Clarence Cook Little

C.C. Little and the Founding of the Jackson Laboratory

by Martha Harmon

In 1965, at the age of seventy-seven, Clarence Cook Little was introduced to a group of Mount Desert Island residents by Mrs. Amory Thorndike.[1] He was introduced as an overseer of Harvard College, the recipient of ten honorary degrees, the Scientific Director of the Tobacco Research Institute, senior warden of St. Saviour's Episcopal Church, one of Bar Harbor's leading citizens, and a man of the Renaissance. Curiously missing from the introduction was any reference to Little's history as an educational reformer or his founding of The Jackson Laboratory. To fully understand why and how the laboratory became established in Bar Harbor it is necessary to follow the life of this charismatic scientist, a man of many talents who took advantage of both the challenges and handshakes that came his way. Almost by default, Little created one of the country's most important scientific research laboratories.

The Journey

Clarence Cook Little was born in 1888, the third son of a well-established Boston family who lived in the rural luxury of Brookline, Massachusetts. His father was what can only be characterized as a "gentleman naturalist," interested in outdoor activities, sports, and animals, a respected dog breeder and show judge. Clarence was given his first pair of pedigreed pigeons when he was three years old, and by the age of seven he had trained and shown his prized birds at local fairs.[2] Throughout his teenage years at home and at Noble and Greenough School, young Clarence kept menageries of guinea pigs, mice, pigeons, rabbits, and dogs. When he matriculated at Harvard, he enrolled in biology, and by luck had a professor who supported the newly rediscovered principles on the inheritance of physical characteristics.[3]

By his sophomore year, Little was attracted to William Castle's studies on coat colors of rabbits, guinea pigs, and rats. Castle, chairman of the Department of Biology, gave him the choice of working with rabbits or mice.[4] Little fortuitously chose mice, and within a year published his first papers, "The Peculiar Inheritance of Pink Eyes Among Colored Mice" and "On a Modified Mendelian Ratio Among Yellow Mice."

"Pete" Little, as he was known at school and throughout his life by his college friends, was a charming and charismatic student leader. He excelled in sports, was captain of the track team, a favorite of the dean, and though his grades were by no means spectacular, an honorary member of Phi Beta Kappa. Newly appointed Harvard University President Abbott Lowell set about to reinvigorate the traditional undergraduate programs, and Pete Little was

initially chosen as his student advisor. Under Lowell's tutelage Little became a student of educational theory, advancing in administrative positions, and devoting as much time to this new interest as to his colonies of mice. Despite the diversion of becoming an assistant dean at Harvard, his scientific work continued with graduate studies under E. E. Tyzzer at the Harvard Medical School, and he taught a class in experimental biology with this introduction:

> The study of life has changed largely from a science of observation to a science of experimentation. Only recently have the facts derived from this experimental work reached a sufficient volume to enable a study of their inter-relationships to furnish us with a new foundation for the training of biologists and of the medical profession. This course attempts to provide a part of such a foundation for present or future teachers of biology, psychology or members of the medical profession.[5]

He passed his Doctor of Science exams in 1914, having at first failed because of an inadequately drawn digestive system of a clam.[6] This same year he published "A Possible Mendelian Explanation for a Type of Inheritance Apparently Non-Mendelian in Nature," and two years later he published the seminal paper, " The Relation of Heredity to Cancer in Man and Animals." He continued his administrative positions at Harvard[7] as well as his work as a research assistant with Tyzzer's Cancer Commission at Harvard Medical School, publishing four more papers on cancer and heredity. The work with Tyzzer was illuminating. It was here that the initial cancer transplantation studies began, work that, at Little's suggestion, would later be taken up by George Snell at The Jackson Laboratory and for which Snell would receive a Nobel Prize.

In 1917, after ensuring that his mouse breeding stocks were well taken care of at the medical school, he enlisted in the U.S. Army and was assigned to the Signal Corps administrative offices in Washington, D.C. The exact nature of his work for the War Department, Office of the Director of Military Aeronautics is not known, but in a reply to a request to help edit a scientific journal, he wrote, "[F]or the duration of the war and for as long afterwards, as it takes to get disentangled, I am out of science."[8]

At the end of the war, in a letter to the director of Harvard Medical School he wrote:

> I have had a talk with Charles B. ("Whiskers") Davenport, Director of the Carnegie Research Station at Cold Spring Harbor, who is keen to have me go down there. . . . However, I should infinitely rather work at the Medical School than tow my whole family to such an ungodly place as Cold Spring Harbor.[9]

Five months later he wrote to Dr. Tyzzer:

> I have decided to accept the offer of the position at Cold Spring Harbor. . . . I hope that some time in the future, when the realization of the value of genetics is a little clearer, I may be able to be in the same institution with you again.[10]

Retiring from the Army as a major in 1918, Little accepted a research position at the new Station for Experimental Evolution established by the Carnegie Institution of Washington, D.C. at Cold Spring Harbor on Long Island, New York. The director was Dr. Charles B. Davenport, a leader in the study of genetics and the emerging interest in eugenics. Students who came to the Cold Spring Harbor laboratories gravitated to the personable Dr. Little, fulfilling his dual interests of scientific research and educational mentoring. He became a director of Margaret Sanger's newly formed American Birth Control League. He also began to write articles for the *Harvard Bulletin* concerning mental and physical fitness as prerequisites for higher education, using his Army "boot camp" experiences in social control as a model for a theoretical "new student body."

