

The Experimental Music Studio at UIUC, 1958-68: Environment, People, Activities

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1. PRESENTATION OF THE RESEARCH

The topic of this research and its choice

This research is focused on the Experimental Music Studio [EMS], created in 1958 at the University of Illinois at Urbana-Champaign. The first formally acknowledged electro-acoustic facility in the United States, the EMS soon became one of the most important studios world-wide; today it is still operating, though in a very different context. In particular, while the original Studio was located in a small attic room and attended by a narrow group of researchers and students, the current Experimental Music Studios (note the plural form) include ten specially-designed studios, producing every year dozens of compositions – many of which are awarded prizes in important international competitions – and guaranteeing a vibrant academic activity. The prestige of the EMS, and the outstanding results achieved by many of the composers who have been working there during the last five decades, seem to be good reasons for undertaking a research on the historical origins of this environment, and on its first years of activity.

With regard to the latter, the choice of the period 1958-68 has two main motivations: first, it coincides with the presence of Lejaren Hiller, who created and directed the studio until he left the University of Illinois for accepting an academic position at Buffalo. Secondly, from an historical perspective, a decade is a broad enough period to evaluate the main changes happened in between the two ends.

Research questions; their mutual relation and significance

Once the historical perspective has been chosen, several research questions immediately arise. The first one concerns the environment itself and its financial situation: the collocation of technological devices is supposedly very expensive, and it should require a good management of the available financial assets. Therefore it is important to know if the studio was led properly by its director. The second question is aimed at knowing who were the people working in the EMS, with the purpose to throw some light on the net of social relations composed by faculty and students, with a significant involvement of non-music majors. The third question, consequently, is focused on the different kinds of activity carried out in there, once again with a special emphasis on the resulting historical dynamics.

The questions are organized together in a triangular system whose vertexes are always related one to the others. A good understanding of the three elements analyzed by themselves should lead to a deeper comprehension of the overall system, and conduct the research toward the forth and final question, aimed at establishing the general value of the EMS during the examined period.

As far as the significance of the questions is concerned, it is necessary to remind that, though a good amount of sources is available on this topic, to date nobody has tried to collect them together in an organic manner. There is a resulting gap in the literature, which this paper is trying to cover, at least partially, as a first attempt in the direction of a more comprehensive investigation on this fascinating but at the same time complex topic. Secondly, the above-mentioned importance of the EMS in electro-acoustic music history strengthens the value of this research, which is addressed to all those are interested in knowing something more about a crucial chapter of contemporary art music. From a more specific point of view, various evidences show that nowadays many European composers still tend to ignore or

underestimate the results achieved by their American colleagues: this paper may help them realize that this cultural bias is totally unjustified.

Methodology; sources and their use

In order to properly answer the research questions, the methodology was intended to realize a progressive deepening of the information based on the available sources – both primary and secondary. I started identifying the most important events occurred in the period 1958-68, relating them to the EMS and to the people working in it. At the same time I tried to contextualize the topic, linking these events to the concurrent activity at the University of Illinois, thus trying to establish the main reasons that led to the opening of the Studio. This preliminary information was used as a background, above which I began exploring the available secondary sources devoted to more specific aspects of the topic.

A lot of reliable data were provided by Hiller himself, author of a groundbreaking book on computer-assisted composition, and of many articles describing the environment, the purposes and the social organization of the EMS. Consequently, Hiller was the fulcrum of the research, both for his overriding position as researcher/composer/teacher, and for his literary prolificacy. After examining the resulting information, I began to compare it with that deriving from other sources, in order to have different and complementary perspectives on the same subject. I then rounded off my research looking for primary sources that could corroborate my provisional discoveries, trying at the same time to better clarify the social relations existing between the protagonists. The triangular structure environment/people/activity provided me with a plural set of data which I finally tried to cross-reference in order to establish the global value of the EMS as a research environment.

2. THE ENVIRONMENT EMS: BRIEF HISTORICAL SUMMARY

The origins

Many of those who experienced the environment of the UIUC School of Music during the period between 1946 and 1970 remember it as “an era of grandeur”.¹ The quality both of the faculty and of the academic programs increased tremendously in those years, and contemporary music played an important role in this phase of growth. In particular, the *Festival of Contemporary Arts* – whose first edition took place in 1948 – immediately succeeded as an internationally renowned event. Though in 1955 the Festival became biennial, it maintained its prestige all throughout the 1960s, reaching one of its climaxes in 1969, in correspondence with the performance of John Cage’s and Lejaren Hiller’s *HPSCHD*, a composition for seven harpsichords and fifty-one tapes, enriched by a spectacular scenography.²

Moreover, Cage was having a great influence on the Urbana-Champaign contemporary music scene since the early 1950s: in particular, a lecture-concert of *Music for Magnetic Tape* he gave in 1953 was probably the first experience people of UIUC had to approach this new creative field, and supposedly it was the occasion that instilled in Hiller the interest for electro-acoustic music.³

¹ Silverberg, Ann L., *A Sympathy with Sounds: A Brief History of the University of Illinois School of Music to Celebrate Its Centennial* (Urbana-Champaign: School of Music, University of Illinois at Urbana-Champaign, 1995), p. 53.

