Shoulder, joint . . . . . 1-35	0	1	1
Tongue . . . . . 1-36	1	0	1
Impetigo contagiosa . . . . . 1-154	1	0	1
Furuncle . . . . . 1-152	3	0	3
Ulcer . . . . . 1-154	1	0	1
Forward . . . . .	29	13	42

	Male	Female	Total
<b>OTHER CONDITIONS (Continued)</b>			
Brought forward.....	29	13	42
<b>SECTION VI. POISONINGS, INTOXICATIONS</b>			
Lead poisoning.....6-67	1	0	1
<b>SECTION V. DISEASE DUE TO PHYSICAL AGENTS</b>			
Burn..... 5-179	1	0	1
<b>SECTION VIII. CONGENITAL MALFORMATIONS</b>			
Thyro-glossal cyst.....8-159	1	2	3
Pilonidal cyst, nose.....8-159	1	0	1
<b>SECTION IX. INJURIES</b>			
Fracture			
Clavicle.....9-185	0	1	1
Malar bone.....9-201	0	1	1
<b>SECTION XII. DISEASE OF THE LYMPHATIC SYSTEM</b>			
Lymphadenitis.....12-94	2	3	5
<b>SECTION XIII. DISEASES OF THE BLOOD AND BLOOD FORMING ORGANS</b>			
Anemia, pernicious.....13-58.1	1	1	2
Anemia, splenic.....13-58	0	1	1
Hemophilia.....13-69	1	0	1
Leukemia, atypical.....13-65.1	0	1	1
Leukemia, lymphoid.....13-65.1	6	1	7
Leukemia, myeloid.....13-65.1	7	6	13
Polycythemia.....13-69	3	0	3
Purpura hemorrhagica.....13-69	2	3	5
<b>SECTION XIV. DISEASES OF THE DUCTLESS GLANDS</b>			
Goitre.....14-60.2	0	2	2
Hyperthyroidism.....14-60	0	1	1
<b>SECTION XV. DISEASES OF THE NERVOUS SYSTEM</b>			
Mastodynia.....15-82	0	2	2
Paralysis.....15-10	1	0	1
<b>SECTION XVI. DISEASE OF THE BONES, JOINTS, MUSCLES, TENDONS AND FASCIA</b>			
Arthritis, hypertrophic.....16-156	1	2	3
Bursitis.....16-158	1	0	1
Dupuytren's contraction.....16-158	1	0	1
Flat foot.....16-158	0	1	1
Osteitis, deformans.....16-155	1	0	1
Osteoarthritis.....16-156	1	0	1
Osteomyelitis.....16-155	1	4	5
Forward.....	62	45	107



	<i>Male</i>	<i>Female</i>	<i>Total</i>
<b>OTHER CONDITIONS (Continued)</b>			
Brought forward.....	62	45	107
<b>SECTION XVII. DISEASE AND INJURIES OF THE EYE AND EAR</b>			
Conjunctivitis.....17-85	1	1	2
Dacryocystitis.....17-85	0	1	1
Hordeolum.....17-85	1	0	1
Retinitis.....17-85	1	0	1
Sinusitis and Otitis.....17-85	1	0	1
Inflammation, chronic.....17-86	0	1	1
<b>SECTION XVIII. DISEASE OF THE NOSE AND ACCESSORY SINUSES</b>			
Deviation of nasal septum.....18-97	0	1	1
Epistaxis of deviated septum.....18-97	1	0	1
Ethmoiditis.....18-155	1	0	1
Rhinitis.....18-97	1	0	1
Rhinolith.....18-97	1	0	1
Sinusitis, chronic.....18-155	0	1	1
Ulcer, nose.....18-97	1	0	1
<b>SECTION XIX. DISEASE OF THE MOUTH, LIPS, CHEEKS, PHARYNX, TONSILS AND PALATE</b>			
Concretion.....19-108	0	1	1
Inflammation.....19-108	0	3	3
Leukoplakia.....19-108	17	1	18
Parotitis.....19-108	0	1	1
Pharyngitis.....19-109	1	0	1
Tonsillitis.....19-109	1	2	3
Ulcer, lip.....19-108	1	0	1
Ulcer, mouth.....19-108	1	0	1
<b>SECTION XX. DISEASE OF THE JAW, TEETH AND GUMS</b>			
Pyorrhoea alveolaris.....20-108	1	1	2
<b>SECTION XXI. DISEASES OF THE TONGUE</b>			
Glossitis.....21-108	1	1	2
Hypertrophied papilla.....21-108	1	3	4
Leukoplakia of tongue.....21-108	2	1	3
Ulcer of tongue.....21-108	0	2	2
<b>SECTION XXII. DISEASES OF THE ESOPHAGUS</b>			
Stricture.....22-110	1	1	2
Cardiospasm.....22-112	0	1	1
<b>SECTION XXIII. DISEASES OF THE STOMACH</b>			
Gastritis, chronic.....23-112	1	0	1
Hyperacidity.....23-112	1	1	2
<b>SECTION XXIV. DISEASES OF THE INTESTINES</b>			
Appendicitis.....24-117	0	2	2
Constipation.....24-119	1	1	2
Forward.....	101	72	173

	<i>Male</i>	<i>Female</i>	<i>Total</i>
<b>OTHER CONDITIONS (<i>Continued</i>)</b>			
Brought forward.....	101	72	173
Enteroptosis.....24-119	0	2	2
Indigestion.....24-114	1	0	1
Obstruction.....24-118.2	0	1	1
Stasis, intestinal.....24-119	1	0	1
Ulcer, duodenal.....24-111.2	3	3	6
<b>SECTION XXV. DISEASES OF THE LIVER AND GALL DUCTS</b>			
Cholecystitis.....25-124	1	1	2
Cholelithiasis.....25-123	0	1	1
<b>SECTION XXVIII. DISEASES OF RECTUM AND ANUS</b>			
Fissure in ano.....28-119	1	0	1
Fistula in ano.....28-119	1	0	1
Hemorrhoid.....28-93	1	1	2
<b>SECTION XXIX. DISEASES OF THE LARYNX</b>			
Laryngitis.....29-98	1	0	1
Neurosis.....29-98	2	0	2
Paralysis.....29-98	1	0	1
<b>SECTION XXX. DISEASES OF THE TRACHEA AND BRONCHI</b>			
Bronchiectasis.....30-99.2	2	0	2
<b>SECTION XXXIV. DISEASES OF THE BLADDER</b>			
Cystitis.....34-133	0	2	2
Incontinence.....34-133	0	1	1
<b>SECTION XXXV. DISEASES OF THE URETHRA, MALE AND FEMALE</b>			
Caruncle, urethra.....35-134	0	6	6
Urethritis, chronic.....35-134	0	1	1
<b>SECTION XXXVI. DISEASES OF THE MALE GENERATIVE ORGANS</b>			
Fibrosis of corpora cavernosa.....36-138	2	0	2
<b>SECTION XXXVII. DISEASES OF THE FEMALE GENERATIVE ORGANS</b>			
Amenorrhea.....37-141	0	1	1
Dysmenorrhea.....37-141	0	3	3
Endocervicitis.....37-141	0	4	4
Endometritis.....37-141	0	5	5
Erosion cervix uteri.....37-141	0	2	2
Fistula vesico vaginal.....37-141.2	0	1	1
Kraurosis vulvae.....37-141	0	1	1
Laceration.....37-141	0	4	4
Menopause.....37-141	0	2	2
Oophoritis, cystic.....37-141	0	1	1
Relaxation pelvic floor.....37-141	0	3	3
Forward.....	118	118	236



	Male	Female	Total
<b>OTHER CONDITIONS (Continued)</b>			
Brought forward .....	118	118	236
<b>SECTION XXXIX. DISEASES OF THE BREAST</b>			
Cystic disease .....39-142	1	11	12
Paget's disease .....39-142	0	1	1
<b>SECTION XLI. ILL-DEFINED OR UNCLASSIFIED DISEASES</b>			
No diagnosis.....41-205	10	17	27
No disease.....41-	7	7	14
Total.....	136	154	290

<b>CARCINOMA</b>	
Breast.....	95
Buccal Cavity.....	175
Female Genital Organs.....	214
Male Genital Organs.....	12
Peritoneum, Intestines and Rectum, etc.....	46
Skin.....	309
Stomach and Liver, etc.....	38
Urinary Organs.....	6
Other Sites.....	43
	938
Carcinoma.....	938
Sarcoma.....	42
Other Malignant Tumors.....	53
Non-Malignant Tumors.....	148
Special Skin Diseases.....	158
Other Conditions.....	290
	1,629

Five hundred and eighteen operations were performed at the hospital during the year. Many of them were of a minor nature but a large number were major and were cases which required treatment by surgery and radiation combined. The proper radiation treatment of certain cases is in the nature of a major surgical operation and it is becoming recognized that a combination of the two methods is the treatment giving the best results in certain groups of cases. Cases requiring purely surgical treatment are usually referred to other institutions.



