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1934

The Saranac Laboratory for the Study of Tuberculosis

OF THE EDWARD L. TRUDEAU FOUNDATION

REPORT OF THE DIRECTOR

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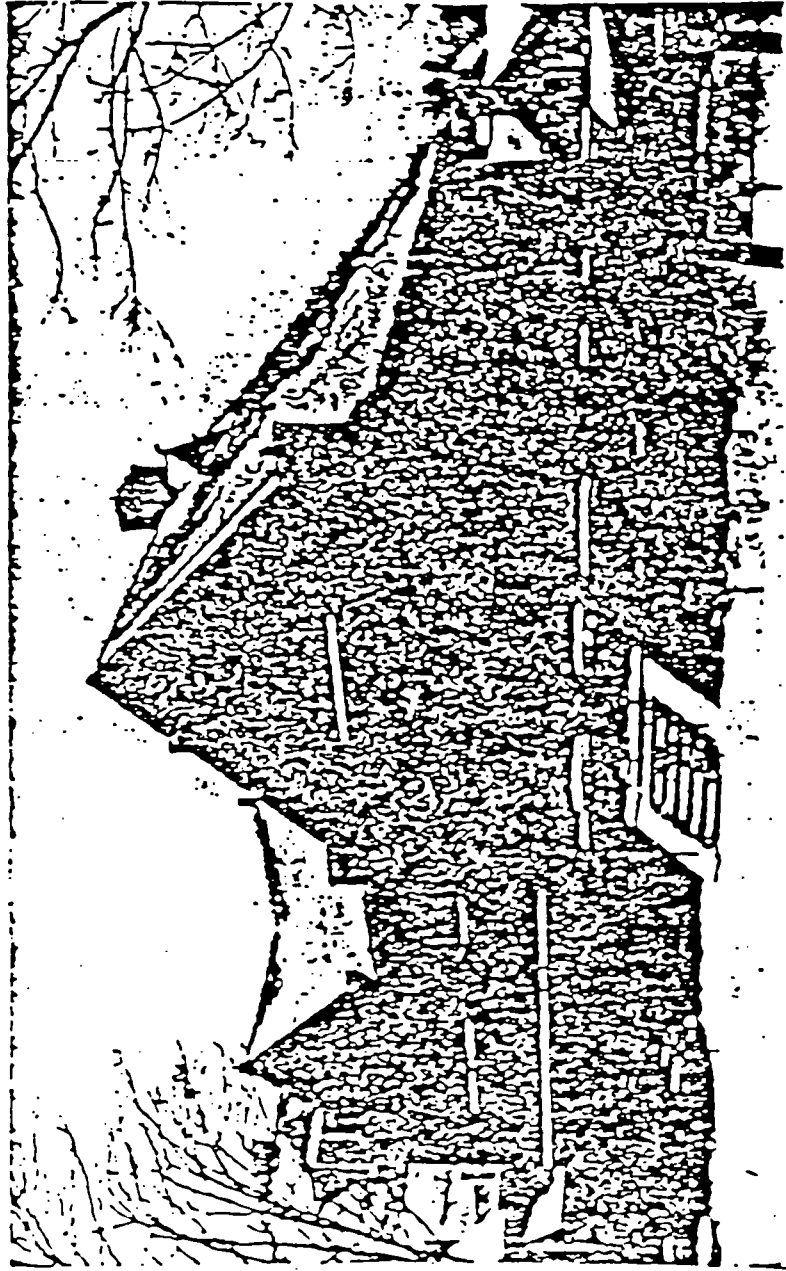
FINANCIAL REPORT

FOR THE YEAR ENDING SEPTEMBER 30, 1934

REPRINTS OF SCIENTIFIC PAPERS

The Saranac Lake Academy of Medicine





The Saranac Laboratory, showing at the left the new John Black Wing

THE SARANAC LABORATORY

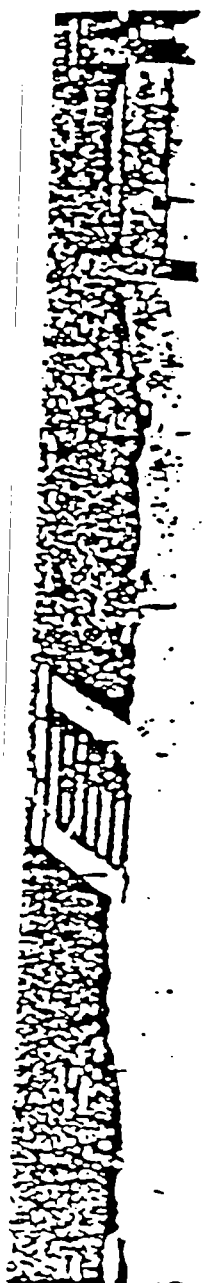
The fact that the Saranac Laboratory has always been a separate institution from the Research and Clinical Laboratory of the Trudeau Sanatorium is not generally understood. Both laboratories are sponsored and controlled by the Trudeau Foundation, but the Saranac Laboratory is located at 7 Church Street in the village of Saranac Lake and not at the Sanatorium.

