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FRED DAYTON LAMBERT

CLARENCE HINCKLEY KNOWLTON

*(With portrait)*

ON Saturday morning, February 21, 1931, Fred Dayton Lambert died quietly, seated at his office table, at Tufts College.

Dr. Lambert was born in Muscatine, Iowa, October 28, 1871, the son of Daniel M. Lambert and Ellen (Scudder) Lambert. He had a perfectly natural boyhood in a Mississippi river town. He described his youthful experiences there as closely parallel to those of Tom Sawyer and Huckleberry Finn. He swam in the river, angled for catfish, built and navigated rafts, hunted game and did all the other things which were interesting to boys in those days. He always declared that no man could have had a more perfect boyhood.

After graduating from high school he came east and entered Tufts College. He was poorly prepared, and hardly knew what college was for at first, but he observed everyone and everything, read profusely, participated in athletics, and was generally active. His class standing was so poor, however, that he was very nearly dropped from college. He often said jokingly that if he had not come from such a distance he would have been dropped at once, but that Iowa looked well in the college catalogue, and so he was allowed to remain and prove his ability. His second year started in much the same way, till Professor John Stirling Kingsley of the Biological Department discovered that the young lad could draw, and set him to work. From this time on young Lambert developed an ever-increasing interest in science, especially biology, with a happy effect on his academic standing, for he graduated as a member of Phi Beta Kappa



in 1894. Many a luckless freshman in after years was saved for a time at least by this example of Lambert. The question of dropping the student would come up in faculty meeting, and after discussion of the case some one was sure to remark, "There was Lambert's case, too. Why not give the boy another chance?"

Lambert had become a laboratory assistant before his undergraduate days were over, and he continued in this work while he was getting his Master's and Doctor's degrees, the latter being conferred on him in 1897. Following this he taught science in Edward Little High School at Auburn, Maine. Except for one lone sabbatical year this was his only year away from Tufts College. He had made himself so useful to Professor Kingsley and others that he was wanted again at his Alma Mater, and he returned there as instructor in Natural History. Promoted from time to time he became Professor of Botany in 1913, a position he held to the end.

In 1903 Professor Lambert was married to Mary Anna Ingalls of Auburn, Maine. She had been one of his students in biology at Tufts, where she graduated, and had full appreciation of his problems. They had one daughter, Elizabeth Allen, who inherits her father's gift for drawing, and is now a student at the School of the Museum of Fine Arts in Boston. The home life was very happy. The good professor's whimsicalities had full play here, a blessed relief from class-room routine. Both the Lamberts were intensely interested in the college life about them, and the Professor liked to feel that the home was a part of his equipment as a teacher, an additional means for friendly contacts with his students. As Mrs. Lambert says, "He often said he wanted to be able always to send a student to his home at the necessary psychological moment, and to feel sure that the student would find some one there to welcome him or her. He was never so happy as when he was the genial host at his own fireside to hungry boys and girls away from home. Only the limitation of a small salary saved his home from becoming a clubhouse. Many a graduate in after years has said 'I shall never forget photosynthesis and respiration—and the good meals at your home.'" Another original way in which he helped students was by the gift of certain secondhand books, which he kept till the right moment, when the student was ready for just that sort of inspiration.

For Professor Lambert was fated to be a teacher. Caught in a rapidly growing small college, with increasing throngs of "good



students, poor students and pre-medics." there was little chance for research, but an ever-increasing burden of lectures, quizzes and examinations. And he rose nobly to these obligations. He never wrote out his lectures, but varied them from year to year, watching the reactions and interests of his classes. He was stimulating, interesting, amusing, popular in the right sense of the word, and he laid a good foundation for further work in his science, as those of his students who have gone on to graduate work have discovered.

His first qualification for successful teaching was an abiding and ever-increasing love of his subject. Although he had taught the elementary facts of botany and biology to class after class he never lost his zeal and interest in presenting them to new groups of young people. The secret of his perpetual zest in the personal enjoyment of his subject lay in his strong sense of the dramatic. All the processes of nature were to him each day a wonderful new performance, the like of which had never been imagined or seen before. He studied constantly to perfect his teaching technique, to make his material vivid and comprehensible, for each student was to him as much of a marvel as a plant or any other organism, and was therefore deserving of his best energies.

Another outstanding qualification was his ability to draw. He was rather skeptical about the pedagogical value of lantern slides, but blackboard drawings were his specialty. As one of his recent assistants, Mr. Kendall W. Foster, has written me, "Whenever he wished to drive home an important yet complicated life history he always used colored chalk. Never pausing in his talk he would draw step by step clear-cut diagrams to illustrate the important structures, magnifying certain parts, and drawing and showing by guide-lines and pointing hands how each diagram was related to the preceding one. All the parts of these drawings he labelled beautifully with printing which all his students emulated but never excelled. The homologous structures were shaded in like colors, and at the end of the lecture the whole story was before the student on the blackboards. Beautifully executed colored charts pertinent to the subject hung in profusion not only in the lecture room but in the laboratory, and were mute witnesses to days of painstaking labor on the part of the professor."