The general conduct of the clinics has been the same as in former years and it is gratifying to see that more patients are referred for precancerous lesions or very early cancer than was the case a few years ago. The clinics are held as follows:

Monday afternoon.	Diseases of the blood and lymph glands.
Tuesday afternoon.	General surgical clinic.
Wednesday morning.	Diseases of the blood and lymph glands.
Wednesday afternoon.	Carcinoma of the nose and throat.
Thursday morning.	Carcinoma of the genito-urinary organs.
Thursday afternoon.	Carcinoma of the female genital organs.
Friday afternoon.	General surgical clinic.

Several reports have been made before medical societies by members of the staff during the year and many of the papers published. Individual members of the staff have assisted in the statistical study of cancer of certain regions inaugurated by the American College of Surgeons. Dr. Greenough has collected and reported on a series of cases of carcinoma of the cervix from hospitals throughout the country and work is now under way on a similar series of cases of cancer of the breast and of cancer of the mouth.

In August, 1923, the Assistant Superintendent, Miss Myra B. Conover, resigned in order to take charge of the Thorndike Laboratories at the Boston City Hospital. She resumed her duties at the Huntington Hospital in February, 1924.

In May, 1924, the clerical force of the hospital was re-organized and the work is now being done more efficiently with one less clerk.

In September, 1923, Miss Emily G. Philpotts was appointed Social Service Worker on a half-time basis and has served efficiently for the past nine months.

The surgeon wishes to express his thanks to the nursing and clerical force of the hospital as well as to the staff, whose willingness and devotion to duty has made it possible to conduct the clinics in a satisfactory manner.

Respectfully submitted,

CHANNING C. SIMMONS,  
*Surgeon.*

July 1, 1924.



REPORT OF THE PHYSICIAN  
AND  
DIRECTOR OF THE MEDICAL LABORATORY  
TO THE  
CANCER COMMISSION OF HARVARD UNIVERSITY

GENTLEMEN: The first year of the newly expanded Medical Service has seen the accomplishment and development of many new forms of routine and investigative work. It is hoped that as time passes, the activity of the past year will be looked upon as an initial effort at the hospital in the further development of progressive clinical investigation concerning cancer and its allied problems. Where formerly the total time given by the staff was relatively slight, it is now very considerable. The number of cases studied and cared for has been very materially increased, as has the routine, and yet it is believed that the patients have been more profitably studied and better cared for than heretofore has been practicable.

The results of short wave length roentgen-ray therapy in chronic leukemia have been consistently striking and the patients are more benefited than formerly with radium. Routine observations of various clinical states with a segregation of an increasing number of groups of cases have received the cooperative investigation of the staff. This will bring together information obtained over quite a period of time and may serve to increase knowledge regarding the diagnosis, symptomatology, etc.

The routine work of the laboratory has grown to a degree where a further increase will be somewhat difficult to handle with the present assignments of the staff. The routine work of observing the blood of those workers exposed to irradiations has been continued and each day blood examinations are made on those patients about to be irradiated.

Most of the routine blood work has been carried on by Miss Daland and Miss Weld. Their work is to be commended, for beside carrying on efficiently the somewhat tedious routine they have completed a prolonged study on the blood phosphorus in cancer, anemia, and leukemia, under Dr. Buckman's and Dr.



Minot's supervision. They have also continued further experiments concerning the influence of sera on plant growth and the life of paramoecia, and have aided in attempts to evaluate certain special tests referable to cancer.

The development of a pediatric division of the Medical Service by Dr. Buckman, Assistant Physician in charge of Pediatrics, is an innovation. In addition to developing this clinic he has surveyed in conjunction with his work at the Boston City Hospital certain groups of cases, aided in the study of routine data, and supervised a portion of the work.

Dr. Isaacs, full time Assistant Physician, has filled a most important position in this department. In addition to his own investigations he has helped Dr. Minot conduct and supervise the routine and investigative work. The studies that Dr. Isaacs has particularly undertaken depend upon his discovery of the identification of red corpuscles at a stage between gross immaturity and complete maturity. The behavior of these red cells following irradiation appears indicative of the amount of benefit the patient will derive later and may serve to indicate the character of the effect of irradiation. Besides much work of this type, he has studied the effect of prolonged exercise on the blood, undertaken other incompleated studies, and done a considerable amount of teaching.

Dr. R. G. Spurling completed his work at this hospital October 1st, 1923. His work with Dr. Minot concerned the effect of treatment by the short wave length roentgen-rays on the hemopoietic organs. A clear comprehension of the blood alterations was established that aids in determining rational therapy.

Dr. J. S. Lawrence served as a special worker during July and August. He helped Dr. Hitchcock, who completed his service as part time resident physician September 1st. Dr. Lawrence studied certain properties of serum and with Dr. Spurling conducted experiments on the effect of radium on leucocytes in an isolated portion of the body.

On September 1st, Dr. D. R. Higbee began his service as resident physician on a full-time basis. In addition to the increasing routine duties of his position he studied the effect of irradiation on the blood coagulation factors.

Dr. B. Brock took up the duties of resident physician



February 1st, thus overlapping the time of Dr. Higbee's departure by one month. Owing to illness Dr. Brock was obliged to stop work May 1st, and Dr. R. J. Reitzel has filled his position. In spite of Dr. Brock being unable to serve more than half of his appointed time he made some excellent and nearly complete observations on certain properties of immature red cells. This study has been continued by Dr. Isaacs. Dr. Brock with Dr. Isaacs made observations concerning some characters of lymphocytes and continued the routine studies on vital capacity.

Dr. Reitzel has commenced work upon the metabolism of cells, and during the summer Dr. A. E. Koehler is to be associated with this study.

Mr. H. E. Pearse of the third year class, during his spare time has worked on a problem concerning the permeability of blood cells. He is in the process of studying with Dr. Minot the blood picture in Hodgkins disease, and the frequency of leucopenia following therapeutic irradiation. Mr. Pearse has been enabled to do this work by a scholarship from the Proctor Fund. Since September Dr. J. Hitchcock, also aided by the Proctor Fund, has continued to make observations on the basal metabolism in leukemia.

The help obtained from the Proctor Fund is gratefully acknowledged; in addition to the scholarships just mentioned the fund has provided certain apparatus and secretarial assistance and is to aid in a similar fashion in the ensuing year.

Dr. Minot's work has consisted in supervision of the staff, the investigative problems and the care of patients. With Dr. Isaacs and Dr. Buckman he has made a rather extensive analysis concerning some 300 cases of leukemia and has published several communications. He acts as consultant to a clinic at the Massachusetts General Hospital for diseases of the types seen at the Huntington Hospital. This has resulted in a friendly and helpful cooperation between the two clinics.

Several papers have been published during the year, and others are in preparation.

On December 6, 1923, the Medical Service was invited to present some papers before the New York Academy of Medicine and Drs. Minot, Buckman and Isaacs each spoke on different phases of leukemia.



The teaching of medical students at the hospital assigned to the Department of Medicine is one of the new developments of the year. The service has also provided cases for clinics given by Dr. Minot at the Medical School and material for the course in clinical pathology.

It is to be expected that knowledge leading toward the cure of cancer and allied disorders may be advanced through the study of the biology of growth, cellular physiology and physical and chemical therapeutics. Problems in these fields can be studied by many investigations and though some advances may be made by relatively untrained clinical workers it would seem that the greatest progress would result from a team of selected experts. It would be ideal to have a biologist, chemotherapist and other specialists combined with clinicians working continuously together.

The promotion of research related to cancer can be fostered by increasing the affiliation of the hospital and its laboratories with the work of different departments of the University and allied hospitals aiming to develop gradually the combined interests of many and to disseminate better knowledge among students.