The properties of the Saranac Laboratory consist of the original building, given to Dr. E. L. Trudeau by Mr. George C. Cooper in 1894 as a private research laboratory, together with the John Black Wing, of which a reproduction of a photograph appears in this report. The wing has been donated by Mr. and Mrs. Frank B. Black in memory of their son. The addition contains the library and lecture room, erected in 1927 and 1928, and private research rooms which are now in the process of construction. There are also two animal houses.

While the Saranac Laboratory cooperates with the Sanatorium in every possible way and serves as the headquarters for the Trudeau School of Tuberculosis, it provides diagnostic facilities to the physicians practicing in the village and carries on independent researches in the field of tuberculosis and associated conditions.

To avoid the existing confusion, the Trudeau Foundation is publishing an annual report of the Saranac Laboratory under separate cover.

The Saranac Laboratory, showing at the left the new John Black Wing



THE SARANAC LAKE ACADEMY OF MEDICINE

In the early part of July, 1931, a group of physicians in Saranac Lake met in the John Black Room to discuss ways and means for supporting the diagnostic and research activities of the Saranac Laboratory during a period of diminishing income. They were of the unanimous opinion that this institution is essential to the continued existence of the village as a center for the scientific treatment and study of tuberculosis. As a concrete expression of this feeling they constituted themselves the nucleus of a body to be known as the Saranac Lake Academy of Medicine. Its object is "to foster interest in the pursuit of scientific medicine in Saranac Lake" through the agency of the Saranac Laboratory. Its members pledge themselves to support the activities of this institution in every possible way and to seek assistance from others for its operation. The active members are physicians practicing in Saranac Lake, but associate, sustaining, and life memberships are also open to interested laymen. In the financial report for the current year will be found a list of the present members.

The formation of the Academy created nothing new; the Laboratory, the Library, the diagnostic service, the scientific lectures and research have always been an integral part of the medical life of the village, but by many they have been freely accepted as a natural heritage from the great founder of this health community. By membership in the Academy of Medicine, or by contributions through it, anyone can feel that he has a part in keeping alive the Trudeau ideals for the furtherance of medical science.

DEMY

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EDWIN M. JAMESON

Tuberculin: Its Preparation and Use in the Treatment and Diagnosis of Pulmonary Tuberculosis

LEROY U. GARDNER and EDWARD R. BALDWIN

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THE SARANAC LABORATORY FOR
THE STUDY OF TUBERCULOSIS
OF THE
EDWARD L. TRUDEAU FOUNDATION

Leroy U. Gardner, M.D.	Director and Pathologist
Arthur J. Vorwald, M.D.	Assistant Pathologist
Thomas M. Durkan, M.E.	Assistant Chemist
Winfield O. Kelley, B.A.	Clinical Pathologist
Douglas S. McCrum, B.S. (E.E.)	Photographer
Morris Dworski	Assistant in Experimental Pathology
Catherine M. Cummings	Librarian and Secretary
Roy Dayton	Financial Secretary
James V. Luttrell	Purchasing Agent and Technician
George Hulpitt	Technician
Anthony Delahant	Technician
Frank Creedon	Technician
Andrew J. Redlin	Voluntary Assistant
J. Cloyd Downs	Voluntary Assistant
William LaBounty	Assistant
Henry C. Stout	Assistant

FIELD AND CONSULTING STAFF

Donald E. Cummings, B.S.	Assistant Director in Charge of Field Work
Homer L. Sampson, D.Sc.	Consulting Roentgenologist
Daniel M. Brumbel, M.D.	Clinical Consultant
Robert N. Downs	X-ray Supervisor
Richard Libby	X-ray Technician
Richard Walters	X-ray Technician
Melvin Berg	Bacteriological Technician and Clerk
Dorothy P. Rogers	X-ray Stenographer

SPECIAL RESEARCH STUDENTS

A. O. Severance, M.D.	Baltimore, Md.
A. Landau, M.R.C.P.	Cape Town, South Africa

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REPORT OF THE DIRECTOR OF THE SARANAC LABORATORY FOR THE STUDY OF TUBERCULOSIS

— 1934 —

LEROY U. GARDNER, M.D., *Director*

Director and Pathologist
--- Assistant Pathologist
--- Assistant Chemist
--- Clinical Pathologist
--- Photographer
--- Experimental Pathologist
--- Librarian and Secretary
--- Financial Secretary
--- Agent and Technician
--- Technician
--- Technician
--- Voluntary Assistant
--- Voluntary Assistant
--- Assistant
--- Assistant

in Charge of Field Work
--- Consulting Roentgenologist
--- Clinical Consultant
--- X-ray Supervisor
--- X-ray Technician
--- X-ray Technician
--- X-ray Technician and Clerk
--- X-ray Stenographer