² Silverberg, pp. 71-73.

³ *Experimental Music Studios, University of Illinois: In Celebration of the 25th Anniversary of the Experimental Music Studios* (University of Illinois, LC 84-743210, 2 discs, 33 rpm, 1984), booklet, p. 1.

Hiller, that the previous year had become a research associate and assistant professor of chemistry,⁴ began working with the ILLIAC – the first supercomputer built at UIUC – in order to experiment new compositional approaches. The result of this work was the *ILLIAC Suite* for string quartet, a composition in four movements – or “experiments” – completed in 1957 with the help of Leonard Isaacson.⁵ The first attempt ever made to write a score by means of a computer, the *ILLIAC Suite* at first received a warm response, putting Hiller in the spotlight. This sudden success, followed by many negative reviews, convinced Hiller that he needed to become a professional musician, otherwise he could not have any chance to be accepted by the academic music environment.⁶

Hiller represents emblematically the difficult search for a synthesis between two fields, science and music, which in Western History have often had the tendency to merge one into the other. In this case, the process found a main obstacle in the narrow-mindedness of those composers who felt they risked to lose their caste privileges in favor of machines. As far as this is concerned, it can be useful to notice that

«Hiller’s music stands out as particularly characteristic of the University of Illinois. The university’s well known Department of Electrical Engineering, home of two time Nobel Prize winner John Bardeen, the inventor of the transistor, provided national leadership in the development of computer technology. Hiller established a long-term association between the music and engineering departments».⁷

Moreover, there is a scene in Kubrick’s film *2001: A Space Odyssey* (1968), in which the computer HAL, progressively deactivated by the astronaut Bowman, asserts that it «became

⁴ Bohn, James M., “An Overview of the Music of Lejaren Hiller and an Examination of His Early Works Involving Technology”, DMA Dissertation (University of Illinois at Urbana-Champaign, 1997), p. 6.

⁵ *Computer music from the University of Illinois*, Heliodor Label, HS25053, 33 rpm, 1967, booklet, p. 1.

⁶ Bohn, pp. 7-8.

⁷ Silverberg, p. 68.

operational at the HAL plant in Urbana, Illinois»: ⁸ a further confirmation of the dominant position Urbana-Champaign held in this field during the 1950s and 1960s. As a consequence, the association between music and computer, in this specific context, was somehow unavoidable. Therefore, Hiller was simply the one who actually realized it.

Stiven House, 1958-68: equipment and financial situation

At the end of 1957 Hiller wrote a letter to Duane Branigan, then director of the School of Music, suggesting him to open a studio for experimental music, in order to develop theoretical and compositional research, and concurrently to activate a new graduate course pertaining to these topics.⁹ He received a positive answer, thanks to the support previously given by Frederick Wall, dean of the Graduate College. The chosen location was an attic room in Stiven House, across the street to the main building (Smith's Hall). After some months of preparation during the summer of 1958,¹⁰ the Experimental Music Studio became operational, right at the beginning of the fall semester. It was the first studio of its kind to be opened by an American university, and the second research project on electro-acoustic music ever attempted in the United States, considering that the research carried out by Luening and Ussachevsky at Columbia-Princeton, although formally acknowledged in 1959, had began in 1952.¹¹

It is important to remind that in the U.S. «most of research in acoustic was being conducted under the defense program».¹² American composers lacked the support their

⁸ <http://www.palantir.net/2001/script.html>, accessed Dec 08, 2006.

⁹ Hiller, Lejaren A. Jr., "Letter to Duane Branigan, Director of the UIUC School of Music" (December 2, 1957), S. Wyatt's personal collection; see pp. 2-3.

¹⁰ Cagne, Cole, and Tracy Caras, *Soundpieces: Interviews with American Composers* (Metuchen, N.J., and London: The Scarecrow Press, 1982), p. 235.

¹¹ Luening, Otto, "An Unfinished History of Electronic Music", *Music Educators Journal*, Vol. 55, No. 3 (Nov. 1968): 42-49, 135-142, and 145; see p. 49.

¹² Luening, p. 138.

European counterparts were having from Radios and Televisions, and at the same time the industry was reluctant to invest money in projects that typically required a lot of time for being successfully fulfilled.¹³ The University of Illinois itself invested only few thousand dollars in the Studio, so that Hiller «had at first to search around the campus for discarded equipment in places like the broadcasting studio, the physics department and [the] music department shop».¹⁴

The result of this first assembly may nowadays seem somehow primitive, but one has to consider that all the equipment was well functioning, and the Studio had everything strictly needed to start a research project (see picture 1). The pragmatic approach Hiller adopted gave him the chance to limit the expenditures for equipment to only \$8,000 during the period between 1958 and 1962.¹⁵ In this first phase, among the available items there were two professional tape desks, a consol, various microphones, oscilloscopes, and amplifiers.