The hospital can serve a unique purpose in offering opportunity for students to learn what proper clinical investigation means. Such a procedure develops the best practising physicians and permits the early development of those men qualified to become advanced investigators. At present only a few students can be accommodated at the hospital. Several have requested opportunity to undertake investigative work next year in the limited time at their disposal not assigned to routine studies. Two have been promised a chance to do so.

A graduate student, Dr. John Cohen, has been granted opportunity to spend the greater part of his time, as assistant in Medicine, to study particularly cell metabolism in the ensuing year.

Mr. Pearse has been again granted a scholarship from the Proctor Fund and will continue his investigations in 1924-25. It is also anticipated that Dr. Hitchcock will continue his studies on basal metabolism.

In the ensuing year work now under way will be continued and new studies begun. The exact problems to be chosen are



not yet decided, they will pertain to cell growth and function and to the evaluation of tests concerning diagnosis and prognosis. Simpler clinical studies such as a comprehensive survey of the end results, and certain symptoms in Hodgkins disease also are anticipated.

Progress necessitates effort and often expansion of space and personnel rather than a great multiplicity of buildings or individuals. A group of wisely selected workers should be given ample space and opportunity for calm, deliberate, serious investigation. To offer the most desirable conditions for such an attack upon the cancer problem a very considerable amount of financial support may be effectively employed.

Respectfully submitted,

GEORGE R. MINOT.

July 1, 1924.

REPORT OF THE MATRON-SUPERINTENDENT  
TO THE  
DIRECTOR OF THE CANCER COMMISSION OF  
HARVARD UNIVERSITY

DEAR SIR: The year 1923-24 has seen an increasing activity in all departments of the hospital.

The total number of in-patients admitted during the year was 1,239. Of these 70 percent paid less than \$21 per week, 15 percent paid \$21 or more per week, and 14 percent were treated free of charge.

There has been a definite increase in the amount of work in many of the departments. The X-ray department will soon require the services of another nurse. The clerical work increased to such an extent it was necessary to employ an expert stenographer who was placed in charge of the department and has arranged the work in a much more systematic manner. It has also been necessary to employ another laundress, as the work in that department has increased.

The usual amount of painting, plastering and minor repairs necessary to keep the building in good condition has been done. A large item of expense in the General House and Property Department was the building of new lockers for patients' clothing. There have never been adequate lockers for this purpose, and as the wards have been filled to capacity a greater part of the year, this became an imperative need.

The expense of the Care of Patients remains about the same as the preceding year. Although extra nurses have been employed, an effort has been made to employ well-trained attendants for floor duty, whenever possible, in place of graduate nurses, as much of the routine work can be done by them under supervision of graduate nurses, who are in charge of the wards and operating room.

There have been seventeen deaths in the hospital. Autopsies were performed on ten.

Five hundred and eighteen operations were performed during the year as follows:



## OPERATIONS FOR 1923-1924

Carcinoma	
Breast	
Amputation and dissection of axilla . . . . .	5
Buccal Cavity	
Cheek	
Curettage and radium treatment . . . . .	1
Excision . . . . .	7
Plastic operation . . . . .	3
Jaw	
Excision and cauterization with or without radium treatment . . .	8
Exploratory . . . . .	1
Sequestrum	
Removal . . . . .	2
Curettage . . . . .	1
Resection and cauterization . . . . .	1
Lip	
Excision . . . . .	12
Excision and dissection of neck . . . . .	1
Palate	
Excision . . . . .	1
Tongue	
Excision . . . . .	5
Tonsil	
Radium treatment . . . . .	1
Female Generative Organs	
Cervix	
Curettage and radium treatment . . . . .	151
Ether examination . . . . .	1
Ovary	
Ovariectomy . . . . .	1
Uterus	
Curettage and radium treatment . . . . .	19
Vagina	
Examination and application of radium . . . . .	6
Curettage . . . . .	1
Vulva	
Vulvectomy with drainage . . . . .	1
Radium treatment . . . . .	14
Male Generative Organs	
Penis	
Circumcision and excision . . . . .	1
Circumcision and radium treatment . . . . .	1
Prostate	
Cystoscopy . . . . .	3
Peritoneum, Intestines and Rectum	
Esophagus	
Esophagoscopy and radium treatment . . . . .	17
Gastrostomy . . . . .	1
Hypopharynx	
Tracheotomy . . . . .	1
Nasopharynx	
Curettage and radium treatment . . . . .	1
Pharynx	
Radium treatment . . . . .	2
Liver	
Exploratory laparotomy . . . . .	2
Rectum	
Curettage and radium treatment . . . . .	1

Larynx	
Laryngoscopy and radium treatment.....	18
Tracheotomy.....	20
Urinary Organs	
Bladder	
Cystoscopy.....	7
Urethra	
Cystoscopy.....	2
Cystoscopy and radium treatment.....	1
Regions not Elsewhere Mentioned	
Axilla	
Excision.....	1
Antrum	
Excision and radium treatment.....	1
Branchial Cleft	
Incision and drainage, broken down.....	2
Bronchoscopy and radium treatment.....	2
Skin	
Excision.....	36
Adamantinoma	
Jaw	
Excision and radium treatment.....	1
Hemangio-endothelioma	
Shoulder	
Excision.....	1
Sarcoma	
Antrum	
Radium treatment.....	1
Hand	
Excision.....	1
Palate	
Radium treatment.....	3
Sinuses and orbit	
Excision.....	1
Fibrosarcoma	
Hip	
Excision.....	1
Melanotic sarcoma	
Skin excision.....	4
Epulis	
Excision.....	1
Lymphosarcoma	
Tonsil	
Tracheotomy.....	1
Non-Malignant Tumors	
Angioma	
Lip	
Excision.....	1
Cyst	
Thyro-glossal	
Excision.....	1
Cystitis, alcoholic	
Suprapubic cystostomy.....	1
Cystic disease	
Breast	
Excision.....	1



Fibroma	
Skin	
Excision.....	4
Fibromyoma	
Uterus	
Curettage and radium treatment.....	13
Keloid	
Excision.....	3
Mixed malignant tumor	
Parotid	
Excision.....	1
Neuralgia	
Alcohol injection.....	1
Osteo-fibroma	
Alveolar process	
Excision and cauterization.....	2
Papilloma	
Skin	
Excision.....	3
Larynx	
Laryngoscopy and radium treatment.....	2
Excision.....	1
Lip	
Excision.....	1
Nose	
Excision.....	1
Tongue	
Excision.....	1
Palate	
Excision.....	1
Vagina	
Curettage and radium treatment.....	1
Polyp	
Cervix	
Excision.....	2
Uterus	
Curettage and radium treatment.....	3
Rhinolith	
Nose	
Excision.....	1
Wen	
Excision.....	5
Special Skin Diseases	
Keratosis	
Lip	
Excision.....	4
Nevus	
Excision.....	5
Verruca	
Hand	
Excision.....	1
Lip	
Excision.....	1
Neck	
Excision.....	1
Scalp	
Excision.....	1
Cicatrix	
Excision.....	5

Comedus	
Excision.....	1
Sarcoid	
Nose	
Excision.....	1
Other Conditions	
Abscess	
Incision and drainage.....	4
Endocervicitis	
Dilatation and curettage.....	2
Curettage and radium treatment.....	1
Endometritis, hyperplastic	
Curettage and radium treatment.....	3
Fistula	
Vagina	
Repair.....	1
Erosion	
Cervix uteri	
Curettage and radium treatment.....	2
Trachelorrhaphy.....	1
Etmoiditis	
Intransal exenteration.....	1
Granulating wound	
Skin grafting.....	7
Bronchoscopy	
Removal foreign body.....	1
Hemorrhage	
Ligation of artery.....	1
For diagnosis	
Removal of specimen.....	31
Leukoplakia	
Tongue	
Cauterization.....	1
Lupus, vulgaris	
Nose	
Curettage.....	1
Stricture	
Esophagus	
Dilatation.....	1
Transfusion.....	2
Ulcer	
Skin	
Excision.....	1
Tongue	
Excision.....	2
Tonsillitis	
Tonsillectomy.....	2
Caruncle	
Urethra	
Excision.....	1
Radium treatment.....	1
Appendicitis	
Appendectomy.....	1
Incontinence	
Cystoscopy.....	1
Specific Infectious Diseases	
Tuberculosis	
Soft palate	
Radium treatment.....	1



The chief physical needs of the hospital at present are as follows:

1. A new roof over Ward B solarium.
2. A sitting room for Ward B patients.
3. Repainting the walls in the private rooms.
4. Refinishing the floors in the nurses' quarters.