ENTS

--- Baltimore, Md.
--- Cape Town, South Africa

A well known authority in the field of public health once remarked that the research student only begins to produce results of real significance when he is taken out of his laboratory and sent into the field. While some might qualify this generalization, it cannot be gainsaid that effective investigation of disease can only progress in close contact with the patient. In times past the Saranac Laboratory was a successful pioneer institution in the study of tuberculosis. Dr. Trudeau and Dr. Baldwin, with their associates, had ample clinical material about them on which they could draw for their scientific studies of this disease. When the problem of the inhalation of dust as a factor in the production of tuberculosis was begun there was little thought that it might deserve years of study and that it would subsequently prove to be a subject of widespread popular interest. For years the attack was directed almost wholly along experimental lines. Few persons suffering from disease due to inhaled dust found their way to Saranac Lake. To study silicosis in the human subject it was necessary to visit the centers of industry and such visits at best could be infrequent and of short duration. There seemed no choice but to continue on a purely experimental basis unless the investigation were removed to a mining or other industrial community. Then came years of stringency when the outlook for financial support from private philanthropies was most gloomy. But this apparent misfortune proved to be a turning point in the program of the institution. Because other sources of income had failed we were forced to make new alliances and in doing so were brought into intimate contact with the much needed clinical material for a well balanced investigation. It is hoped that we may profit by our opportunities and justify the confidence that has been placed in us.

To take advantage of the situation it was necessary to expand. Important members of the research staff had to be sent into the field to study conditions of dust generation and its effects upon men who work in it. New members had to be secured to investigate the problems that developed. More space was essential that these men might work, for the old laboratory was not expected to accommodate more than five or six investigators. Last year's report cited the progress that had been made in this program of expansion. This year sees us ready to begin operations on the broader basis.

Two major field investigations are in progress under the supervision of Mr. Cummings, the assistant director. Several thousand x-ray films have been taken and interpreted by Dr. Sampson and his assistants. Three more members have joined the regular laboratory staff and two graduate students will work with us during the coming year. The John Black Wing, providing six new rooms for research purposes, is now nearing completion and almost enough funds are in sight to satisfy a \$14,390.00 budget for the coming year.

FIELD PROGRAM

On November first a contract was renewed with members of the Lake Superior Iron Ore Producers Association to continue the program of investigation and prevention of disease due to dust among their miners. One company of the group decided not to participate in the program this year for reasons other than dissatisfaction with the services rendered. While their withdrawal materially reduces the income that we derive from this source, it is probable that responsibility for fewer men will enable us to make a more thorough study of those that remain. Last year's effort was devoted largely to a general survey of the industry and the inauguration of a program to prevent the formation of dust. This year the data already in hand will be analysed, the dust prevention measures will be applied to all parts of the various mines involved and examination of many of the miners will be repeated to determine whether they have developed changes that may be progressive. A considerable number of autopsies have been obtained upon men previously examined. A comparative study of the anatomical changes with the x-ray shadows in films made before death will add to the general knowledge of the action of mixtures of silica and other substances like iron. There is good reason to believe that the presence of the iron favorably influences the picture so that the silica is not as harmful as it might be when inhaled in the pure state. A bacteriological study of the sputum of miners with non-tuberculous infections of the lungs is in progress and autogenous vaccines are being used to treat some of these cases. A considerable number of infections with the Friedlander bacillus and associated organisms have been discovered.

Another study was begun in a small group of fluorspar mines and mills during the summer. The program involved the determination of a possible hazard from this substance and, if such exists, the recommendation of methods for its correction. A considerable group of employees has been examined by the mine physician and their x-ray films have been studied here. Tuberculosis is prevalent in the community as a whole but whether exposure to fluorspar dust is responsible has not yet been ascertained. No autopsies have yet been secured to determine the anatomical effects of inhaling this dust so that we shall be forced to rely upon animal experiments that are now in progress.

The field work in the gypsum plant reported last year is completed and it has been possible to give the industry a clean bill of health. Recently a survey was made of a porcelain plant and a plan of investigation was mapped out. It will proceed along the lines of other investigations.

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All credit is due to Mr. Cummings for the successful prosecution of this work. The officials of the companies with whom he is working have repeatedly praised the work which he is doing and, here in the laboratory, we are appreciative of the financial support made possible by his efforts, and of the x-ray and autopsy material that comes through him. Without the co-operation of Dr. Sampson, at the Sanatorium, such an investigation would be quite impossible and the director is glad of the opportunity to express his appreciation. The associated field workers, Mr. Downs, Mr. Libby and Mr. Walters have loyally done their part in making a success of the undertaking. They all deserve praise for their devotion to their work.