> The great democratizing effect of living, sleeping and eating together as parts of the same social circle has been recognized. . . .The adoption of these principles, so essential to a military regime, in the life and thought of a University should mean an advance.[11]

The University Years

In 1922, the *Harvard Bulletin* published a seven-page essay in which Little outlined several reforms for restricting the numbers and strengthening the quality of college student populations. He advocated selectivity without regard to race or creed, and the evaluation of prospective students according to how they best used their inherent qualities.[12] The essay caught the attention of the Board of Trustees of the University of Maine. Invited to Orono to give a speech, Little was offered the position of president of the university. His only conditions were that a special fund of $5000 per annum be set aside toward his genetic research projects, and he expected to teach as well as administrate. The *Kennebec Journal* reported on his inauguration speech:

> Dr. Little appeared but with a seriousness of expression that bespoke power and great dynamic force, of a mind trained to think forcefully and logically, and words came from his lips crisp and clean cut and carrying conviction.[13]

In his first annual report to the University of Maine Board of Trustees, the new "Prexy"[14] Little spelled out his plans, introducing himself with this anecdote:

> When Mussolini took over the duties of the premiership of Italy, he was asked what would be his first step as head of the government. His reply was, "Discipline—discipline for everyone, that is a good beginning." Later, on being asked further concerning his policy, he remarked of his country, "One must develop from within. Nothing can be of use in Italy today that is not aggressively constructive." Although it is a far cry from Italy to the University of Maine, it is surprising with what force these phrases grasp what I believe to be the essentials of necessary reconstruction of the American undergraduate life today. [15]

He called for the formation of a men's student government, a women's athletics program, mandatory physical education for all students, new dormitories for women, the appointment of a dean of women, establishment of Freshman Week for entering students, personal interviews as an entrance requirement, and remedial non-credit English classes. He asked for fourteen new buildings, including a chapel and an infirmary. As the nation's youngest university president he had found a platform for his ideas on educational reform, and he immediately began lobbying the state government for support. Governor Percival Baxter had attended his inauguration and had spoken enthusiastically about the university's potential.[16] After two years only some of the changes had occurred, and the legislature was still recalcitrant with funds. In 1924, expressing his disappointment in his second annual report, Little wrote:

> When the legislature first convened the sentiment seemed to be more favorable than expected. Nearly everyone was friendly. To be sure the same old arguments were occasionally heard: the statements which were based on misinformation, to the effect that instruction at Maine cost more than at Bowdoin, Bates or Colby; the statement that the privately owned and endowed colleges were all that the State needs; the naïve and dense suggestion that the College of Arts and Sciences should be wiped out. This, by the way, is one of the most persistent and most idiotic of the unintelligent suggestions, which during the two sessions of the legislature that I have been privileged to observe, have been liberated from the hand of some political Noah trying to find the dry land of reelection.
>
> Building needs in all State institutions were considered and explained away under a policy of "no new construction" and the argument that lots of the buildings had stood close to a hundred years and could go on standing. This Solonic dictum might well have been pronounced at the bedside of the "one hoss shay" shortly before its demise.[17]

He concluded, "Maine lags and drags. In the support of higher education her motto "Dirigo" is a joke, likely, unless she awakes, to become pathetic."[18]

Meanwhile, Prexy Little was building bridges in other parts of the state. The Mount Desert Island Biological Station[19] invited him onto their board of directors. The Little family had not summered in Bar Harbor, but many of their friends had cottages on the island, and Little was keen to bring his three children, as well as summer students, for "flora and fauna" classes. An old friend of Little's mother, George B. Dorr, superintendent of Lafayette National Park, offered the use of a cabin on the southern end of the Dorr estate, just off the Schoodic Head Road in Bar Harbor, for an experimental biology class.[20] The Underwood Company also offered to the university a parcel of land on Tinker's Island in Blue Hill Bay, which Little hoped to use for a summer camp to train executives and instructors.

In the summer of 1924, the first group of graduate students, summer students, and children arrived in Bar Harbor to track carrion beetles and collect seaweed. Little's own scientific work included the maintenance of his mouse breeding stocks and a cooperative project with Harvard Medical School concerning the effects of ultraviolet light on chickens. However, it was his experiments on the inheritance of cancer and various congenital defects in mice that captured the attention of his best graduate students, Joseph and William Murray and Arthur Cloudman. In the following year's annual report, Little would write:

> The work has proven an excellent means of arousing interest in the minds of several students who have decided to carry their education further than might otherwise have been the case. In spite of various assertions and hysterical outbursts by the uninformed, vivisection is not practiced at the laboratory.[21]

As the gregarious and outspoken Dr. Little became part of the Mount Desert Island summer community, his approach to research and his ideas for educational reform took root in a group of "summering" automobile magnates from Michigan. Roscoe B. Jackson, Edsel Ford, Oscar and Richard Webber, related to one another by marriages as well as business interests, were pleased to offer financial support for Little's research.[22] Roscoe Jackson was particularly interested in seeing that the island benefited as much as the University. He wrote to Little:

> I should like to spread among as large a number of individuals at Seal [Harbor] as is practicable, not perhaps so much because of the matter of the financial assistance as to get all those possible interested in your activity. [There should also be] talks to the community of popular interest.[23]

By the spring of 1925, Little realized that his reforms at the University of Maine were coming along at a very slow pace. At the same time his friends and supporters from Michigan were encouraging him to look towards their Ann

Arbor campus as a site for his genetic research and platform for educational reform. In his letter of resignation to Colonel Howard Strickland, President of the University of Maine Board of Trustees, he wrote:

> I wish at the outset to state that my action is in no way prompted by any unpleasant factors, but by the fact that I have been offered an opportunity to try on a very large scale the educational policies which the State of Maine has not as yet been willing to adopt.

