In Memoriam: George Frederick Laidlaw
(1871-1937)

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George Frederick Laidlaw, the man in whose memory your president has asked me to speak, was in many respects an uncommon individual. You will realize this when I tell you that all of the effective research which he accomplished was done during the last ten of his sixty-six years of life. It is indeed only the exceptional man who, after a long and busy career, can retire from the occupation of a lifetime and engage in investigation in an unrelated field with such success that his accomplishments therein form permanent contributions to the body of knowledge.

He was born June 26, 1871, in Jersey City and graduated from the New York Homeopathic College in 1890. Although he had a great interest in pathology at this time, he could obtain no position which would enable him to pursue this subject and pay enough to support himself and his family and so he turned to the general practice of medicine. In this he was successful. He developed a good practice and later specialized in cardiology. During these years he did not allow his mind to lie fallow. Some twenty publications show that he was thinking about the problems raised by his patients and that he was able to make suggestions for answering them. The subjects dealt with are various but concern chiefly tuberculosis and cardiovascular disease.

About 1920, when he was forty-nine years old, an event occurred which was to change the whole scope and tenor of his life. He discovered that he had papillary growths in his bladder. During the next few years he was fulgurated several times and underwent two operations. This forced him to withdraw from active practice. He still had an interest in cardiology and occupied some of this time translating from the French, Vaquez “Diseases of the Heart,” which he regarded as the finest work on the subject. This was published by Saunders in 1924.

But when this was done he determined to devote the rest of his life to the study of cancer since he himself had been attacked by it. His familial and financial responsibilities were lessened so that he could devote all of his energies to this new undertaking. His first step was to visit a number of different laboratories abroad and learn what he could from their directors. He spent time with Cajal, Nageotte, Roussy and many others and finally came to the conclusion that Pierre Masson, the French pathologist of Strasbourg, was the master in histopathology and, as he always sought the best in everything, he determined to study with Masson. The story of the relationship of these two men is graphically recounted by Masson in a letter which I shall read to you shortly. Suffice it to say now that Laidlaw did study with Masson when the latter first came to Montreal and absorbed the details of his technical procedures and his conceptions of nevi, glomus tumors, appendiceal neuromas and other peripheral nervous structures. As a result of his work with Masson and his visits to other laboratories he came to the conclusion that the relationship between nervous activity and cancer deserved more investigation and he wanted to begin by studying the skin lesions and tumors of von Recklinghausen's disease.

He was eager to discover some laboratory where he might find a place to work and material to work with. This led him to Wilder Penfield who had recently worked with del Rio Hortega and had established a laboratory of neurocytology at the Presbyterian Hospital, in New York. Penfield said that if he was going to push the study of neurofibromas it would be necessary to have a really adequate connective tissue stain that would demonstrate reticulin fibers well and suggested that he try to develop one. This work was carried on throughout the latter half of 1927 and the beginning of 1928 in Penfield’s laboratory and through 1928 in the Columbia University Laboratory of Surgical Pathology to which he allied himself when Penfield went to Montreal. The result of this investigation was published in May 1929, in the American Journal of Pathology, and the Comptes Rendus de la Société de biologie in France and is now spoken of as...
the Laidlaw stain. Not only is it an excellent method of staining collagen and reticulin but the sharp eyes of Laidlaw noticed that after formol or Bouin fixation epithelial cells were stained, whereas those of connective tissues were not. It was hoped that this might serve to distinguish these tissues one from the other not only under normal circumstances but also in tumors. Further experience with the stain has shown, however, that there are too many variations with undifferentiated tumor cells to make it a reliable method.

Laidlaw next used this stain to demonstrate the endoneurial sheath of reticulin fibers which forms a meshwork about the cerebral and spinal nerves beginning at the exact point where they emerge from the brain and cord. This sheath was first described by Plenk in 1927, but Laidlaw's demonstration of its exact structural composition has led some writers to refer to it as the Plenk-Laidlaw sheath. This work was published in the same two American and French journals in 1930.

Laidlaw next turned his attention to melanin. During 1932, 1933 and 1934, a series of papers were published dealing with Bloch's dopa reaction for which he worked out a simplified and reliable technic and with the distribution of melanin in health and disease, and culminating in his theory of pigmented moles. He came to the conclusion that "the pigmented hairy mole appears to be a link or transition from pigmented tactile organs of the reptilian type to hairy tactile organs of the mammalian type. In its hair follicles it is mammalian, in its pigmentation, elevation and in the groups of innervated tactile cells in the corium it follows the amphibian-reptilian pattern." This work necessitated the staining of axis cylinders and he did an enormous amount of experimental work trying to develop a reliable technic for use after ordinary fixatives and paraffin embedding. He modified the Gros and the Rogers technics, as well as many others, but never achieved consistent success. The only entirely reliable method in use in our laboratory at the present time is the modification of Cajal's impregnation method after chloral hydrate fixation, which was developed by Dr. and Mrs. Laidlaw and has never been published.

His last work concerned itself with the granules in the islet cells of the pancreas. It happened that a whole series of islet cell tumors were removed by Whipple during 1934 and 1935, and his interest was aroused in trying to develop a reliable differential stain for them. He tried all of the different methods with many modifications but was never satisfied with the results. He left behind him an almost completed manuscript on the histopathology of these tumors which Mrs. Laidlaw and I have prepared for publication.