LABORATORY RESEARCH

The problems already under investigation have been continued during the year. The inhalations of pure quartz, pure gypsum, pure hematite, ferruginous chert and a mixture of gypsum and quartz are still in progress. The hematite and gypsum dusts cause no appreciable damage in the lungs and have no serious effect upon coexistent tuberculous infection. The chert, which contains a considerable amount of quartz, causes more damage in the normal lung and results in some progression of a tuberculous infection. However, the changes that develop are not nearly as severe as those produced by pure silica. Tuberculosis in the chert animals progresses for a time and then becomes stationary or tends to heal with marked scarring, or fibrosis. Mixtures of equal parts of gypsum and quartz dust fail to produce significant changes in the lungs. On the other hand, groups of animals exposed on alternate weeks to pure quartz and pure gypsum dust are developing typical silicosis. This experience points to a protective action on the part of gypsum dust, probably because the gypsum particles tend to clump together in the atmosphere, they prevent the inhalation of significant quantities of quartz. The experiment is not yet complete but the implications are fascinating in their possible bearing upon silicosis prevention.

A study of the comparative reaction of different species of animals to silica dust is now completed. Guinea pigs, rabbits, cats, white rats, white mice, and domestic fowl have developed reaction to inhaled silica. The rats develop changes most nearly resembling those in human beings. The injection of silica suspensions into tadpoles and goldfish produces a marked tissue reaction which resembles that in the mammals. One may conclude that silica is a poison for the tissues of a large variety of animals.

Injection of silica and other forms of dust into the veins of rabbits is being used extensively to test their capacity to cause damage. Silica causes a specific cirrhosis of the liver which does not occur with other dusts thus far treated. The minimum dose necessary to produce reaction and the effect of different petrographic forms of silica are being investigated.

The progressive nature of silicosis in animals is being studied in animals exposed for varying periods of time and then removed to a normal atmosphere. X-ray films are taken from time to time to demonstrate progression.

The subject of tuberculous susceptibility in the silicotic tissues is still under investigation. This year the possibility of alteration in the immune

mate is being studied in silicotic animals infected with tubercle bacilli. Collateral experiments with pneumococcus and spirochaetal infections are planned to check the observations on tuberculosis. The marked similarity between the tissue reaction to the tubercle bacillus and silica particles suggests that the injury produced by these two substances may be fundamentally the same in spite of their obvious difference in composition.

Another set of experiments just started will test the tissue reaction to a representative group of silicates (silica in combination with bases) which have common industrial uses. Theoretically these silicates are not expected to produce serious damage in the body but the possibility that they may constitute an industrial hazard is often questioned. One of them, asbestos, is exceptional and is now a well recognized cause of pulmonary disease. Another known as sericite has been suggested as an important factor in aiding silica to produce the condition of silicosis.

Mr. McCrum has completed a series of wax models of silicone nodules from the lungs of experimental animals and from those of human beings. These models demonstrate the similarity between the animal lesions and those in man. Both develop very largely in relation to branches of the pulmonary artery. Another group of models graphically illustrates how silicone nodules compress and thus interfere with the function of the lymphatic vessels, the drainage system of the lung. Still another demonstrates how tuberculous infection penetrates into the interior of a preestablished silicone nodule.

In addition to these studies, carried on by the regular laboratory staff, Dr. H. M. Kinghorn is continuing his study of a tuberculous vaccine. Dr. J. N. Hayes is still working on the effect of inhaled oil and upon the problem of experimental oleothorax. Dr. E. M. Jamieson is still studying genito-urinary tuberculosis. Dr. D. M. Brundel is collecting data on the number of silicone patients under treatment in tuberculosis sanatoria throughout the country. He is especially interested in ascertaining the effect of treatment in patients with a complicating tuberculosis.

TEACHING

In addition to the usual program of teaching, five days of the 1934 session of the Trudeau School of Tuberculosis were devoted entirely to the subject of silicosis. A program was arranged covering all phases of the subject: etiology, pathology, diagnosis by clinical and roentgenological methods, prevention, and medicolegal aspects. It is a pleasure to acknowledge our gratitude to the eminent authorities in their various fields who volunteered their services to lead the discussions. Dr. R. R. Jones, of the U. S. Public Health Service, spoke on etiology; Mr. D. E. Cummings, assistant director of the laboratory, covered other phases of his subject with special reference to atmospheric dust determination. The pathology of the disease was discussed by the director of the laboratory. Prof. Philip Drinker, of the Harvard School of Public Health, discussed engineering methods of dust prevention and elimination. Dr. H. K. Parcast, of the University of Pennsylvania, and Dr. Homer L. Sampson, of the Trudeau X-ray Laboratory, spoke on the roentgenological appearances in silicosis. Dr. Henry S. Kessler, N. J. Rehabilitation Clinic,