Dr. Lambert's interest in the laboratory was another index of success. He always planned to be present during the laboratory



period himself, no matter how many assistants he had. Here also he emphasized correct drawing as the best way to ensure accurate painstaking observation. If a student saw the thing correctly, he would draw it correctly and remember it afterward, in its right relations. He insisted on proper focussing of the microscope as the prime essential before observations were made. His presence in the laboratory made it possible for him to supervise the work, as well as to exert a wonderful personal influence on the students themselves. In his class record-book was written this quotation from Emerson, "I am impressed with the fact that the greatest thing a human soul ever does in this world is to see something and tell what it saw, in a plain way. Hundreds of people can talk for one who can think, but thousands can think for one who can see. To see clearly is poetry, philosophy and religion in one."

We might speak of Dr. Lambert as dynamic, but he was more than that—he was a living human dynamo. This is shown especially in the apt analogies he selected to make difficult points vivid. To quote again from Mr. Foster, "When the students were studying the plant cell they were given among other material the inner epidermis of the onion bulb scale. These cells show but slight differences in the indices of refraction of their parts, and require careful study on the part of the elementary student if he is to visualize correctly the proportions and relations of their parts. Dr. Lambert, in order to emphasize the thinness of the layer of cytoplasm, would compare the cell to the laboratory room; the brick wall, ceiling and floor representing the walls of a cell, the air within the room representing the contents of the cell vacuole, and the coat of paint on the wall representing the cytoplasm. His descriptions were always acted out while he was talking. He would dip an imaginary brush in an imaginary bucket of paint and wave it over the walls as he talked about the paint on the walls being comparable in relative thickness to the layer of streaming cytoplasm in the onion cell. In studying the root of the radish seedling, the relation of the root-hair to the epidermal cell of the root seems hard for the average student to grasp. At the proper time Dr. Lambert would ask the class to rest their eyes for a moment, and then would tell them that the root-hair and epidermal cell were related to one another much as the laboratory room was related to the long corridor which opened into one side of it. While talking he would walk around the room and tell them he was in the



vacuole of the epidermal cell and could pass out into the corridor without obstruction just as any portion of the cell sap of the epidermal cell could pass out into the root-hair. He would often tell the class that when he was studying a plant cell under the microscope he always imagined himself inside of it, feeling of the cytoplasm, grasping hold of the nucleus, and pulling at the cytoplasm to see if it would stretch."

With such unusual and effective ways of presenting his subject matter, it is not strange that his examinations and tests were also unique. Mere learning and reciting did not satisfy the Professor unless the student grasped the underlying principles and relationships. After lecturing on the various transformations of energy involved in plant and animal physiology he would ask the question, "What relation, if any, does energy bear to the writing of this examination? Discuss." He would expect the student to get the point that sunlight furnishes the energy, etc. Another favorite question was "What is the relation between chlorophyll and chloroplast?" As each laboratory period closed with a short quiz, there was opportunity for many of these "think" questions, as Dr. Lambert called them. During the last year of his teaching one of his elementary students bewailed to the Dean that she could not excel in answering this type of question. "But," she admitted, "the Professor is always fair." More than this he was friendly, enthusiastic, inspirational, with deep human interest in his students and in his friends.

In recommending students for graduate work, Professor Lambert was not satisfied with clear seeing and correct delineation, important as he rated them in his laboratory work. He felt that the student must have imagination and the right background of inheritance to make a success in advanced biological research. He showed equal care when he was asked for advice in the choice of other vocations.

No story of his life would be complete without an account of his summers at South Harpswell, Maine. Dr. Kingsley, his senior at Tufts, was early imbued with a desire to start a biological station for research somewhere north of Woods Hole, as a means of stimulating graduate work in zoology and botany. So, in 1898, Dr. Lambert was sent out scouting for a suitable location, not too far from large towns, but close by the sea, and with fishermen living near to co-operate in bringing in marine material. Such a place was soon found at South Harpswell. Dr. Lambert won the confidence of the



local people by his genial, open-hearted ways, and when the little group of biological students arrived somewhat later they were received most cordially by the villagers. The station was carried on for some years by Tufts College, but in order to get more support it seemed best to incorporate it separately and in 1921 it was moved to Mt. Desert, where it still exists as the Mt. Desert Island Biological Laboratory.

Dr. and Mrs. Lambert had formed so many ties with South Harpswell that they continued to make it their summer home. Here the genial Doctor was able to relax, wear old clothes, live in the open, build up his health and fraternize with the village people. As his friend, Mr. Charles Bullard, has written me, "Here it was that his human and democratic side could be seen to advantage. His sympathies and helpfulness were much appreciated among the fisher folk. He was friend to all of them who lived about the cove at the camp." The relationship grew to mutual advantage in the course of time, for Dr. Lambert set up a laboratory of his own, where he prepared material for his teaching, and for other institutions as well. Inexhaustible supplies of marine life were brought in by the fishermen in perfectly fresh condition for the most delicate research, and were preserved for shipment to many different laboratories. A favorite pastime with the good Doctor was to jest with the fishermen, already considerably mystified, about the purposes for which this material was intended, and about the immense profits in the business.