He outlined the best points of his tenure at the university, and he encouraged new academic fields of study:

> With the recent advances in biology and the far-reaching researches in physics and in the nature of matter, the importance of organization as the chief underlying factor in the function of living organisms, including man himself, is becoming more and more clearly recognized. . . .The border of biology and chemistry has yielded many highly important discoveries and there is every reason to believe that the interrelation of physics and biology should be an even richer field for research.[24]

He also noted some of the disappointments, concluding:

> I might add in closing that if my salary is continued during the summer I plan to use most, if not all, of it towards the expenses of the University of Maine Biological Station at Mount Desert Island. The three years spent at the University have been the happiest of my life and will be for me a lasting inspiration.[25]

At the age of thirty-six, Little was the youngest man ever to become President of the University of Michigan. With continuing private financial backing for his scientific research, and with what he felt was a mandate for reform from the Board of Regents, he initiated numerous changes in the management of the university. He added Freshman Orientation Week, intramural sports, and a dean of women. He brought about the exclusion of cars from the campus, and advocated the availability of birth control information. But he made enemies with his forthright speech and overly confident manner; he had a short fuse when dealing with politicians who couldn't or wouldn't see his point of view, and he resented having to compromise.[26] He was outgoing and personable, but he flew in the face of conservative and religious opinion with his membership in, or affiliation with, the American Eugenics Society (Little was president), the American Social Hygiene Association, Michigan Council For World Peace, World League for Sexual Reform, the Malthusian League for Human Welfare through Birth Control, the League of Nations Non-Partisan Association (he

was chairman), and the Negro Caucasian Club, to name only a few. None of this was helped by the disintegration of his marriage and a rather acrimonious and public divorce settlement.[27]

In 1928, in response to a letter from Little, Thomas Hunt Morgan, author of *The Mechanism of Mendelian Heredity*, recipient of the Nobel Prize, and the geneticist/embryologist who most influenced the earliest work in genetics, wrote:

> I need not tell you that it will be good news if you should ever decide to give all your time to genetics and experimental zoology. I have marveled that you have been able to keep up an active interest in these subjects and carry on the horrible duties of a President. . . . I should think a man would need the muscles of an ox, the skin of a rhinocerus [sic], and the brains of a Bismark [sic] to keep alive—not to speak of being happy. I hope therefore some day you may become disgusted and return to the great art of animal husbandry and gardening. [28]

After only three years as president, Michigan students were devastated by the announcement of Little's resignation in 1928, especially his graduate students in biology—Leonell C. Strong, John Bittner, Charles Green, and Elizabeth Fekete. At a sold-out testimonial dinner in the Michigan Union, Little closed his formal remarks on a personal note:

> May I leave you with a few personal comments, precepts by which I try to live? I prefer the strong, tumultuous thunder of mountain cataracts to the placid beauty of quiet lakes. I prefer the rush and push of strong winds to the dreamy indolent warmth of a lazy summer's day. I prefer the stir and excitement of intellectual ferment to the uncritical acceptance of things as they are. I prefer the vigorous challenge of new problems, in new fields of knowledge and endeavor, to the acceptance of stale routine and of deadly custom.[29]

During his tenure at Michigan, Little had collected his thoughts and opinions about higher education into a volume titled *The Awakening College*. It was an appropriate valedictory, challenging many aspects of contemporary college life, including "the shallow group psychology" of fraternities, the interference of politics in academic policies, "pseudo-professional" fields of study, misplaced military and patriotic organizations such as R.O.T.C. and the D.A.R., conference rather than intramural athletics, the lack of interest in continuing alumni education, and the lack of recognition of the needs of women students.[30] It included an elegant statement of his educational principles:

> Everyone young or old has the right to search for truth and to state it, or live it, as he sees it. This is a recognition and admission of the divine origin and consequent dignity of the individual. It attempts, by showing to that individual friendship and human interest, to light up his life with a spirit of adventure and humility, with courage in the face of adversity, with faith in, instead of fear of, the unknown, and with natural and self-perpetuating love of his fellow man. This principle is the keynote of the awakening college. It is capable of broad extension and application to fields of human endeavor outside of education.[31]

Time of Decision

By the time Clarence "Pete" "Prexy" Cook Little submitted his resignation to the Michigan Board of Regents, he had received reassurances and financial commitments to build his laboratory on Mount Desert Island from the same "summer people" who were initially attracted to the plan in 1924, and who had continued to financially support his independent cancer research at the Michigan Laboratory for Mammalian Genetics. In January 1929, Roscoe Jackson wrote:

> It was with great regret that I read of the situation at Ann Arbor. It seems all wrong to me. The University needed such a man as yourself to get them out of the ruts, and it was at the same time a great opportunity for you.
>
> I hope that the report is not true that you intend to leave administrative work. This, in spite of your natural leaning toward individual scientific investigation. For I believe you have executive ability and educational institutions are in great need of this sort of talent.
>
> I want to talk over with you the Cancer Research matter at the next opportunity. [32]