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five days of the 1934 devoted entirely to the training all phases of the clinical and roentgenological pleasure to acknowledge the fields who volunteered services, of the U. S. Public Health Service, assistant director of the special reference to the disease was discussed by the the Harvard School of Public Health, prevention and elimination, and Dr. Homer J. on the roentgenological J. Rehabilitation Clinic.

described the clinical aspects of the disease. Prof. Wm. S. McCann, of the University of Rochester, spoke on the physiology of the fibroid lung. Dr. A. J. Lanza of the Metropolitan Life Insurance Company summarized the scientific aspects of the discussion and outlined the measures that are being adopted to handle the problem both from the medical and legislative viewpoints. Mr. Paul Foiger, an attorney from Rochester, N.Y., discussed the medico-legal phases of the subject. Most of the speakers remained for the entire week and took part in the informal discussions that constituted a very important part of the session. The John Black Room was crowded to capacity. Fifty-two special students registered for the week; 14 men from the regular tuberculous course elected to remain and the rest of an audience of 130 was made up of invited guests and local physicians. The group was composed of industrial physicians and executives, insurance officials, and state compensation commissioners.

An unofficial transcript of the proceedings was prepared by Mr. B. E. Kuechle of the Employers Mutual Insurance Company of Wausau, Wisconsin, and his associates Drs. Belknap, Benton, Carhart, Enzer, Ford, Gray, Habbe, and Lutz. Copies were offered for sale at \$5.00 and the entire proceeds were donated to the laboratory. It is with peculiar pleasure that we express our gratitude to Mr. Kuechle and those who assisted him in this work.

PUBLICATIONS AND REPORTS

Only four papers have been published this year owing to the fact that pending experiments have not yet been completed. These have been of a general nature, dealing with the etiology and pathology of silicosis and other pneumoconioses. A reprint of one of them, delivered before the general session of the American Medical Association and representatives of the group is included in this volume. Others were presented before the American Institute of Mining and Metallurgical Engineers, the National Safety Congress, and the Radiological Society of America. A general article, "Pneumoconiosis," written for International Clinics, will appear in June. Three papers by Dr. Gerald R. Dowd, formerly bacteriologist on the staff, are in press. Addresses were made before the physicians of the General Electric Company at Schenectady, and before a legislative committee of the State of Massachusetts. Considerable time has been devoted to the meetings of a committee of the Konvnde Club appointed to formulate a classification of silicotic lesions and their appearances on the x-ray film. It is the hope of this committee to offer a standard nomenclature that can be generally adopted.

This volume also contains reprints of an address on Hypersensitiveness and Immunity in Tuberculosis by Mr. Cummings and Mr. Delahant, of a paper by Dr. Jameson on Tuberculosis of the Uterus and Fallopian Tubes, and a Summary on Tuberculin by Dr. Baldwin and the director.

STAFF

On October first Dr. Arthur J. Vorwald joined the staff as assistant

pathologist. Trained at the University of Chicago, and coming to us after a year of post-graduate work at Cambridge, he brings to our problems fresh points of view. His excellent training and his enthusiasm have already satisfied everyone that he is a most fortunate choice.

Mr. J. Cloyd Downs, a chemical engineer of distinction, is a voluntary assistant who has many times proved his worth by solving problems concerned with the preparation of dusts for animal injection. We consider ourselves most fortunate that he can be with us.

Mr. Frank Creedon worked so well and faithfully as a voluntary assistant last year that he was taken on to the regular staff as histological technician on October first.

Two special research students are already at work upon silicosis problems, and a third will arrive shortly. Dr. A. O. Severance, of Baltimore, has earned on experiments dealing with silicosis in fish and amphibia. Dr. A. Landau, M.R.C.P., of Cape Town, South Africa, recently came to us from Brompton Hospital on a Dorothy Temple Cross Research Fellowship. He is working on the comparative influence of various silicates on the susceptibility to tuberculous infection. Dr. F. Warden Brown, an Oxford graduate holding a Radcliffe Travelling Fellowship, will shortly begin an intensive study of the action of one of the silicates known as *sericite*. It was recently claimed that this substance rather than quartz was the cause of silicosis.

In the field Mr. Richard Walters served faithfully as x-ray technician for six months until his health forced him to return for a period of rest. His work was appreciated not only here in his own organization, but by the physicians with whom he was associated at a mine hospital. We trust that the interruption is only temporary.

The other members of the staff remain as heretofore. The director takes this opportunity to thank all of them for the loyal service that they are rendering and expresses his appreciation of their cooperation.