Late in 1935, the tumor which had remained localized for so many years finally manifested itself in his pelvic bones. It was obvious to all of us that it was the beginning of the end but he never accepted it. He would never admit to himself that this was the spread of a cancer but continued his work and laid plans for future work until he was no longer able to remain upright. Even when confined to bed his mind continued its activity until he died on June 22, 1937.

George Laidlaw worked beside me in the Surgical Pathology Laboratory of Columbia University for the last nine years of his life. No young man with the vigor and energy of youth ever surpassed him in devotion, enthusiasm or productivity. He was a constant stimulant to his associates, a pleasant and inspiring companion, a valued friend. His place in our laboratory cannot be filled.

I shall close this memorial notice with two quotations: Writing to me about Dr. Laidlaw, Wilder Penfield said: "I shall never again say that a man is too old to take up new work . . . After knowing Laidlaw it seems to me that the only disadvantage in starting a new technical problem as one approaches sixty is that his life span is too short. I am sorry that Laidlaw could not have had fifty years in which to satisfy his enthusiastic craving for new knowledge." The second quotation is the following letter received from Professor Pierre Masson in response to a request that he write something which I might read at this meeting:

(Translation from the French approved by Professor Masson).

My dear Colleague:

Our friend, G. F. Laidlaw, has held such a large place in my life these past ten years that I gladly accept your invitation.

He was a well rounded man, and there is no better way of portraying him than to tell the story of his relations with me.

In the middle of December, 1926, at the moment when I was leaving the Pathological Institute at Strasbourg for the last time, an unknown man passed me at the threshold and, addressing himself to the doorkeeper, made known to him his wish to see me. I turned around and told him I was the person he sought. Then the following conversation took place:

"Ah, you are Professor Masson. I am George
Laidlaw, and I have come to ask you for a place in your laboratory."

"You come at an unfortunate moment," I replied; "I am leaving for Paris and Montreal."

"For how long?"

"I don't know, for years probably. But you are welcome to stay here. My substitute will certainly give you the place you want."

"Not at all," he said to me. "It is with you that I wish to work. Since you are going to Montreal, I will go there also if you can find a place for me."

A little surprised—one would be that at least—I put several questions to Laidlaw. "But why are you so anxious to work with me? There are other pathologists."

Then, briefly, Laidlaw told me his story. "I am a practicing physician in New York or, rather, I was. I was even a specialist in cardiology; I am the one who translated the treatise of Vaquez into English. One month ago I learned I had a cancer of the bladder. I said to myself: 'Since I must die of cancer, I want to spend my last days investigating cancer.' I have given up my practice. I have read your book on Tumors and your article about the Naevi. I have decided to study the Naevi with you. I had my bladder fulgurated. I took the first boat, and here I am. But since you are leaving, I will rejoin you in a month in Montreal."

"Very well," I replied, "I'll see you then."

The whole conversation did not last five minutes and took place on the sidewalk in front of the Pathological Institute at Strasbourg. We parted after a vigorous handshake.

A fortnight afterwards I was beginning to get settled in Montreal. Upon his return to New York Laidlaw wrote to ask me if he might come at the agreed time. Upon receiving my reply in the affirmative, he arrived, bringing a superb microscope, and he remained five months in my laboratory.

He was a beginner, and I confess that his intention of introducing himself to the histology of tumors by beginning with the study of the Naevi both astonished and disturbed me. My astonishment soon changed into admiration.

At this time Laidlaw was long past his fiftieth year. Never have I encountered a younger or more comprehensive mind. Arising at five o'clock in the morning, he read until eight. At nine o'clock he came to the laboratory and did not leave it until six o'clock in the evening.

Not only did he study my sections of Naevi but he understood them. He began to acquire technique and learned normal and pathological histology with a disconcerting rapidity and exactness.

Never have I seen such a hunger to learn.

We talked of nothing but tumors. Laidlaw was not only an enthusiastic beginner in histology. He was a remarkable physician, a scholar, a man of letters. The French and German classics had no secrets for him. Goethe was his favorite author. I really believe that he knew 'Faust' by heart. He quoted long passages from it on appropriate occasions.

And he was above all a friend. Many times he came to see me, many times he welcomed me in New York. He had given me his friendship and smilingly called himself 'Masson's Ambassador to the United States'. Not only did he introduce me to his friends among the pathologists of New York, but he himself translated the papers which I sent to American journals and he did it with such care and devotion that he never made a single mistake. If my American colleagues know me, it is to him that I owe it.

Laidlaw was my friend, a genuine, affectionate, disinterested friend. His feelings for me have always filled me with legitimate pride and profound gratitude.

In 1926, believing himself condemned, Laidlaw suddenly changed the whole orientation of his career. Death waited eleven years for him. During this respite, reverses and troubles assailed him without disturbing his optimism and his love for Science. During the last months of his life, when his illness, reawkakened, definitely confined him to his bed, he wrote to me still and finally had Mrs. Laidlaw write me letters full of courageous serenity.

During these eleven years he made a name for himself among the histopathologists. There are Laidlaw techniques which are used in all laboratories. There are articles by Laidlaw which everyone cites.

All that will endure. But what would have been the reputation of this man if he had begun his true career at an earlier age, the career for which he was made and to which he only devoted the final one sixth of his life!

I stop because I perceive that no doubt this story is too long for your purposes. But you asked me for some notes about my friend Laidlaw, he who was fine, intelligent, scholarly, filled with curiosity, determined, full of humor, and finally stolidly courageous: the perfect American who has made me know and love America, and so my pen began to run along . . .

Cordially yours,

P. Masson
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*Cancer Res* 1948;8:189-192.

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