On February 1, Jackson and Little discussed the idea for a new, independent laboratory. Little was to work up a budget. Little, still a trustee of the Mount Desert Island Biological Laboratory, wrote to the director, Dr. H. C. Bumpus, implying that perhaps an eventual union of the two laboratories would be in the best interests of all those involved:

> What would be your reaction to an effort on my part to obtain from them sufficient funds to build a small laboratory building near the Morrell Park Station on Mount Desert Island in which to carry on this work for at least a five-year period. It would be my plan to live there myself all year around and to have with me a group of six or seven full-time workers. The personnel is, I believe, available and I

> think that I might be able to obtain the funds. I do not know that they would care to make it a definite part of the Mount Desert laboratory until it was established and until the two units had worked together. On the other hand, they might be willing to do so. . . .The plan appeals to me strongly and I hope that it may also to you.[33]

A week later Little submitted a proposal to Jackson which included a tentative budget, a financing plan, and a rough draft of a building. He added, "One or two tentative prospects involving teaching or literary work have turned up but none of them yet appeal to me so much as the prospect we discussed."[34]

Jackson replied:

> . . . The proposal was a fine one for you to make, but you yourself should go slow in tying up your endeavors for the next five years. . . .I wouldn't think this decision would be of such moment if you were the usual type of scientist. However, because of your obvious fitness for the leadership of large groups, I believe that serious consideration should be given the problem before a choice of the two paths is made by you. . . .For my own part, I can't help but feel very reluctant to have you sew yourself up on an isolated scientific adventure, although of course I can imagine possible happenings in this scientific undertaking offering compensation of far greater value to humanity at large than would be obtained by choosing the other line. . . .Under the assumption that Mr. Ford, Mr. Webber and I are willing to go along, it seems to me, in the last analysis, the selection is one only you can make, after canvassing every future possibility.[35]

Arrangements with George Dorr concerning the transfer of 13 acres on the east side of Otter Creek Road were well in hand, with Little agreeing to name the new facility after Dorr's father. But in March, the death of Roscoe Jackson threw the plans into a spin. Little wrote to Dorr:

> It seems to be typically unselfish and fine of you to intimate that your previous suggestion concerning the land as a memorial for your father be disregarded if desirable. I sincerely hope, however, that it may be possible to retain this, to me most welcome and appropriate relationship, while at the same time devising a plan by which Mr. Jackson can receive proper recognition.[36]

By April 5, Little could write to friends and colleagues:

> I have had a very satisfactory conference with Mr. Edsel Ford and Mr. Richard Webber, who have assured me that Mrs. Jackson desires to do her part in carrying on the project of a small all the year around laboratory at Bar Harbor.[37]

Writing again to George Dorr:

> It is difficult for me to tell you with what pleasure I am looking forward to the work at Mount Desert; not the least item will be the greater opportunity to see you. If you had heard the appreciation of Mr. Ford and Mr. Webber for your offer concerning a site for the laboratory you would have realized, to some degree at least, the high regard which they have for you and the appreciation of your extremely generous attitude in the matter.[38]

To cement the goodwill of the Jackson, Webber, and Ford families, the new laboratory appropriately would be named in memory of Roscoe Jackson.

Within a month, on May 4, 1929, a corporation was established in the State of Maine with the name The Roscoe B. Jackson Memorial Laboratory. Officers of the corporation were George B. Dorr, William McC. Sawyer, William S. Murray, J. Lovell Little, David O. Rodick, Clarence C. Little, and Luere B. Deasy, with C. C. Little, Murray, and Rodick as directors.[39] As soon as possible, Little added to the board both the past and current presidents of the University of Maine, Colonel F. H. Strickland and Dr. H. S. Boardman, as well as three Boston friends, Harry E. Sutton, Jo F. Gerrity, and Theodore W. Monroe. Lovell Little, C. C.'s brother, drew up the architectural plans, and by June there was a budget of $59,972.00. With some penciled-in additions it came to $61,889.55, not including a healthy $3,686.24 commission for the architect.[40] The final land deed transfer was signed in July, for the price of one dollar to Mr. Dorr,[41] and the building was to be finished by September 15, 1929.

The University of Michigan was still paying the salaries and some of the expenses of Little's Michigan Laboratory of Mammalian Genetics. Research assistants C. V. Green, J. J. Bittner, and A. M. Cloudman, who would later join the laboratory in Bar Harbor, continued their research and graduate degree programs in Ann Arbor. Little's resignation became effective in September 1929. At the same time he assumed the directorship of the newly formed American Society for the Control of Cancer, later to become the American Cancer Society.

The Roscoe B. Jackson Memorial Laboratory

By the summer of 1930 the first "Meeting of Workers" took place at the Roscoe B. Jackson Memorial Laboratory. Among other things, the minutes record:

> Present: Director Little, Drs. W. S. Murray, J. M. Murray, Strong, Bittner, Green, Mr. Cloudman, Miss Fekete, Miss Carter, and Miss Russell.
> Experiments: We should adopt system of telling one another everything we are trying to do.