BUILDINGS

A year ago it was announced that Mr. and Mrs. Frank B. Black had offered to provide funds for additional laboratory work rooms. The John Black Wing is now nearing completion. It consists of the John Black Room, the library and lecture room which these generous donors gave in 1927, and their recent gift of five new private laboratories located in a story above. In order to satisfactorily join the roof of the new wing with that of the old building it was necessary to extend the front gable of the latter. By so doing another large, well-lighted room was created in the attic of the old building. The photograph as reproduced in the front of this report shows the great improvement made in the front elevation by this change. The six additional work rooms and offices will fill a long-felt want by relieving the chronic state of congestion that has seriously hampered our work in the past several years. A necessary adjunct to the new addition was an increase in the heating plant. Rather than supplement an already overloaded system, it was found to be more economical to install new furnaces and to repipe the entire plant. Two new oil furnaces with a coordinated system of piping

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are now in operation. It appears that the heating costs for the entire plant, including the new addition, may be less than that for the old building alone. Our gratitude to Mr. and Mrs. Black for this new gift is unbounded, and as we occupy and use the new plant we shall have a continual cause to be mindful of their generosity.

Toward furnishing and equipping the new work rooms, we have already received \$1250. Of this sum \$250.00, from Mr. Henry L. Harris, was acknowledged last year. Dr. Frederick Wilson has recently donated \$1000, which is deeply appreciated. This sum will suffice to put two or more rooms into commission, and as fast as further funds can be procured the others will be furnished and occupied.

CLINICAL LABORATORY WORK

The diagnostic department has operated most effectively under the direction of Mr. Kelley, assisted by Mr. Delahant and Mr. Huipert. While the fees collected are entirely inadequate to support the service, the receipt of \$1229, from the Saranac Lake Academy of Medicine has made its continuation possible. Mr. Kelley's fellowship at the Sanatorium secures him his living expenses and his part-time associates receive part of their salaries from the Academy receipts. The following is a summary of the various diagnostic examinations made during the year ending December 31, 1934:

SUMMARY OF DIAGNOSTIC EXAMINATIONS

November 1, 1933 to December 31, 1934

Diphtheria cultures	9	for tubercle bacillus	100
Smears for Vincent's Angina	30	Stomach contents	4
Blood:		Milk, bacteriological counts	45
Agglutination for typhoid	36	Water, bacteriological examination	75
Differential counts	161	Water, chemical examination	425
Red and white counts	269	Smears for gonococcus	6
Hemoglobin determinations	111	Urine	1337
Coagulation time	43	Autogenous vaccines prepared	19
Grouping	101	Pathological specimens	130
Cultures	13	Autopsies, human	24
Chemistry	82	Animals inoculated for diagnosis	45
Sedimentation	54	Miscellaneous examinations	280
Sputum for tubercle bacillus	1577		
Spinal fluid, urine and other material		Total	4990

Of the autopsies performed, 7 were on cases of silicosis with tuberculous sent to the laboratory from the field. One was a case of uncomplicated silicosis with death from generalized cardio-vascular renal disease. Of the "pathological specimens" 8 were lungs or portions of lungs from individuals who died after being exposed by occupation to dust of one kind or another. These were submitted for diagnosis by physicians in various parts of the country.

FINANCES

At the end of the fiscal year, September 30, 1933, the financial statement showed an apparent balance of \$3,654.87. This was accounted for by advance payments of certain annual grants made during the fiscal year. The money was allocated to specific researches that were completed during the year. Likewise, at the end of the current year, there is an apparent balance of \$10,390.81, which represents advance payments for work to be done during the coming year. In June a group of Mutual Insurance Companies through the American Mutual Alliance pledged their support to a three years' silicosis research program and paid their first annual installment of \$5,000 in September. In October a similar group of stock insurance companies, through the National Bureau of Casualty and Surety Underwriters, made a similar three-year pledge and recently paid one semi-annual installment of \$2,500. Each of these groups is financing certain specific problems of mutual interest to them and to the laboratory. The Metropolitan Life Insurance Company has renewed its annual pledge of \$5,000. for the continued study of infection in association with silicosis.

The U. S. Gypsum Company made an additional grant of \$1,000. for the continuation of experimental studies on the protective action of gypsum dust against the inhalation of silica. Experiments begun during the past year were not completed and they seemed of sufficient importance to warrant continuation.

The decreased income from the iron ore study has been apportioned between field and research laboratory expenses in approximately the same ratio as last year. After deducting the costs of carrying on the work in the field and the payments due Dr. Sampson's laboratory for x-ray consultation, there remains only about \$6,110. to carry on animal experimentation. This will not cover the actual cost of the work here but it is of such importance that the balance is being provided from other sources. The fluor spar study, with a grant of \$3,000. is self-supporting as no long-term dust inhalation on animals is involved.