Many distinguished visitors from foreign countries and representatives from various societies have visited the hospital during the year and have attended the clinics. The Radium Society of Boston and the Massachusetts State League of Nursing Education have held their meetings here during the winter of 1923-24.

The intensive follow-up work has continued under the direction of Miss Myra Conover, the assistant Matron-Superintendent, and the excellent results are due to her efforts.

We are indebted to the following friends for gifts:

Dr. R. B. Greenough.....	Money for Christmas.
Dr. C. C. Simmons.....	Books and magazines.
Dr. Wm. M. Shedden.....	Books and records for the gramophone.
Mrs. Moses Williams.....	Flowers.
Mr. R. C. Thorpe.....	Flowers.

Respectfully submitted,

ANNA L. GIBSON, R.N.

July 1, 1924.



REPORT OF THE SOCIAL SERVICE WORKER  
TO THE  
DIRECTOR OF THE CANCER COMMISSION  
OF HARVARD UNIVERSITY

DEAR SIR: The following is the report of the part-time social worker from October 1, 1923, when, after a lapse of some months, social service was re-established at the Huntington Hospital, to July 1, 1924.

Patients were referred to the Department by members of the Staff, the Superintendent, Assistant Superintendent and outside agencies. The social problems consisted of financial difficulty, following up patients medically in the home, friendly visits, placing patients for permanent hospital care, and in a few instances unemployment.

During this time 124 patients were referred to the Department — 92 home visits were made, 15 patients were placed in hospitals for permanent care, vacations were arranged for 3, and 11 were referred to the District Nursing Association.

A balance of \$444.90 that remained from the gift appropriated last year by the Committee of the Permanent Charity Fund Incorporated has been most useful for the relief of patients. For example; a patient had been advised to have an operation that necessitated a two weeks' stay in the hospital. The family consisted of her husband, five children and an invalid relative. The husband earned a salary inadequate to meet the extra expense that sickness incurs. The case was referred to the Family Welfare Society with whose aid and cooperation a housekeeper was employed, thus not only making it possible for the patient to come to the hospital for the operation, but giving her the feeling that her family was being taken care of during this period.

Another instance is that of a man, aged 71, who after operation was advised frequent return to the hospital for treatment. He was homeless and destitute. With the cooperation of two other agencies and an interested individual, besides the financial assistance of our social service, we were able to secure board and



lodgings in the immediate neighborhood for this patient, enabling him, for many months, to derive the benefit from the treatments at the hospital until it became necessary to place him in a hospital for permanent care.

Other worthy patients have received various kinds of supplies for their comfort.

The Department appreciates the cooperation of members of the Staff, the Superintendent and Assistant Superintendent, and great credit must be awarded the Red Cross Motor Corps who have been unfailing in their efforts to arrange transportation to and from the hospital by automobile for patients who are too ill to come otherwise.

Respectfully submitted,

EMILY G. PHILPOTTS,  
*Social Worker.*

REPORT OF THE  
RESEARCH FELLOW IN PHYSICS  
TO THE  
CANCER COMMISSION OF HARVARD UNIVERSITY

DEAR SIR: I have the honor of presenting the following report:

In addition to our regular work of providing emanation applicators for the radium treatments, we have developed an automatic device for running the pumps in the emanation plant. A clock has been constructed and set up which automatically makes and breaks the current that drives the auxiliary oil pump once each hour. The stop cocks in the emanation plant are opened in such a way that the oil pump operates the mercury pump nearest to the bulb containing the radium solution. This mercury pump, therefore, functions once each hour during the day and night and pumps the emanation and hydrogen and oxygen gases that have accumulated during the previous hour from the solution bulb into the purifying chambers. The current of electricity that passes through the oxide covered copper wire in the purifying tubes flows all the time, and this purifies the emanation as it comes over from the radium solution. In this way, the entire amount of emanation available is in a purified state and ready to be drawn off at practically any time of day desired. A second clock also has been constructed and set up, which, on throwing a switch, operates the second mercury pump in the emanation plant. The second clock is so designed as to cause the second mercury pump to operate once every three minutes, and by this means, the purified emanation is pumped over into the glass tubes used in the therapeutic applications.

The automatic regulation of the emanation plant materially reduces the time required by the operator to work the pumps. This has proved to be of great advantage not only on account of the reduction in the amount of labor, but also because the operator remains near the emanation plant a much shorter time.

The short wave length X-ray plant has been functioning in a purely routine manner and we are now giving treatments at the rate of four to six a day.



A new X-ray plant, of commercial design, has been purchased and installed for diagnostic purposes and also for treatments of diseases requiring X-rays produced by low voltages. This new plant is now being operated by competent X-ray experts and the necessary assistants.

The Department of Bio-Physics has been carrying on research and has published several articles on the measurement of X-ray dosage, etc.

It has also been carrying on researches with the aid of several National Research Fellows on the physics of secondary and tertiary radiation. The phenomena of secondary and tertiary radiation have important bearings on the distribution of X-radiation throughout the human body during the treatments and also upon the photographic imprints produced by X-rays in diagnosis.

The department is now cooperating with the Safety Committee of the Roentgen Ray Society in an endeavor to formulate rules and regulations to be followed by X-ray experts in planning their X-ray plants. We are also endeavoring to design a small portable instrument to be used in testing the various points in an X-ray laboratory usually occupied by the operators, to determine the intensity of radiation to which they are more or less continuously subjected.

During the past year, the American Roentgen Ray Society has awarded us the first Leonard prize of \$500 for researches in X-radiation.

Respectfully submitted,

WILLIAM DUANE,  
*Research Fellow in Physics.*

July 1, 1924.



REPORT OF THE  
RESEARCH FELLOW IN BIO-PHYSICS

TO THE

CANCER COMMISSION OF HARVARD UNIVERSITY

GENTLEMEN: I have the honor of presenting the following report of the activities of my laboratory during the past year.

As in the preceding years, instruction in Bio-physics has demanded a great deal of my time and attention. I have conducted four courses in the Physics Department which are listed in the catalog as follows:

- Physics 21 —Elementary Biophysics  
 “ 21 —Physics of the Special Sense Organs  
 “ 23 —Special Research Problems  
 20K—Advanced Research Problems.

I have also offered two courses in Bio-physics in the Medical School.

MEDICAL SCHOOL COURSES — In the courses offered in the Medical School emphasis is laid on the application of various physical methods in diagnosis.

In addition to regular courses in Bio-physics I have given a series of lectures to students in the School of Tropical Medicine and have addressed several learned societies — a partial list of those addressed is as follows:

Insert 8 pt—

Franklin Institute of Pennsylvania,  
 Philosophical Society of Pennsylvania,  
 Harvey Society of New York,  
 American Chemical Society Symposiums  
     Milwaukee meeting,  
     Washington meeting,  
 Riverbank Laboratories Research Club,  
 Physical Colloquium—Harvard University,  
 Mt. Holyoke College Research Club,  
 Smith College Research Club,  
 American Association of Obstetricians,  
     Gynecologists and Abdominal  
     Surgeons,  
 American Association of Cancer Research,  
 Various Medical Societies.

The interest in Bio-physics has become very widespread indeed. The subject matter, however, has never been collected



and correlated in one place. Because of the pressure of many requests for text books in Bio-physics which have come to me I am going to endeavor during the next few months to so arrange my time and activities that I can write a book on the subject.

Dr. Wallace Craig, our Librarian, has completed the translation of "Grundzuge der Lichtbiologie und Lichtpathologie" by Prof. Dr. Walther Hausmann. A voluntary class composed of students in my courses, their friends, people engaged in research, doctors and nurses connected with the hospital, etc., meet on Thursday evenings for the purpose of discussing and putting this translation in final form for publication. A very keen interest has been evinced by all who are attending and we hope to have the work completed in a short time.

Through Mr. M. Douglas Flattery, a Committee on Medical Research of the Boston Conservation Bureau was formed. This Committee has been organized to prosecute experiments in which the usefulness of established clinical methods can be determined and to investigate certain diseases which are not at present receiving the attention which their seriousness demands.

The General Electric Company have recently perfected improved methods for making ultra violet lamps. With their cooperation we are undertaking an investigation to determine the value of these lamps for therapeutic purposes.