> Dr. Little will be glad to hear any complaints. . . .It was suggested that each should take his or her turn as guide for visitors at four o'clock. . . .Treat children who come to visit courteously.[42]

Mouse hygiene was a priority from the very start, and from the second meeting onward the "mouse boys," the men who fed the mice and cleaned the cages, attended the weekly meetings.[43] The bulletin board was an important source of general information, and the bud of a library was a weekly discussion point. Mary E. Russell was a thorough secretary, and Dorothy Carter worked tirelessly to find journals and reference works for the scientists and began to post on the bulletin board any references to rat or mouse genetics she found in current scientific literature.[44] In September the first monetary donation was received from Mrs. James Murphy. She had asked to see the laboratory outside the normal hours and, in appreciation, gave $1200 in memory of her brother, Morris Hunt Slater.[45] Next week the minutes of the Meeting of Workers recorded, "It was decided that from now on visitors may be admitted anytime during the day." [46] In October, "It was suggested that it would be a good idea to keep the building locked."[47] By November the minutes included research issues—"Dr. J. M. Murray asked that anyone having surplus fat mice of any color give them to him and Miss Fekete. He told of some interesting findings they made in the fat yellow mice."[48]—and concerns about living facilities for the staff. A letter from John D. Rockefeller, Jr. read:

> Mr. Olmsted has spoken to me of the desire of the Laboratory to obtain a portion of a certain piece of land which I own, across the highway from its main building, to make possible erection of several residences for laboratory workers. When you have decided just how much land you would like, I shall be glad to give the matter consideration.[49]

Frederick Law Olmsted, an old Brookline friend and neighbor of the Little family, successfully negotiated the agreement with Mr. Rockefeller and gave thoughtful advice on potential landscape problems. He also thanked Little for his many worthwhile suggestions regarding the newly designated Acadia National Park.[50] This same year Little married his longtime friend, Beatrice Johnson.

Nineteen-thirty-two was a year of mixed emotional and financial concerns; funds were slowly drying up. Richard Webber, who had met his commitments to the fledgling laboratory after the stock market crash, wrote that he was discontinuing his support in June, but the staff refused to give up.[51] Salaries were cut to the bone, families moved in together to share expenses, vegetable gardens sprouted, fishing became a second job, and Arthur Cloudman suggested selling some of the excess mice to other research laboratories and medical

schools.[52] Dr. Elizabeth Russell would later say, "The Jackson Laboratory was a happy place in those early years despite the financial worries. Prexy's charisma held them together."[53]

The laboratory received intellectual encouragement from several sources, including the British Medical Research Council: ". . . the new method or new clue that has helped to destroy a disease has again and again emerged from studying something outside that particular disease."[54] In replying to George Dike, who had sent the British clipping, Little wrote:

> I have been much interested in getting an extremely favorable reaction on the work here from Dr. J. B. S. Haldane who as you know is one of the most brilliant men in England and is outstanding in the field of genetics. His general sentiment coincided with that expressed [by Sir Fletcher] and his reaction to the work here most favorable. . . . On the whole it seems a slightly grim paradox that in direct proportion with the increasing scientific value of the work and its recognition by contemporary scientists of distinction, support of it has diminished.

Though government grants were not commonplace at this time, Little sent a proposal to the Surgeon General of the United States, Dr. H. S. Cumming. He described in detail the history, assets, staff, and functions of the laboratory, including the most important point, the inbred strains of mice and their significance to medical research.[55] The argument was well made. Cumming immediately telegraphed the requested funds.[56]

Later in the year, *Science* published a paper by the Jackson Laboratory staff.[57] Little had insisted that the entire staff take credit for the work, his work, a landmark piece of research that showed the existence of a non-inherited factor influencing mammary tumors in mice. Two years later, Elizabeth Fekete was the first scientist to successfully transplant fertilized eggs into the uterus of a non-pregnant mouse. The laboratory's research was significant and recognizably relevant to the scientific and medical communities.

By 1937, the laboratory was back on its feet. Elizabeth (Tibby) and Bill Russell, George Snell, and George Woolley had joined the staff. A formal summer student program was in place, and visiting scientists regularly arrived to collaborate and lecture. Funds were limited and economy was always a by-word, but with government funding programs now available (Congress had just passed the first National Cancer Institute Act), with competitive grants from private foundations, and Little's dogged proselytizing, the hardest times were past. There was money for a second research building.

In conjunction with a national publicity drive by the American Cancer Society to educate women about breast cancer, Little wrote *Civilization Against Cancer*.[58] He framed the book as a military campaign, defining the enemy, organizing the army, reviewing the munitions, and developing battle plans. His army at first consisted of the General Federation of Women's Clubs of America, and later a subgroup of the organization, The Women's Field Army Against Cancer. He recognized that some might object to the military analogies, but felt that the campaign should reflect determined activity. He wrote:

> The constant and unavoidable reference to intelligence as a factor of prime importance in the control of cancer is a fact which deserves further emphasis. Under the extremely artificial environment of civilization many of the most effective destroyers of man eliminate the strong and preserve the weak. . . . War is an excellent example. . . . The elements vital in winning the fight against cancer are very marked exceptions. . . . The ignorant, the timid and the superstitious are those who suffer most and yield the larger proportion of advanced cases and death. The alert, courageous and intelligent are those who will seek for the essential information which provides the key which opens the door to safety.[59]

The book's introduction also provided some insight into Little's commitment to the disease: "The loving memory of my own father who was afflicted with the disease, has been a very personal source of motivation."[60]

