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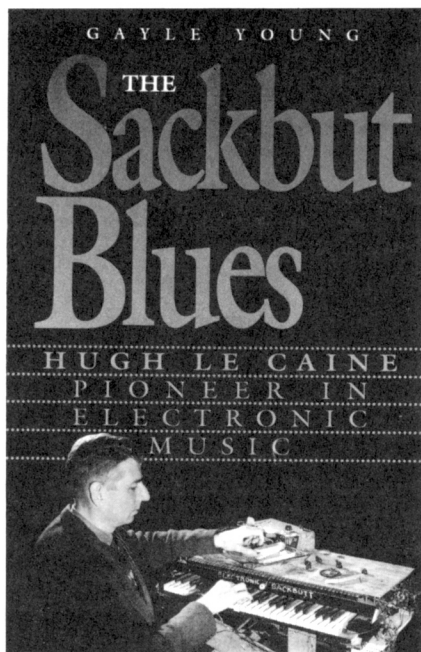
Publications

Gayle Young: The Sackbut Blues—Hugh Le Caine: Pioneer in Electronic Music

National Museum of Science and Technology, Ottawa, Ontario K1G 5A3, Canada; also distributed by University of Chicago Press, 1989, 274 pages, ISBN 0-660-12006-2 (English edition). Also in French under the title *Blues pour saqueboute: Hugh Le Caine, pionnier de la musique électronique*, ISBN 0-660-91655-X. English and French editions hard cover, US\$ 29.95.

Journal

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Reviewed by Tom Rhea
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Hugh Le Caine: Pioneer in Electronic Music (Figure 2) is the product of many years of research by Gayle Young into the life and works of her fellow Canadian Hugh Le Caine (1914–1977). Hugh Le Caine was, among other things revealed by this book, a prolific designer of analog-era electronic musical instruments and instrumentation. This book is part of Ms. Young's research on Mr. Le Caine under the aegis of The Hugh Le Caine Project, 146 Ridge Road West, Grimsby, Ontario L3M 4E7, Canada, where the author can be contacted. A CD of illustrative Le Caine compositions and various instrument demonstrations performed by Le Caine himself is slated for release by The Hugh Le Caine Project by the time this review appears.

Hugh Le Caine: Pioneer in Electronic Music provides a chronological account of Le Caine's life and

works, but this book is more than a biography. The first of two appendices, "Technical Descriptions of Instruments Designed by Hugh Le Caine," consists of more than 50 pages of written descriptions, photos, and line drawings of Le Caine's musical instrumentation dating from 1937 through 1972. Schematics and other highly technical data are scarce, however. This is apparently in keeping with the author's prefatory comments that this biography is intended not only for musicians, composers, and those with specialized interests in technology and music, but also "... for general readers with an interest in historical Canadian enterprises, both cultural and scientific ... a broad general readership" (p. ix). The second appendix lists Le Caine's patents, and includes roughly 25 pages of his personal notes, which provide not only bibliographical references, but amplifications on the text germane to historians and other specialists. The book concludes with several bibliographies, discographies, interview documentation, a brief technical glossary, and an index. Separate bibliographies document published and unpublished papers by Le Caine, as well as the secondary sources that constitute a reasonably thorough bibliography on the field of early electroacoustic music and instruments. Discographies list recordings released commercially as well as those held by the Music Division of the National Library of Canada. The end matter of this book will provide researchers valuable information, and suggest avenues for further research in placing Le Caine in context with other pioneers.

Most impressive is the number and quality of interviews conducted by Gayle Young. She formally interviewed some 50 people—some on multiple occasions. Included were Le

Caine's wife, Trudi, and family members and co-workers who provided living, vivid memories of Le Caine and details of his work that would have otherwise been lost. This is the sort of attention that all pioneers in this field deserve, as it will be difficult if not impossible for future generations to reconstruct an authentic record from library sources alone.

Ms. Young paints a sympathetic picture of an enigmatic man. It becomes apparent that Le Caine not only marched to a different drummer, he cultivated the unusual. One of his early residences had black walls—the better to write ideas on with chalk. He was a student of Swahili. After being married one week he asked his wife if she could serve dinner at midnight to better fit his nocturnal work habits. He locked his office/laboratory upon leaving to enter the other parts of his home. Only once or twice did he and his wife entertain others there. On the other hand, he exhibited an unusual orthodoxy toward music for someone who developed unorthodox instruments. He was a self-described "Beethoven man" whose fixation with "beautiful sound" led him repeatedly to design electronic instruments capable of producing a nuance-filled expression typical of the orchestral tradition. He also developed instrumentation for new music. He was alternately misanthropic and gregarious. When his new wife toasted, "... missing friends" he is said to have retorted "... and may they remain missing." Still, he was capable of great generosity, particularly to those interested in his work, and sometimes regaled party-goers at festive occasions with his piano playing and wry wit. Throughout his life he consistently disparaged his own compositions and instruments, regardless of the acclaim they rightfully achieved.