The following research problems have been or are being conducted in my laboratory:

MR. O. C. WOOLPERT — Has completed the work on photochemical changes in proteins produced by ultra-violet light and three papers describing his results are now in process of publication. The first paper describes experiments on the effects of radiation on solutions of albumen. The solutions were adjusted to various H concentrations, were exposed to a powerful mercury vapor arc and the effect of the hydrogen ion concentration on the heat coagulability of the radiated solutions determined. It was found that the hydrogen ion zone of heat coagulation is greatly constricted by radiation. The constriction proceeds, it seems only from the alkaline side. These results are not in accordance with results previously published by other investigators.

As a result of these experiments, it was concluded that a radiated albumen solution contains not only molecules which



will coagulate at 15° but other molecules which require higher temperatures to produce coagulation.

PROF. C. E. BARR — Has continued his work on the reactions of living organisms under ultra-violet radiation. Upon exposing amoebas to this radiation he has found that cytolysis of the cell began in 94% of the cases at or in the immediate vicinity of the youngest pseudopod — that is in the most dynamic physiologically active or dominant part of the cell. This links up the effect of ultra-violet radiation with the results obtained by Child, Hyman and others through the use of poisons and narcotics.

In another series of experiments he found that the absorption of ultra-violet light demonstrably reversed the polarity or the seat of dominance in the cell. When the tip of the advancing pseudopod of an amoeba entered a field of ultra-violet radiation a reversal of dominance occurred that was found to be much more certain and precise than had been observed by previous experimenters who had employed visual light.

Perhaps the most significant of all his experiments, however, concerned the phenomena that followed on cytolizing the posterior tip of an amoeba with ultra-violet light. The cytolized material acted like a poison, for when it was drawn into the stream of flowing endoplasm and disseminated through the cell the activities of the cell were almost completely inhibited and death and disorganization of the protoplasm followed.

MR. WALTER S. HUGHES — Has continued his studies on Interfacial Potentials and has assisted in the laboratory instruction of the various courses offered by the Department.

DR. E. L. CHAFFEE — Cooperating with me in an investigation on the Electrical Response of the Optic Nerve.

The experiments were conducted with substantially the same apparatus as was used in the previous experiments with white light, except for the addition of a monochromatic illuminator of very close selectivity, covering the entire visible range of wave lengths and capable of accurate intensity adjustment.

The results of the experiment prove conclusively that the shape of the electrical response curve from the retina is not dependent upon the color of the stimulating light though the magnitude of the response does change with color due to the variation of sensitivity of the eye for various colors. The wave



length of maximum sensitivity shifts toward the red with increasing intensity.

A paper describing these experiments is now in press.

MR. PAUL RUPERT GAST — The work on photoelectric phenomena in relation to forest growth has been continued. This work has been conducted in conjunction with the Forestry Department under the same conditions as last year.

With the cooperation of Professor Fisher we are raising funds for the erection of a laboratory — part of which will have greenhouse construction. This laboratory will be used for the forestry experiments as well as for the general work of Biophysics.

MR. PERCY K. JULIAN — Chemical changes in the interfaces of heterogeneous materials.

A list of the papers published during the year will be found in the list of Publications of the Cancer Commission.

Respectfully submitted,

W. T. BOVIE.

July 1, 1924.

REPORT OF THE  
RESEARCH FELLOW IN BIO-CHEMISTRY  
TO THE  
CANCER COMMISSION OF HARVARD UNIVERSITY

GENTLEMEN: During the past year the work of the department has been carried on by my assistant, Mrs. M. L. Pearse.

She has continued her investigations on the nitrogen metabolism of cancer patients and of normal individuals. In confirmation of Salkowski's work she finds a distinct increase in undetermined nitrogen in the urine of cancer patients. Studies upon the metabolism of urea, uric acid, ammonia, amino-acids, and creatinin show no marked deviation from the normal. The increase in undetermined nitrogen is not affected by the activities of the individual or by irradiation.

Investigation of the physico-chemical changes of the blood of cancer patients and studies in phenol metabolism are being planned for the coming year.

Respectfully submitted,

HENRY LYMAN, M.D.

July 1, 1924.



## REPORT OF THE STATE DIAGNOSIS SERVICE FOR THE YEAR ENDING JUNE 30, 1924

The number of specimens received for examination and diagnosis during the year ending June 30, 1924, was 2,220. Of this number, 628 came from the Huntington Hospital, and 1,592 from outside. These figures are increases of 17 and 48 respectively, over the corresponding figures for the preceeding year.

Of the 1,592 specimens from outside, a large proportion were marked as originating in certain hospitals, but others undoubtedly came from operations in hospitals without this being indicated. Also, many specimens came from hospitals without indicating the surgeon's name. For these reasons the data given below are necessarily approximate.

The hospitals from which specimens were marked as originating, other than the Huntington Hospital, are as follows:

- Addison Gilbert Hospital, Gloucester
- Beverly Hospital
- Brigham, Robert, Boston
- Brockton Hospital
- Brooks Hospital, Boston
- Burbank Hospital, Fitchburg
- Cable Hospital, Ipswich
- Cape Cod Hospital, Hyannis
- Clinton Hospital
- Cooley Dickinson Hospital, Northampton
- Crary Hospital, North Dartmouth
- Elliott Hospital, Boston
- Fairlawn Hospital, Worcester
- Fairview Hospital, Great Barrington
- Fall River General Hospital
- Free Hospital for Women, Boston
- Gale Hospital, Haverhill
- Groton Hospital
- Harvard Dental School, Boston
- Henry Heywood Hospital, Gardner
- Hillcrest Hospital, Pittsfield
- Holyoke City Hospital
- House of Providence Hospital, Holyoke
- Leominster Hospital
- Leonard Morse Hospital, Natick
- Lynn Hospital
- Malden Hospital
- Massachusetts Woman's Hospital, Boston
- Middlesex Hospital, Cambridge



Moore Hospital, New Bedford  
 Morton Hospital, Taunton  
 Newburyport Homeopathic Hospital  
 New England Sanitarium, Melrose  
 Newton Hospital  
 Peabody Hospital  
 Plunkett Memorial Hospital, Adams  
 Quincy City Hospital  
 Sacred Heart Hospital, Manchester  
 Salem Hospital  
 Somerville Hospital  
 State Infirmary, Tewksbury  
 St. John's Hospital, Lowell  
 St. Luke's Hospital, New Bedford  
 Sturdy Memorial Hospital, Attleboro  
 Summit Hospital  
 Symmes Hospital, Arlington  
 Taunton State Hospital  
 Thomas, J. B. Hospital, Peabody  
 Waltham Hospital  
 Whidden Hospital, Everett

The number of surgeons or other persons whose names were given as senders of specimens, exclusive of specimens from the Huntington Hospital, is 367, which is an increase of 53 over the number for the preceeding year.

The great majority of the senders of specimens are located outside of Boston and adjoining towns. From this it would seem that the facilities of the Diagnosis Service for the microscopical examination of surgical material reach communities which it is especially desirable to serve.

The process of embedding tissue in paraffin for the preparation of our microscopical sections has been improved during the year. In this process the tissue is immersed for certain periods in several fluids in succession. To preserve the identity and prevent confusion of specimens, it was necessary that each specimen be treated by itself in separate fluids and bottles. The considerable number of specimens put through each day required a large number of bottles, much manipulation, and considerable time. The improvement consists in greatly reducing this required time and manipulation, by attaching the identifying label to each specimen before it is started in the embedding process, so that any desired number of specimens can be immersed together in one of the fluids in one container without confusion of the identity of any specimen. Thus a number of specimens may be transferred, with their labels attached, from one fluid to another almost as quickly as a single specimen can



be. The attachment of the label to the specimen is effected by means of a small piece of copper wire gauze folded over the latter, and secured by a small wire "clip," such as is used for holding sheets of paper together.

Respectfully submitted,

J. HOMER WRIGHT, M.D., D. Sc.,  
*Pathologist in charge of Free Diagnosis Service.*

REPORT OF THE TREASURER  
TO THE  
CANCER COMMISSION OF HARVARD UNIVERSITY

GENTLEMEN: I have the honor to submit to you my report for the year ending June 30, 1924.