The 1940s saw several additions to the laboratory campus as well as the Behavior Laboratory set up to study animal behavior in the old Hamilton Horse Farm in Salisbury Cove. Little always maintained his own dogs for both breeding and genetic studies, but the new facility would house dogs, rabbits, and goats specifically for psychological training and behavior modification research. The landmark research, which today is still regarded as the standard work on dog behavior, was for over twenty years generously funded by the Rockefeller Foundation.[61]

The devastating fire in October 1947, that destroyed much of Bar Harbor, caused destruction at the laboratory at a time when its mice were being used all over the world and were in great demand for the study of tropical diseases.[62] Not only were all the research records destroyed, but the very tools of research, the generations of carefully selected and inbred mice, were also gone. Despite what must have at first seemed a mortal blow, Little wrote a lengthy letter to his friends in England, Peter and Lib Gorer:

> After the first stab of pain when I saw the Lab early on the 24th the good wishes and sympathy which came pouring in must have done something to me spiritually that seems to be lasting. There has been not one moment of unhappiness or even of regret—which sounds

> stupid in a way—but which has turned the whole thing from defeat to opportunity and challenge.[63]

An emergency committee was formed by Dr. James Rowland Angell, President Emeritus of Yale, and an old friend of Little's from Harvard days. In a letter to the editor of *The New York Times*, Angell declared:

> Jackson Laboratory has never been endowed. It has never made a public appeal for funds; and it is only in this extreme emergency that it is forced now to ask for help. A million and a half dollars are necessary to rebuild what has been destroyed, and to maintain it for the next five years. . . . We hope earnestly that you will give Jackson Laboratory your editorial support. . . .[64]

It had been Angell who, the day after the fire, called his friend and said, "Come off it, Pete. Don't let it get you. This is a challenge. . . and you're about to experience something great—an adventure in faith!"[65]

In a report made public in May of 1948, Little revealed the extent of public and private support that helped to rebuild the facility. Financial aid came from the American Cancer Society, the Damon Runyon Cancer Fund, Ladies Auxiliary of Veterans of Foreign Wars, the National Cancer Institute, the Jackson and Webber families, local divisions of the American Cancer Society, the Rockefeller Foundation, and many, many ordinary citizens. Not only did thirty research laboratories from around the world respond with stocks of replacement mice, but there was a commitment from the National Cancer Institute and the National Research Council that the Jackson Laboratory was vital to the well-being of scientific research in the United States and Canada.[66]

Additional acres were donated by John D. Rockefeller, Jr. at the rededication ceremonies in 1950, and the Garden Club of Mount Desert Island used its revenue from garden tours for grading and planting shrubs around the new buildings.[67] A grateful C. C. Little spoke for the entire staff when he said, "We have been and are, deeply appreciative to the attitude of the local community and the country at large."[68]

By the time of the fire the laboratory and its employees were an integral part of Mount Desert Island, and though the landscape and the population were altered in many ways, the indomitable spirit of C. C. Little never faltered. His logic for rebuilding had been as sound as his enthusiasm. Speaking at the National Cancer Institute, he said:

> The program of the laboratory must be located where work can be carried on all the year around without interruption . . . . Out of door recreation both for young and old is a continuing part of daily life

> [here]. . . . There is no pressure to maintain a social or economic standard. . . .relaxation and freedom from complexities in daily living conditions is a tremendous factor in freeing the mind for concentration on the major objective, namely research.

Characterizing the general staff, he added:

> They possess a mixture of independence and loyalty which is known to characterize natives of that part of the United States and which in intangible but very real ways pays dividends not to be derived from people who consider their work merely a job. . . .

But his main argument remained:

> There were also very real factors of a spiritual nature to be considered; namely, the association in the minds of scientists and others between Jackson Laboratory and its present location, the effect on morale of retreating under pressure from a position taken years ago for reasons which still seemed good, and above all, the success of the sociological experiment of developing a colony of persons pledged to the accomplishment of a single objective with a common interest free from entanglement with the large, annoying and harassing problems of congested materialism. For these reasons the resident trustees [scientists], supported by oral and written opinions of a majority of the Board, and by the unsolicited reactions of a number of outstanding scientists and laymen, voted unanimously to develop the laboratory in Bar Harbor.[69]

Could the laboratory have relocated closer to a university, nearer to a transportation hub, or in a more temperate climate? While some may still pine for a little more civilization and a longer growing season, The Jackson Laboratory's reputation today suggests he was right.

For eight years after the fire until he retired at the age of 68, Little traveled across the country speaking to women's clubs, service organizations, legislatures, medical symposia, and international conferences about the scourge of cancer and the scientific tools (inbred strains of mice) for research. He wrote for popular magazines, inspirational pamphlets, and scientific journals with the same enthusiasm he had for living.[70]

Visionary and Opportunist

There is no doubt that C. C. Little was a man of forceful intellect with many interests, not the least of which was his commitment to reforming the traditions of education in the United States. His research was the work of a trained and

focused mind, in other words, a curiosity tempered with discipline. He recognized the immense value of inbred strains of mice for research into human diseases, and he provided an environment that encouraged other scientists to focus on pioneering work.