Hugh Le Caine's early training was

Figure 3. Hugh Le Caine playing his prototype Electronic Sackbut.



in both music and science. He turned away from thoughts concerning a career in music to study science at Queen's University in Kingston, Ontario, where he earned a Master of Science degree in physical engineering in 1939. His entire working life was bound up with the National Research Council (NRC), an agency of the Canadian government where he was first employed in 1940. He distinguished himself in early projects involving radar and atomic physics, and published significant papers in those fields. He also established a small personal studio in 1945, where he began to work independently on the design of electronic musical instruments such as the Electronic Sackbut, a sophisticated monophonic performance instrument (Figure 3). In 1952 he was awarded a PhD in nuclear physics by Birmingham University in England. His studies there had been underwritten by the NRC. During his stay in London, he heard new music and *musique concrète* on BBC radio that fired

his imagination. The year of his graduation (1952) he developed a prototype of The Coded Music System, which eventually became a graphical tape/reader system for the comprehensive control of musical parameters. His inspiration for this was Norman McLaren's "drawn sound" technique developed under the aegis of the National Film Board of Canada in Ottawa.

Eventually Le Caine realized that his interest in electronic music was greater than the subjects at his "day" job at the NRC. As Le Caine put it, "I had to face again the question of where I was going and whether I should not be working full time for a commercial company. Now there was the difficulty of whether NRC would permit me to go elsewhere after having had three years at Birmingham University at NRC expense" (p. 56). The crisis was averted by serendipity. The secretary of Le Caine's section also happened to be a member of the Scientists' Wives' Association, because her spouse was an

NRC scientist. She suggested that Le Caine lecture the Association on his instruments, and he agreed. His prototype Electronic Sackbut needed to be rebuilt, having been dismantled prior to his move to London for graduate study. Soon, Le Caine found himself working on the Sackbut more or less officially at the NRC lab in preparation for the lecture. Early in 1954 Le Caine delivered lectures to the staff of NRC, and then to the public. He was good at it, a natural communicator when he wished to be.

By the spring of 1954, the NRC was officially underwriting his musical research. It wasn't possible to foresee that this may have been as much a curse as it was a blessing. While the NRC allowed him great latitude, in that book requests could be fulfilled, and equipment and technical assistance allowed him to work more efficiently, Le Caine never had to face the crucible of the marketplace. There is an old aphorism I first heard during my years in the electronic musical instrument business: "The first job of the marketing manager is to shoot the chief engineer." That is, stop developing and get it to the marketplace! In a 1959 letter to Lejaren Hiller, then director of the Experimental Music Studio at Illinois, Le Caine wrote, "... there are a number of musical problems which have yet to be solved [regarding the 1954 version of the Sackbut]" (p. 108). Another promising development, the Multi-Track Tape Recorder (Figure 4) that played multiple tapes on a single capstan, was prototyped in 1955. As late as 1963 the company that had been contracted to manufacture it wrote to Le Caine asking for plans, but he was still altering the design and refused to submit a frozen version.

This is not to lay fault at Le Caine's feet. He was doing his job as a researcher, not as a marketing per-

Figure 4. Hugh Le Caine with his Multi-Track Recorder.



son. There was evidently nobody at NRC at the time willing or able to “shoot him” in order to freeze his never-ending developments. There was apparently no one to insist on the manufacturability of a design and its viability in the marketplace. The responsibility for licensing manufacturers for NRC developments was vested in the Canadian Patents Development Limited (CPDL). The CPDL made unfortunate decisions in behalf of Le Caine’s developments in this regard. Even as late as 1970, the CPDL gave an exclusive five-year license to manufacture the Sackbut, with no performance clause, to an under-capitalized startup company that had virtually no manufacturing experience. When this company could not deliver, it refused to step aside in deference to other interested parties. Of course, by this time the Minimoog and ARP 2600 were coming into the marketplace, and other synthesizers were soon being introduced in the USA seemingly on a

daily basis. The Sackbut, with its advanced performance features, such as keyboard sensitivity in two axes, and a left-hand controller with variable format control, might have competed, but commercially, it never saw the light of day.

Of course, one doesn’t have to mass-produce instruments to have a significant sphere of influence. Le Caine almost single-handedly equipped the early electronic music studios at the University of Toronto and McGill University with a variety of creative devices. His composition *Dripsody*, based on the sound of a single drop of water, must still rank as the most-played example of a “genre” piece (*musique concrète*) in classrooms. He taught at both Toronto and McGill, and influenced a generation of composers of electroacoustic music. He had an indirect influence on the development of the modular Moog Synthesizer via Gustav Ciamaga, who was familiar with Le Caine’s filters and subsequently

stimulated Robert Moog to design his voltage-controlled, low-pass filter. Le Caine’s many articles and personal demonstrations catalyzed activity both within Canada and in the international community.

The sheer intelligence and insight of Le Caine’s ideas continues to deserve an audience. Consider his comment from 1966 that “What a composer of electronic music needs most is not an understanding of the apparatus, but a new understanding of sound” (p. 134). I thought I was being original when I told my students at Berklee College of Music that “Music synthesis isn’t about synthesizers; it’s about sound!” Le Caine also had a keen sense that an ensemble of monophonic instruments provides more degrees of freedom for musical expression than does a single polyphonic instrument that allows performance of the same lines simultaneously. I think it is no coincidence that the first generation of voltage-controlled synthesizer performers became stars who headlined rock bands despite the ballyhooed “limitation” of one-note instruments. Ensuing generations clamored for polyphony, and promptly receded to the back of the band when they got it.

Hugh Le Caine’s story is of interest to those engaged either in the business or the art of electroacoustic music and its instrumentation. Hugh Le Caine summarized his career by saying, “I was a worker in the vineyard, and it was a tremendously exciting vineyard. I don’t regret a microsecond of it” (p. 164). Gayle Young’s *The Sackbut Blues—Hugh Le Caine: Pioneer in Electronic Music* is for all the workers in the vineyard.