Contributions to the funds of the Cancer Commission have been received by the Treasurer of Harvard College between July 1, 1923, and June 30, 1924, amounting to \$146,863.70. Of this amount \$41,284.90 was used for current expenses and \$105,578.89 was added to the invested funds.

\$5,000.00 given in 1922-1923 for X-ray equipment and \$9,688.84 for 1923-1924 deficit were charged to the hospital endowment fund. The net increase in the funds of the Commission during the year was \$91,051.91.

The Treasurer of Harvard College on July 1, 1924, held the following funds for the benefit of the Cancer Commission of Harvard University:

EXHIBIT A

Lawrence Carteret Fenno Fund — Treatment by Light Rays....	\$20,000.00
Emily J. Proctor Gift.....	3,215.98
Memorial Cancer Hospital Endowment Fund.....	103,059.40
Memorial Cancer Hospital Endowment Fund (New).....	500.00
Francis Bartlett Free Bed Fund.....	5,000.00
T. Jefferson Coolidge Fund for Cancer Research.....	2,000.00
Caroline Brewer Croft Fund.....	92,025.00
William Endicott Fund.....	25,000.00
Dudley B. Fay Memorial.....	2,000.00
Lawrence Carteret Fenno — Free Bed Fund.....	5,000.00
Charles S. Fairchild.....	5,000.00
Albert Geiger.....	2,078.89
Franklin H. Hooper Free Bed Fund.....	5,000.00
Amos Lawrence Hopkins Free Bed Fund.....	5,000.00
Marion D. Lockwood Memorial.....	50,728.58
James Ewing Mears Bequest.....	9,295.01
George Von L. Meyer Bequest.....	2,500.00
Clara Endicott Payson Free Bed Fund.....	5,000.00
Elizabeth Worcester Mills.....	203,500.00
Henry O. Underwood.....	10,000.00
Julia M. Moseley Fund.....	23,250.00
F. D. Moulton Gift for Social Workers.....	400.21
Gifts for Research in Genetics.....	320.00

\$579,873.07



This amount is to be compared with the total of \$489,821.16 in last year's report.

The list of subscribers to the Cancer Commission of Harvard University in 1923-1924 is as follows:

GIFTS FOR CAPITAL

Albert G. Geiger, Estate of . . . . .	\$2,078.89	
His bequest plus accrued interest "to be used both principal and interest as . . . . . corporation shall deem most expedient for the benefit and maintenance of the Collis P. Huntington Memorial Hospital." "Elizabeth Worcester Mills Fund"		
Hiram F. Mills, Estate of		
Additional . . . . .	103,500.00	
	<u>          </u>	\$105,578.89

GIFTS FOR IMMEDIATE USE

"A Friend" . . . . .	\$1,980.00	
Salaries:		
Anonymous . . . . .	\$1,000.00	
Anonymous . . . . .	4,500.00	
	<u>          </u>	5,500.00
Appropriation by State of Massachusetts for support of Free Diagnosis Service . . . . .	2,500.00	
Current Expenses:		
George R. Agassiz . . . . .	250.00	
Rodolphe L. Agassiz . . . . .	25.00	
Karl Adams . . . . .	10.00	
Mrs. Leonard D. Ahl . . . . .	50.00	
Edward B. Alford . . . . .	25.00	
Miss Martha A. Alford . . . . .	100.00	
Mrs. Charles Almy . . . . .	10.00	
John S. Ames . . . . .	50.00	
Mrs. Charles W. Amory . . . . .	500.00	
Anonymous . . . . .	50.00	
Edmund K. Arnold . . . . .	15.00	
Charles F. Ayer . . . . .	50.00	
Frederick Ayer . . . . .	25.00	
Roger W. Babson . . . . .	25.00	
Miss Ellen S. Bacon . . . . .	50.00	
Louis Baer . . . . .	10.00	
Clarence W. Barron . . . . .	25.00	
Mrs. John W. Bartol . . . . .	10.00	
Mrs. Walter C. Baylies . . . . .	500.00	
Mrs. Junius Beebe . . . . .	10.00	
Frank B. Bemis . . . . .	100.00	
William Sturgis Bigelow . . . . .	300.00	
Charles S. Bird . . . . .	25.00	
George Nixon Black . . . . .	100.00	
Mrs. Arthur W. Blake . . . . .	20.00	
Mrs. Francis Blake . . . . .	50.00	
Mrs. J. A. Lowell Blake . . . . .	100.00	
Carried forward . . . . .	<u>          </u>	\$2,485.00



<i>Brought forward</i> .....	\$2,485.00
Elmer J. Bliss .....	25.00
Daniel M. Bonney and Mrs. Bonney .....	100.00
Mrs. Frederick T. Bradbury .....	1,500.00
Henry G. Bradlee .....	100.00
Mrs. Edward D. Brandegee .....	100.00
Miss Sarah F. Bremer .....	50.00
Miss Florence N. Bridgman .....	25.00
Gorham Brooks .....	100.00
Mrs. Shepherd Brooks .....	50.00
Mrs. John A. Burnham .....	10.00
Allston Burr and Mrs. Burr .....	25.00
I. Tucker Burr .....	50.00
Mrs. Arthur Tracy Cabot .....	250.00
Godfrey L. Cabot .....	100.00
Henry B. Cabot .....	25.00
Samuel Cabot and Mrs. Cabot .....	25.00
Walter M. Cabot .....	5.00
Miss Georgina S. Cary .....	25.00
Miss Louise W. Case .....	50.00
Miss Marian Roby Case .....	25.00
Mrs. Henry B. Chapin .....	10.00
Mrs. Theodore Chase .....	25.00
Hermann F. Clarke .....	10.00
Mrs. Charles K. Cobb .....	25.00
Committee of the Permanent Charity Fund Incorporated .....	1,000.00
Mrs. Costello C. Converse .....	500.00
Harold J. Coolidge .....	50.00
Mrs. T. Jefferson Coolidge .....	1,000.00
Mrs. Charles E. Cotting .....	100.00
Miss Elizabeth A. Cotton .....	200.00
Mrs. Alvah T. Crocker .....	100.00
Edward C. Crossett .....	100.00
Charles P. Curtis .....	100.00
John S. Curtis .....	50.00
Richard H. Dana .....	10.00
Ernest B. Dane and Mrs. Dane .....	100.00
John Dane and Mrs. Dane .....	10.00
Philip Y. De Normandie .....	25.00
Robert L. De Normandie and Mrs. De Nor- mandie .....	25.00
J. Robertson Duff .....	25.00
Mrs. Frank E. Dunbar .....	100.00
Miss Hannah M. Edwards .....	50.00
Julius Eiseman .....	10.00
Mrs. Hamilton Emmons .....	250.00
Nathaniel H. Emmons .....	100.00
Mrs. Robert W. Emmons, 2d .....	100.00
Richard M. Everett .....	5.00
Herbert E. Fales .....	25.00
Charles A. Falvey .....	10.00
John W. Farlow .....	25.00
Miss Fannie M. Faulkner .....	25.00
Mrs. Henry H. Fay .....	25.00
Samuel M. Felton, 3d .....	25.00
Sewall H. Fessenden .....	50.00
Frederick P. Fish .....	25.00
<i>Carried forward</i> .....	\$9,415.00