But perhaps some of Little's views on eugenics, the betterment of the race through active social policies, today seem to conflict with his adherence to democratic principles and universal respect for all men and women. He wrote, "Humanity and people are the solution of any nation's problems. The quality of people determines the outcome."[71] Should we wonder about which human qualities Little admired? When he wrote *The Social Significance of Cancer* in 1937, Little implied that non-communicable disease had a social dimension, and that perhaps intelligence and personal character influenced the onset of cancer. He wrote, "As a factor in psychology, therefore, the threat of cancer has under certain circumstances, a positive selection value not to be ignored at a time when almost all other social influences are operating to the discouragement of individual responsibility and initiative."[72] In hindsight we can wonder why he refused to see the direct connection between cigarette smoking and cancer.[73]

Little advocated euthanasia and he criticized organized religion, yet he felt that faith was an integral part of life.[74] Though he remained active in the Episcopal Church,[75] he could write, "The primitive and spiritual immaturity of the emotionalism which gave birth to, and has fostered our present religious behavior, is daily becoming more clear."[76] And despite the various trials and contradictions of his personal life, he nevertheless enjoyed lasting friendships with all strata of society, and he knew the names of all the laboratory employees and their family members.[77]

In the 45th Anniversary Annual of Harvard Alumni, Clarence Cook Little, Class of 1910, wrote:

> The opportunity to have had a part in its [TJL] birth and by faith and support of friends, to have seen it pass from infancy and childhood to full service has been a very wonderful experience. For this, many of you, my classmates, have given understanding and support. If you realize the good that you have accomplished in helping to establish for all time the appreciation and availability of standardized animal material for medical research you will realize that the laboratory motto "Veritatem Quaero" is a confession of our continuing faith in and love for the greater "Veritas" which we have tried to honor.[78]

The titles and accolades cited by Mrs. Thorndike, as she introduced Clarence Little in 1965, described the consequences of a successful and rewarding life, but they also described the personal achievements of a man for whom there

would be only one truly great legacy—The Jackson Laboratory. At the end of his speech to the Bar Harbor audience he said:

> God has given me a chance to do an awful lot of progress on the trail towards truth. [It is] a profound reality that I have been a privileged person, and from the support of friends I know I have a debt that I can't repay. . . . The Jackson Laboratory is now an essential part of medical progress and research. There isn't anything better than this in the world.[79]

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Notes

Two main sources provided the documentation for this paper: the Clarence Cook Little Collection in the Special Collections of the Fogler Library at the University of Maine (UMO), and Papers of Clarence Cook Little (1888-1972) in The Jackson Laboratory Archives (TJLA). The finding aid prepared by Mary Arnheim for the Clarence Cook Little Papers in the Bentley Library at the University of Michigan was also useful, and correspondence with Robert Little, Dr. Little's son, helped to clarify certain points.

[1] Audiocassette, 1965. Received from Sam Little, C. C. Little's grandson (TJLA).
[2] C. C. Little, audiocassette, 1965.
[3] Clyde Keeler, "How It All Began," an address to the University of Georgia, in which he quotes Dean W. M. Wheeler of Harvard pronouncing genetics "the dry rot of our academic biology," and yet "Professor Parker perservered." Parker was Little's professor (TJLA).
[4] Little, audiocassette.
[5] Notice for Experimental Biology class (UMO).
[6] Little,audiocassette.
[7] Secretary to the Harvard Corporation, 1910-15; Assistant Dean of Harvard College, 1915-17.
[8] Little to Professor George H. Shull, refusing to help with writing abstracts for a new journal, 9 July 1918 (UMO).
[9] Little to W. T. Bovie, Professor of Biophysics, Harvard Medical School, 13 July 1918 (UMO).
[10] Little to Professor E. E. Tyzzer, 12 November 1918 (UMO).
[11] Little to the Editor of the *Harvard Bulletin*, 1918 (UMO).
[12] Little to the Editor of the *Harvard Bulletin*, 1922 (UMO).
[13] *Kennebec Journal*, 20 July 1923 (UMO).
[14] An accepted slang for president of a college or university.
[15] C. C. Little, *University of Maine Annual Report*, (1922-23), 4 (UMO).
[16] *Kennebec Journal*, 20 July 1923 (UMO).
[17] Little,*University of Maine Annual Report*, (1924-25), 12-13 (UMO).
[18] Ibid., 14.
[19] The terms station and laboratory were used interchangeably.