The receipts from Mr. Kuechle's sale of Silicosis Symposium proceedings have amounted to \$655., but none of this money was received prior to the end of our fiscal year on October 31, 1934. A contract for diagnostic work at the Northwoods Sanatorium has been renewed with the Adirondack Fund for the Tuberculous. This yields \$1,000. which is applied toward an assistant's salary. The Agnes Muir Eckert Fellowship provides for another worker. The loyal support from the Milbank Memorial Fund constitutes a back-log on which we have relied so long. Receipts through the Saranac Lake Academy of Medicine amounted to \$1,229., all of which was applied to the operation of the diagnostic department.

E. R. Squibb & Sons made an appropriation of \$100.00 to Dr. J. N. Hayes for his investigation of the action of various oils in the pleural cavity.

For the coming year anticipated operating expenses will amount to \$54,390. in addition to a sum of \$3,500. to equip and furnish the new work rooms in the John Black Wing. Income is in sight to cover all but \$4,000. of the regular budget and we have faith that this and the special

33, the financial statement accounted for by advance of fiscal year. The money completed during the year is an apparent balance of work to be done during Insurance Companies through a to a three years' silicosis installment of \$5,000 in insurance companies, through denturiers, made a similar installment of \$2,500. problems of mutual interest Life Insurance Company continued study of infection

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n of \$200.00 to Dr. J. N. us oils in the pleural cavity expenses will amount to equip and furnish the new is in sight to cover all but h that this and the special

equipment fund will be secured during the year. To make our staff complete we should have a petrographer to identify and analyse the rock specimens from which dust for experiments are now prepared. At the present time we are forced to rely upon the generosity of others for this service

In conclusion the director wishes to express his gratitude to Dr. Baldwin, director of the Trudeau Foundation, for his hearty support, to all his associates for their loyal cooperation, and to those whose financial assistance has made possible the continuation of our work.

SARANAC LABORATORY FOR THE STUDY OF TUBERCULOSIS

RECEIPTS AND EXPENDITURES

OCTOBER 1, 1933 TO SEPTEMBER 30, 1934

Receipts:

Balance on hand October 1, 1933	\$3,654.87
From endowment held in trust by Trudeau Foundation	\$1,875.00
Other interest and exchange	15.69
	<u>1,890.69</u>
Gifts for maintenance of work:	
Adirondack Fund for the Tuberculous	1,000.00
Mr. Henry Upham Harms	250.00
Hillside Fluor Spar Mines	250.00
Dr. Leroy U. Gardner	375.00
Dr. Hugh M. Kington (on pledge)	1,000.00
Mr. Lawrence Macfarlane	300.00
Metropolitan Life Insurance Co. ..	3,749.94
Michigan Ore Mines	27,500.00
Milbank Memorial Fund	3,000.00
Miscellaneous Gifts *	105.00
National Association of Mutual Casualty Companies	5,000.00
Oglebay Norton & Company	416.67
Mr. Arthur B. Purvis	750.00
Rosclaire Lead & Fluorspar Mining Companies	375.00
Saranac Lake Academy of Medicine* ..	1,229.00
E. R. Scuibb & Sons	200.00
U. S. Gypsum Company	2,875.00
Total of gifts	<u>45,375.61</u>
	<u>\$0,266.30</u>
Total receipts (carried forward)	\$3,921.17

* See following pages for list of donors

OF TUBERCULOSIS

SARANAC LABORATORY FOR THE STUDY OF TUBERCULOSIS

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RECEIPTS AND EXPENDITURES

O, 1934

OCTOBER 1, 1933 TO SEPTEMBER 30, 1934

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45,375.61

50,266.30

53,921.17

Total receipts (brought forward) 53,921.17

Disbursements:

For Laboratory work and maintenance:

Salaries	18,905.14
Supplies and equipment	2,211.46
Animals and feed	1,915.04
Fuel	704.55
Gas	162.57
Electric light and power	500.63
Library	450.65
Telephone	103.01
Laundry	79.52
Publications	396.35
Travel	246.84
Repairs	69.46
Miscellaneous	96.70
	<u>25,541.93</u>

For work in the field:

Salaries	14,219.95
Travel, including automobile, etc.	1,533.43
Advances to workers for expenses	625.00
Miscellaneous	111.54
	<u>16,489.92</u>

Total cost of work 42,331.85

Transferred to Trudeau Foundation,
reimbursement for funds advanced
for new animal house built in 1933 1,195.43

Total disbursed 43,527.28

Balance on hand September 30, 1934 10,393.81

CONTRIBUTIONS
TO THE
SARANAC LABORATORY

From October 1, 1933 to September 30, 1934

(NOTE: Items in second column received after October 1st
to be credited in 1935 financial report)