<i>Brought forward</i> .....	\$9,415.00
Mrs. Richard T. Fisher .....	100.00
Mrs. W. Scott Fitz .....	25.00
Desmond FitzGerald .....	5.00
Frederick C. Fletcher .....	100.00
Mrs. Waldo E. Forbes .....	50.00
Thomas A. Forsyth .....	25.00
Lee M. Friedman .....	25.00
Mrs. Louis A. Frothingham .....	100.00
Mrs. Alvan T. Fuller .....	25.00
Homer Gage .....	50.00
William F. Garcelon .....	10.00
Mrs. William Tudor Gardiner .....	25.00
Morris Gray .....	20.00
Mrs. Reginald Gray .....	25.00
Malcolm S. Greenough .....	25.00
Edward W. Grew .....	25.00
Lawrence Grinnell .....	25.00
Frank W. Hallowell .....	25.00
N. Penrose Hallowell and Mrs. Hallowell .....	25.00
Paul M. Hamlen .....	10.00
Francis R. Hart .....	50.00
Winthrop A. Harvey .....	100.00
Miss Ellen R. Hathaway .....	100.00
Horatio Hathaway, Jr. ....	25.00
Augustus Hemenway .....	50.00
Robert F. Herrick and Mrs. Herrick .....	200.00
Charles Higginson .....	10.00
Donald M. Hill .....	10.00
Conrad Hobbs .....	10.00
Franklin W. Hobbs .....	25.00
Miss Fredrika G. Holden .....	5,000.00
Amor Hollingsworth .....	25.00
Zachary T. Hollingsworth .....	50.00
Mrs. Edward J. Holmes .....	10.00
The Misses Holt .....	50.00
Robert Homans .....	25.00
William P. Homans .....	100.00
William Hooper .....	50.00
Henry Hornblower .....	100.00
Ralph Hornblower .....	10.00
Clement S. Houghton .....	50.00
Miss Elizabeth G. Houghton .....	25.00
Henry S. Howe .....	100.00
Mrs. Charles W. Hubbard .....	25.00
The Humane Society of the Commonwealth of Massachusetts .....	500.00
Henry S. Hunnewell .....	500.00
James M. Hunnewell .....	50.00
Harry H. Hunt .....	25.00
Mrs. Oscar Iasigi .....	50.00
Mrs. Henderson Inches .....	10.00
Charles C. Jackson .....	100.00
Henry Jackson .....	10.00
James Jackson .....	25.00
Arthur S. Johnson .....	25.00
Edward C. Johnson .....	25.00
Mrs. Benjamin M. Jones .....	30.00
<i>Carried forward</i> .....	\$17,685.00



<i>Brought forward</i> . . . . .	\$17,685.00
Mrs. Edward L. Kent . . . . .	25.00
Nathaniel T. Kidder . . . . .	100.00
David P. Kimball . . . . .	50.00
The Misses Kimball . . . . .	50.00
The Misses King . . . . .	25.00
Mrs. Henry Parsons King . . . . .	200.00
Louis E. Kirstein . . . . .	50.00
Mrs. Shepard Krech . . . . .	25.00
Horatio A. Lamb . . . . .	25.00
Thomas W. Lamont . . . . .	250.00
Mrs. Gardiner M. Lane . . . . .	1,000.00
Mrs. Amory A. Lawrence . . . . .	50.00
Lawrence Model Lodging Houses . . . . .	400.00
George C. Lee and Sons, in memory of Elizabeth Winsor . . . . .	100.00
Joseph Lee . . . . .	1,000.00
Amory Leland . . . . .	100.00
Dudley R. Leland . . . . .	100.00
Mrs. David M. Little . . . . .	20.00
Henry Cabot Lodge . . . . .	10.00
Mrs. Augustus P. Loring . . . . .	25.00
Augustus P. Loring, Jr. . . . .	10.00
Mrs. Lindsley B. Loring . . . . .	10.00
William Caleb Loring . . . . .	10.00
Mrs. Thornton K. Lothrop . . . . .	50.00
Miss Mabel Lyman . . . . .	100.00
James MacNaughton . . . . .	500.00
James W. Maguire . . . . .	10.00
Edward Mallinckrodt, Jr. . . . .	500.00
Mrs. George S. Mandell . . . . .	20.00
Austin B. Mason . . . . .	5.00
Mrs. Charles E. Mason . . . . .	700.00
Miss Fanny P. Mason . . . . .	25.00
Miss Ida M. Mason . . . . .	50.00
James H. Means . . . . .	25.00
Mrs. Daniel Merriman . . . . .	25.00
J. Pierpont Morgan . . . . .	100.00
George B. Morison . . . . .	10.00
Miss Frances R. Morse . . . . .	25.00
Mrs. E. Preble Motley . . . . .	100.00
Mrs. J. Lothrop Motley . . . . .	5.00
Mrs. Otis Norcross . . . . .	100.00
George R. Nutter . . . . .	10.00
Patrick A. O'Connell . . . . .	25.00
William O'Connell . . . . .	20.00
Frank C. Paine . . . . .	100.00
Robert Treat Paine . . . . .	25.00
Mrs. Robert Treat Paine, 2d. . . . .	25.00
William A. Paine . . . . .	500.00
Augustin H. Parker . . . . .	10.00
Miss Eleanor S. Parker . . . . .	100.00
Miss Amelia Peabody . . . . .	25.00
George A. Peabody . . . . .	500.00
Mrs. John E. Peabody . . . . .	20.00
Mrs. W. Rodman Peabody . . . . .	10.00
James J. Phelan and Mrs. Phelan . . . . .	50.00
Mrs. George Philler . . . . .	15.00
<i>Carried forward</i> . . . . .	\$25,105.00



<i>Brought forward</i> .....	\$25,105.00
Dudley L. Pickman.....	50.00
Walworth Pierce.....	25.00
John R. Post.....	10.00
Miss Julia C. Prendergast.....	25.00
Mrs. Francis M. Rackemann.....	100.00
Mrs. Neal Rantoul.....	100.00
Miss Barbara M. Reynolds.....	50.00
Harrison G. Reynolds.....	50.00
James R. Reynolds, Jr.....	50.00
Mrs. Nehemiah W. Rice.....	100.00
Charles O. Richardson.....	25.00
Mrs. John Richardson, Jr.....	15.00
Mrs. John C. Richardson.....	25.00
William K. Richardson.....	10.00
William L. Richardson.....	100.00
Charles E. Riley.....	50.00
In memory of Mrs. F. Ripley.....	500.00
Russell Robb.....	50.00
Miss Emma Rodman.....	25.00
Bernard J. Rothwell.....	25.00
John L. Saltonstall.....	100.00
Mrs. Richard M. Saltonstall.....	100.00
Robert Saltonstall.....	100.00
Sabin P. Sanger.....	50.00
Mrs. Francis W. Sargent.....	125.00
Henry B. Sawyer and Mrs. Sawyer.....	25.00
Miss Eleonora R. Sears.....	15.00
Herbert M. Sears.....	100.00
Mrs. J. Montgomery Sears.....	100.00
Mrs. Knyvet W. Sears.....	200.00
Richard D. Sears.....	100.00
Mrs. Quincy A. Shaw.....	200.00
Mrs. Quincy A. Shaw, Jr.....	500.00
William L. Shearer.....	50.00
Mrs. George S. Silsbee.....	50.00
William Simes and Mrs. Simes.....	50.00
Miss Laura Slocum.....	10.00
John T. Spaulding.....	100.00
William S. Spaulding.....	100.00
Robert H. Stevenson.....	50.00
James A. Stillman.....	100.00
Philip Stockton.....	50.00
Galen L. Stone.....	500.00
Malcolm B. Stone and Mrs. Stone.....	15.00
Nathaniel H. Stone.....	100.00
Robert W. Storer.....	25.00
Theophilus B. Stork and Mrs. Stork.....	100.00
Charles E. Stratton.....	10.00
Mrs. Thomas Russell Sullivan.....	5.00
Joseph S. Sylvester and Mrs. Sylvester.....	25.00
Miss Alice P. Tapley.....	100.00
Mrs. Ezra R. Thayer.....	10.00
John E. Thayer.....	100.00
Mrs. Nathaniel Thayer.....	100.00
Mrs. Washington B. Thomas.....	25.00
Albert Thorndike.....	25.00
Mrs. Arthur R. Tirrell.....	25.00
<i>Carried forward</i> .....	\$29,930.00



<i>Brought forward</i> .....	\$29,930.00	
"The Eugene Tompkins Memorial" .....	1,000.00	
W. Howard Townsend .....	50.00	
Charles H. Traiser .....	25.00	
Mrs. Alexander F. Wadsworth .....	15.00	
Eliot Wadsworth .....	100.00	
Charles C. Walker .....	50.00	
Mrs. Bayard Warren .....	100.00	
J. Collins Warren .....	100.00	
Lucius H. Warren .....	50.00	
Frank G. Webster and Mrs. Webster .....	200.00	
Charles F. Weed .....	15.00	
Warren B. P. Weeks .....	25.00	
Mrs. Charles G. Weld .....	500.00	
Mrs. C. Minot Weld .....	25.00	
Miss Mary Weld .....	500.00	
Welfare Fund, through George F. Larcom, Trustee .....	100.00	
William P. Wharton .....	100.00	
Edward C. Wheeler, Jr. ....	25.00	
Miss Gertrude R. White .....	25.00	
Mrs. William Whitman, Jr. ....	100.00	
Edward F. Whitney .....	200.00	
Edward Wigglesworth .....	25.00	
George Wigglesworth .....	50.00	
Hugh Williams .....	50.00	
Mrs. Jeremiah Williams .....	100.00	
Mrs. Roger Wolcott .....	25.00	
Mrs. William M. Wood .....	25.00	
Henry D. Woods .....	200.00	
		\$33,710.00
Grant from the Medical School for work in the laboratory of the Cancer Commission of the Flattery Research Fund .....		\$750.00