The first few years the camp was in tents, and meals were eaten outdoors. Then a small and comfortable cabin was built, and some time later a small laboratory, with plenty of north light, was made for microscopic work, especially for studies on the green algae. This proved a great convenience.

The greatest friendship of Dr. Lambert's life was that with Frank Shipley Collins, who came to the Laboratory at South Harpswell for the purpose of using it as a center from which to collect the marine algae of Casco Bay. Each was a man with great charm of personality; together they complemented each other, and a perfect friendship was the result. Mr. Collins interested Dr. Lambert in the green algae, and for years many happy hours were spent together in study, especially while Mr. Collins was preparing his work on the group. The drawings for this, with the exception of two by Dr. Kingsley, were prepared by Dr. Lambert. The sudden death of Mr. Collins



in 1920 was a great blow, and led to many changes in the life at South Harpswell, where a visit from Mr. Collins was a regular event, as well as at the winter home, for every holiday and week-end was usually spent by the two men in the study of algae.

In 1910-1911 Dr. Lambert had leave of absence, and went to Europe with Mrs. Lambert. He went first to the University of Freiburg, where at the suggestion of Mr. Collins he studied the green algae for five months with Friedrich Oltmanns. The pride of Dr. Lambert's life was a paper "On the Structure and Development of *Prasinocladus*" prepared at the invitation of Dr. Hans Kniep, and published in 1930 in *Zeitschrift für Botanik*, Dr. Oltmanns' Festschrift number. The following five months were spent most enjoyably at the Naples Zoological Station in Italy, also in research on the green algae. It was here that he made the studies for the paper on *Prasinocladus*.

Dr. Lambert was a member of the Botanical Society of America, the American Association for the Advancement of Science, the American Academy of Arts and Sciences, the Boston Society of Natural History, and he had a lifelong interest in his college fraternity, Delta Tau Delta. In 1905 he was elected a member of the New England Botanical Club, an association which proved most congenial to him. Even after failing health caused him to give up other outside activities, he kept an active interest in this Club, and attended his last meeting the very month of his death. He served for three years as President, and held other offices, but his most conspicuous service to the Club was his twenty-four years as a member of the program committee. He looked on the Club as a sort of clearing-house for all New England botanists, and while not overlooking or undervaluing local talent, he kept a keen eye out for speakers who represented colleges and institutions outside the Boston district. He would write a most delightfully persuasive letter to some non-resident botanist, follow it up with two or three more, and almost always he secured his program speaker. He sought also to have the program well-balanced, with papers on cryptogams as well as on the flowering plants, and not neglecting plant physiology, plant pathology, ecology and other branches of botanical science. After an address, he felt out the sentiment of each meeting, to see if the committee had been wise in its choice of a topic or speaker. His rich and varied experience was a most valuable aid to this work of the Club.



When a man so full of enthusiasm, so essentially vital in every detail of his personality, is taken away, the inadequacy of words becomes manifest. Such a man was Fred Dayton Lambert, professor, scholar, man among men. He was a helper and inspirer of youth, a matchless friend among his peers.

HINGHAM, MASSACHUSETTS.

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## NOTES ON THE FLORA OF THE MATAMEK RIVER DISTRICT, "NORTH SHORE," QUEBEC, CANADA

PAUL W. BOWMAN

THE Matamek River is a comparatively small stream which empties into the Gulf of St. Lawrence about ten miles east of the mouth of the Moisie River, at a point about three hundred and fifty miles northeast of the city of Quebec. It was the writer's privilege to spend the summer of 1927 on the North Shore at this place. During that time a collection of vascular plants was made which has since been identified and deposited in the Gray Herbarium.<sup>1</sup>

A number of these are not included in St. John's<sup>2</sup> list of the plants of the North Shore and as far as we know none have been collected before from this particular location, so it seems worth while to publish this list with notes on items of particular interest.

Our party left Quebec by the Steamer "North Shore" in the morning of the fifteenth of June and landed at the Matamek in the morning of the seventeenth. We were immediately impressed with the lateness of the season. The air was cold and the vegetation was still dormant. The alders did not bloom until several days after our arrival. The conifers shed their pollen on the third and fourth of July.

Reliable data on the question of pollen distribution by wind are not easy to get so we were quite interested to find that the "dust" which covered the water of the Gulf near the north shore on the twentieth of June consisted of spruce, pine and fir pollen. No other kinds were seen. As these trees did not shed their pollen on our side

<sup>1</sup> A second set of these plants, not quite complete, has been deposited in the National Herbarium and the rest in the Herbarium of The George Washington University.

<sup>2</sup> *A Botanical Exploration of the North Shore of the Gulf of St. Lawrence Including an Annotated List of the Species of Vascular Plants* by HAROLD ST. JOHN. Canada Department of Mines Memoir 126, No. 4 Biological Series. Ottawa, 1922.





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