Adirondack Fund for the Tuberculous	1,000.00	249.99
Mr. and Mrs. Frank B. Black, for building		5,500.00
Mrs. Bigelow Crocker,		
thru Dr. H. M. Kinghorn	5.00	5.00
Mrs. Charles L. Crocker,		
thru Dr. H. M. Kinghorn	25.00	50.00
Mr. Henry Upham Harris,		
toward new building	250.00	
Hillside Fluor Spar Mines	250.00	500.00
Dr. Leroy U. Gardner	375.00	25.00
General Refractories Company . . .	50.00	
Dr. Hugh M. Kinghorn (fulfilling pledge		
toward animal house completed 1933)	1,000.00	
Mr. B. E. Keuchle and associates, sale		
of publication, "Silicosis Symposium"		655.00
Mr. Lawrence Macfarlane,		
thru Dr. H. M. Kinghorn	300.00	
Metropolitan Life Insurance Company	3,749.94	2,499.96
Michigan Ore Mines,		
thru Pickands, Mather & Company	27,500.00	6,353.54
Milbank Memorial Fund	3,000.00	
National Association of		
Mutual Casualty Companies	5,000.00	
National Bureau of Casualty		
and Surety Underwriters		2,500.00
North American Refractories Company	25.00	
Oglebay, Norton & Company	416.67	
Mr. Arthur B. Purvis,		
thru Dr. H. M. Kinghorn	750.00	
Rosiclare Lead and Fluorspar Company	375.00	375.00
Carried forward	42,971.61	15,718.49

		Brought forward	42,971.61	18,718.49
		Saranac Lake Academy of Medicine		
		Mrs. John F. Archbold	50.00	
		Clinton J. Ayres, Inc.		25.00
0, 1934		Dr. Edward R. Baldwin	50.00	
October 1st		Dr. Robert J. Beck	50.00	
)		Boyce & Roberson	15.00	
		Dr. H. A. Bray		10.00
0.00	249.99	Dr. H. B. Brown	20.00	
	5,500.00	Dr. Lawrason Brown	25.00	
		Dr. David A. Cooper	10.00	
5.00	5.00	Mrs. F. C. Deemer	50.00	
		Dr. Joseph T. Eagan	50.00	
25.00	50.00	Mrs. A. C. Erkander	50.00	
		Mr. H. C. Eyer	25.00	
50.00		Miss Anna L. Gilbert	10.00	
50.00	500.00	Dr. Albert G. Hahn	10.00	
75.00	25.00	Dr. John N. Hayes	25.00	15.00
50.00		Dr. Fred H. Heise	10.00	
		Mr. Fred A. Howland	50.00	
100.00		Dr. E. M. Jameson	25.00	
		Dr. Hugh M. Kinghorn	50.00	
	655.00	Mr. Herbert R. Leggett	25.00	
		Mr. Wm. C. Leonard	5.00	
300.00		Dr. S. S. Lichtman	10.00	
749.94	2,499.96	Dr. Edgar Mayer	34.00	
		Mr. H. S. Parker	50.00	
500.00	6,358.54	Mr. R. F. Plank	10.00	
1,000.00		Dr. Samuel Post	10.00	
		Dr. J. Woods Price		25.00
1,000.00		Dr. Walter L. Rathbun	10.00	
		Dr. John C. Russell	10.00	
	2,500.00	Dr. Homer L. Sampson	50.00	
25.00		Sanatorium Gabriels	25.00	
416.67		Miss Ophelia Sawtell	10.00	
		Dr. David T. Smith	10.00	
750.00		Miss Dorothy Smith		10.00
375.00	375.00	Mr. Robert B. Smith	100.00	
971.61	18,718.49	Carrned forward	43,905.61	18,803.49

Brought forward	43,905.61	18,803.49
Dr. Willard B. Soper	50.00	
Dr. Earl R. Templeton	10.00	
Mr. Lewis S. Thompson	50.00	
Dr. Charles C. Trembley		25.00
Miss Jean Turnbull	20.00	
Dr. William A. Wardner	50.00	
Dr. George E. Wilson	65.00	
In Memory of Sydney Lunt Wood	50.00	
Dr. Warriner Woodruff		25.00

E. R. Squibb & Sons, thru Dr. J. N. Hayes	200.00	
U. S. Gypsum Company	2,875.00	250.00
Utica Mutual Insurance Company		100.00
Dr. Frederick and Mr. Thomas A. Willson, toward equipment of building		1,000.00
Mrs. S. L. and Mr. John P. Wood, in Memory of Sydney Lunt Wood	10.00	

45,375.61 20,213.49

Mr. Frank Connable, thru Dr. Elliott P. Joslin,
a Microchemical Sugar Apparatus