The balance sheet for June 30, 1924, is as follows:

EXHIBIT B			
<i>Assets</i>		<i>Liabilities</i>	
Cash .....	\$140.00	Accounts Payable .....	\$1,133.58
Accounts Receivable .....	18,864.04	Reserve for Doubtful Ac- counts .....	10,394.01
Inventories:		Fund and Gifts (Exhibit A) .....	579,873.07
Food .....	\$104.23	Advanced by the Uni- versity .....	8,170.81
Medical and Surgical Sup- plies .....	590.13		
	694.36		
Investments in hands of Treasurer of Harvard University .....	579,873.07		
	<u>\$599,571.47</u>		<u>\$599,571.47</u>

The statement of income and expense for the year ended June 30, 1924, as supplied by the Bursar's Office of Harvard University is as follows:



## EXHIBIT C

<i>Expenses</i>		<i>Income</i>	
Hospital Departments:		Received from Patients:	
Salaries . . . . .	\$14,900.00	Board and Care:	
*Administration . . . . .	22,176.33	Ward Patients . . . . .	\$10,742.26
Care of Patients . . . . .	18,846.70	Private Room Patients	6,292.15
Hospital Laboratory . . .	168.63	Out-Patients; Fees &	
Housekeeping . . . . .	9,669.82	Dressing . . . . .	6,020.80
Kitchen and Dining		Radium Treatments . .	15,568.25
Room . . . . .	3,496.16	Operations . . . . .	4,032.00
Laundry . . . . .	3,189.44	Special Nursing . . . . .	727.00
Photography . . . . .	113.81	Board of Special Nurses	274.00
Steward's Department . .	11,037.71	X-ray Treatments . . . .	4,421.00
General House and Prop-		X-ray Diagnosis . . . . .	614.00
erty . . . . .	11,608.27	Sales and Repayments of	
State Diagnosis . . . . .	1,571.45	Expense . . . . .	562.98
Sundries . . . . .	1,847.05	Commonwealth of Mass-	
Research Laboratories:		achusetts . . . . .	2,500.00
Salaries . . . . .	14,275.00	Adjustment of 1922-1923	
Bio-Physics . . . . .	8,255.80	Heat Charges . . . . .	323.37
Chemical . . . . .	7.15	Discounts Earned . . . . .	209.89
Medical . . . . .	3,124.58	Sundries . . . . .	138.27
Radium Plant . . . . .	2,111.11	Income from Funds:	
Short Wave Length		Unrestricted . . . . .	29,110.71
Therapy . . . . .	5,832.51	Restricted:	
**X-ray Diagnosis . . . . .	8,191.72	Flattery Res. (Sal-	
		aries) . . . . .	750.00
Total Expenses . . . . .	\$140,423.24	L. C. Fenno (Short	
		Wave Length	
		Therapy) . . . . .	1,060.00
		Emily J. Proctor . . . .	161.86
		Gifts:	
		For General Purposes	31,110.00
		For Special Purposes:	
		Social Service Work	94.90
		Salaries . . . . .	5,500.00
		Wages Technician . .	1,980.00
		Expense of Medical	
		Laboratory . . . . .	2,702.82
		Capital Funds Subscribed	
		for Purchase of Certain	
		Equipment . . . . .	*5,000.00
		Withdrawn from Balance	
		of Gifts and Receipts	
		of Former Years . . . . .	1,000.00
		Excess of Expenses over	
		Income (Charged to	
		Unrestricted Fund) . .	9,688.84
		<u>\$140,585.10</u>	<u>\$140,585.10</u>

\*Includes Reserve for doubtful accounts and corrected accounts charged off = \$5,512.78.

\*\*\$5,000.00 of this item was used for equipment.

\*Carried from 1923-1924 in endowment fund.

Respectfully submitted,

(Signed) CHARLES JACKSON,  
Treasurer.

July 1, 1924.



LIST OF COMMUNICATIONS  
CANCER COMMISSION OF HARVARD UNIVERSITY

1. Statistics of Cancer — W. F. Whitney.  
Boston Society of Medical Sciences, Journal, Vol. 5, No. 2, p. 33.  
October 23, 1900.
2. On the Etiology of Cancer — E. H. Nichols.  
Boston Society of Medical Sciences, Journal, Vol. 5, No. 2, pp. 34-58.  
October 23, 1900.
3. Report of the Presence of "Plimmer's Bodies" in Carcinomatous Tissue  
— R. B. Greenough.  
Boston Society of Medical Sciences, Journal, Vol. 5, No. 2, pp. 59-62.  
October 23, 1900.
4. Tumors and Sporozoa of Fishes — E. E. Tyzzer.  
Boston Society of Medical Sciences, Journal, Vol. 5, No. 2, pp. 63-68.  
October 23, 1900.
5. The Reconstruction of a Nodule of Cancer — E. A. Locke.  
Boston Society of Medical Sciences, Journal, Vol. 5, No. 2, pp. 69-71.  
October 23, 1900.
6. Report of Culture Experiments made with Carcinomatous Tissue, 1889-  
1900 — Oscar Richardson.  
Boston Society of Medical Sciences, Journal, Vol. 5, No. 2, pp. 72-80.  
October 23, 1900.
7. Coccidium Infection of the Rabbit's Liver — E. E. Tyzzer.  
Journal of Medical Research, Vol. 7, No. 3, pp. 235-254. April, 1902.
8. Molluscum Contagiosum — Charles J. White and W. H. Robey, Jr.  
Journal of Medical Research, Vol. 7, No. 3, pp. 255-277. April, 1902.
9. Culture Experiments with Malignant Tumors — Oscar Richardson.  
Journal of Medical Research, Vol. 7, No. 3, pp. 278-279. April, 1902.
10. Four Pathogenic *Torulæ* (Blastomycetes) — Joseph D. Weis.  
Journal of Medical Research, Vol. 7, No. 3, pp. 280-311. April, 1902.
11. The Relation of Blastomycetes to Cancer — E. H. Nichols.  
Journal of Medical Research, Vol. 7, No. 3, pp. 312-359. April, 1902.
12. Cell Inclusions in Cancer and in Non-cancerous Tissue — R. B. Greenough.  
Journal of Medical Research, Vol. 7, No. 3, pp. 360-380. April, 1902.
13. A Contribution to the Classification of Tumors — F. B. Mallory.  
Journal of Medical Research, Vol. 13, No. 2, pp. 113-136. January,  
1905.
14. On the Nature of the Cell Inclusions of Cancer — R. B. Greenough.  
Journal of Medical Research, Vol. 13, No. 2, pp. 137-166. January,  
1905.
15. The Effects of the Roentgen Ray upon Cancer — Robert H. Vose and  
Walter C. Howe.  
Journal of Medical Research, Vol. 13, No. 2, pp. 167-185. January,  
1905.
16. Implantation of Tissue and Its Relation to Cancer — E. H. Nichols.  
Journal of Medical Research, Vol. 13, No. 2, pp. 187-232. January,  
1905.
17. The Inoculable Tumors in Mice — E. E. Tyzzer.  
Journal of Medical Research, Vol. 17, No. 2, pp. 137-153. November,  
1907.
18. A Series of Twenty Spontaneous Tumors in Mice, with the Accompanying  
Pathological Changes and the Results of the Inoculation of Certain  
of These Tumors into Normal Mice — E. E. Tyzzer.  
Journal of Medical Research, Vol. 17, No. 2, pp. 155-157. November,  
1907.



19. A Study of Heredity in Relation to the Development of Tumors in Mice — E. E. Tyzzer.  
Journal of Medical Research, Vol. 17, No. 2, pp. 199-211. November, 1907.
20. A Transmissible Cancer of the Rat Considered from the Standpoint of Immunity — F. P. Gay.  
Journal of Medical Research, Vol. 20, No. 1, pp. 175-201. January, 1909.
21. The Lesions of the Skin and the Tumor Formations in Xeroderma Pigmentosum — W. T. Councilman and G. B. Magrath.  
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