[20] Little, *University of Maine Annual Report*, (1924-25), 16 (UMO). There were two cabins, one to house female students and one for a laboratory, with tent platforms for the male students.
[21] Little, *University of Maine Annual Report*, (1925-26), 28 (UMO).
[22] The Webbers and Jackson were executives of the J. L. Hudson Company and Hudson Motor Car Company; Ford was Vice President of Ford Motor Company.
[23] Roscoe B. Jackson, President of Hudson Motor Car Company, Detroit, Michigan, to C. C. Little, President of the University of Maine, 1924 (UMO).
[24] Little to Colonel Howard Strickland, 1 July 1925 (UMO).
[25] Ibid.
[26] *The Michigan Alumnus*, 35, no. 16, 26 January 1929 (UMO).
[27] Unidentified newspaper article (UMO).
[28] Thomas Hunt Morgan to Little, 29 April 1928 (UMO).
[29] W. Sprague Holden, "Memories of Late University President" *Detroit Free Press*, May 1972 (TJLA).
[30] Little, *The Awakening College*, (New York: W.W. Norton Press, 1930), 171. "Three would-be pseudo-professions that make an amusing trio of strange bedfellows...home economics, divinity, and journalism." (UMO).
[31] Ibid.,178.
[32] Jackson to Little, 23 January 1929 (UMO).
[33] Little to Dr. H. C. Bumpus, Chairman, Board of Trustees, Mount Desert Island Biological Laboratory, 4 February 1929 (UMO).
[34] Little to Jackson, 11 February 1929 (UMO).
[35] Jackson to Little, 13 February 1929 (UMO).
[36] Little to George B. Dorr, Superintendent of Acadia National Park, 28 March 1929 (UMO).
[37] Little to H. V. Neal, fellow trustee of MDIBL and professor of biology at Tufts (UMO).
[38] Little to Dorr, 13 June 1929 (UMO).
[39] Attorney D. O. Rodick, Judge L. B. Deasey, and George B. Dorr were prominent Bar Harbor residents; W. McC. Sawyer was a Bangor business leader; and W. Murray was a professor at the University of Maine.
[40] Lovell and Russell, Boston. Contract with J. Lovell Little, architect, 1 June 1929 (UMO).
[41] State of Maine deed of transfer from George B. Dorr to Roscoe B. Jackson Memorial Laboratory (TJLA).
[42] Roscoe B. Jackson Memorial Laboratory Minutes of the Meeting of Workers, 8 July 1930 (UMO).
[43] Robert Follette, Byron MacPheters, Asa Underwood, and a Mr. Wheeler. Minutes of the Meeting of Workers, 14 July 1930 (UMO).
[44] Minutes of the Meeting of Workers, 2 August 1930 (UMO).
[45] Ibid.
[46] Minutes of the Meeting of Workers, 15 August 1930 (UMO).
[47] Minutes of the Meeting of Workers, 13 October 1930 (UMO).
[48] Minutes of the Meeting of Workers, 17 November 1930 (UMO).
[49] J. D. Rockefeller, Jr. to Little, 9 January 1931 (UMO).
[50] Frederick Law Olmsted, Olmsted Brothers Landscape Architects, to Little, 26 January 1931 (UMO).
[51] Richard Webber to Little, n.d. (UMO).
[52] From an interview with Mrs. Dorothy Cloudman Warriner, June 1997.
[53] Elizabeth S. Russell, "Origins and History of Mouse Inbred Strains," 1954, 9 (TJLA).
[54] Sir Walter Morley Fletcher, "Money Wasted in Medical Research," *Literary Digest* clipping included in a letter from George P. Dike, Boston, 7 October 1932 (UMO).
[55] Little to H.S. Cumming, 19 June 1933 (UMO).

[56] H. S. Cumming to Little, including $12,000, 22 June 1933 (UMO).
[57] *Science*, 78, 465-466.
[58] Little, *Civilization Against Cancer,* (New York: Farrar & Rinehart, Inc., 1939).
[59] Ibid., 110-111.
[60] Ibid., vi.
[61] John L. Fuller and J. Paul Scott, *The Social Behavior of Dogs*, (Chicago: University of Chicago Press, 1964). (This book is now in its sixth edition, most recently, 1998.)
[62] Mice were used in research into the causes and cures of tropical diseases that were devastating the Allied troops in the Pacific theater during World War II.
[63] Little to Peter and Elizabeth (Lib) Gorer, January 1948. Dr. Gorer was an eminent British scientist who spent two years at the laboratory working with George Snell on histocompatability studies. Had he lived, he very likely would have shared the Nobel Prize with Snell. He married Elizabeth Keucher from Northeast Harbor, Little's secretary and librarian for many years. (TJLA).
[64] James R. Angell to Miss Dorothy Day, editorial page editor of *The New York Times*, 1948 (UMO).
[65] James R. Angell to Little, October 1947 (UMO).
[66] Little in a speech to the National Cancer Institute, May 1948 (UMO).
[67] *Bangor Daily News*, 14 September 1950 (UMO).
[68] *Bangor Daily News*, 1 February 1950 (UMO).
[69] Little in a speech to the National Cancer Institute, 1950 (UMO).
[70] In 1956, C. C. Little published *The Inheritance of Coat Color in Dogs*, Comstock Press, Ithaca, New York. He continued to be a very popular dog show judge.
[71] *Daily Tribune*, 10 July 1936 (UMO).
[72] Little, "The Social Significance of Cancer," *Occasional Publications of the American Association for the Advancement of Science*, 4, (New York: The Science Press, 1937), 245.
[73] The first report to Congress by the Surgeon General of the United States regarding the causal links of cigarette smoking to cancer was in 1964.
[74] Little, "What of Death?" unpublished manuscript, 7, 1949 (UMO).
[75] In 1976, Susan Dunlap created a stained glass window for St. Saviour's Episcopal Church dedicated to the memory of C. C. Little. It was commissioned by the family of scientists at The Jackson Laboratory and the parishioners of St. Saviour's, where Little had been Senior Warden for twenty years.
[76] Little, "The Social Significance of Cancer," 243.
[77] From an interview with Elizabeth Keucher Gorer.
[78] Little, *45th Anniversary Alumni Bulletin, Harvard College*, (1955), 135. "Veritatem Quaero" translates as "I search for truth." Margaret Dickie translated it as "Everlasting Search for Truth" on the crest she designed for the laboratory (UMO).
[79] Little, audiocassette.