¹³ Luening, p. 138.

¹⁴ Hiller, Lejaren A. Jr., "Electronic Music at the University of Illinois [1965]", in *Im Zenit der Moderne*, eds. Gianmario Borio and Hermann Danuser, Vol. 3 (Freiburg im Breisgau: Rombach GmbH Druck- und Verlagshaus, 1997), pp. 105-130; see p.109.

¹⁵ Hiller, Lejaren A. Jr., "Electronic Music at the University of Illinois", *Journal of Music Theory*, Vol. 7, No. 1 (Spring 1963): 99-126; see p. 101.



Picture 1 - The Experimental Music Studio in 1958

After a cautious beginning, the big change happened in 1962, when Magnavox Corporation awarded a \$30,000 grant to the EMS (see picture 2).¹⁶ This money was once again used with parsimony: instead of acquiring commercial products, Hiller and his collaborators chose to build the instruments by themselves, using published circuits.¹⁷

¹⁶ *Experimental Music Studios*, booklet, p. 2.

¹⁷ Hiller, "Electronic Music", *JMT*, pp. 109-111.



Picture 2 - The EMS receives a grant of \$30,000 from the Magnavox Corporation (1962)



Picture 3 - The EMS in 1962

As a result of this approach, the studio was now provided with a Theremin, a saw-tooth wave generator, a white noise generator, and many other devices for generating, processing and recording sound (see pictures 3 and 4).¹⁸ Another important grant (\$53,100) was then received in 1965 from the National Science Foundation, for a two-year project on analysis and synthesis of musical sounds.¹⁹



Picture 4 - Ben Johnston (left, at the Theremin) and Hiller in the studio (1963)

¹⁸ Hiller, *Electronic Music*, JMT, p. 101.

¹⁹ Public Information Office, University of Illinois, "Internal Report" (November 23, 1965); S. Wyatt's collection.

Summarizing, it seems clear that Hiller, as the director of the EMS, applied a prudent economical policy which gave the studio the chance to grow, slowly but steadily, during its first three-four years of activity. The quality of the results meanwhile achieved, and the seriousness of the approach, attracted investments from privates, so that the central phase of the 1960s showed the effectiveness of Hiller's management. We lack information about the following years, which led to Hiller's departure from Urbana and to a transitional period concluded in 1974-75 with the arrival of Scott Wyatt, the present Director of the Studios. This intermediate phase (1968-74) was characterized by the move of the Studio to the new Music Building (1972), an event long expected, since the small room in Stiven House during the late 1960s could hardly provide the required space for doing research and concurrently teaching classes. The new system of studios could guarantee a lot more space and flexibility, and marked the beginning of a new chapter in the story of the EMS – a story that, almost fifty years later, still goes on.

3. PEOPLE IN THE STUDIO

The first of the many collaborators Hiller had in the music field at UIUC was Leonard Isaacson, the co-author of the *ILLIAC Suite*;²⁰ they began working together before the opening of the EMS, though. As far as the latter is concerned, in a letter dated April 1961 and mailed to the dean of the College, Hiller wrote a brief report of the activities carried out in the Studio since 1958. ²¹ In the first paragraph he lists the persons that were engaged in research projects: Nicholas Temperley (a full-time post-doctoral research associate), Robert Baker (a half-time

²⁰ This work is analyzed in full in Hiller, Lejaren A. Jr., and Leonard M. Isaacson, *Experimental Music: Composition with an Electronic Computer* (New York and Toronto: McGraw-Hill Book Company, 1959).

²¹ Hiller, Lejaren, "Letter to Frederick T. Wall" (April 28, 1961); S. Wyatt's collection.

graduate research assistant), James Tenney (a third-time graduate research assistant) and Ernest Proemmel (a quarter-time electronics engineer). For every one of them there is a brief description of the kind of collaboration given. For example, we notice that Proemmel was the first technician to be employed in the Studio: between 1958 and 1961 there was no technician at all. Proemmel worked in the studio until 1963, when was substituted by Russell Winterbottom.²² The other three people were graduate or post-graduate students, all working with Hiller in order to prepare their Master's or Doctoral degree theses. In particular, Tenney had arrived to Urbana in 1959 specifically to attend Hiller's class on electronic music; after completing the degree he was then hired by Bell Laboratories, and became an important name of computer music.²³ By the way, in this period there were few traces of members of the composition-theory division in the EMS; it is useful to remember that Hiller himself, hired by the School of Music to direct the Studio, was not part of that division.

Between 1962 and 1964 the situation completely changed, as four new people joined the composition faculty. James Beauchamp, who was the first to arrive, began working with Hiller in 1962 while still a doctoral student in Engineering; he was then appointed assistant professor in 1965. In 1963 Herbert Brün and Kenneth Gaburo settled in Urbana-Champaign, followed one year later by Salvatore Martirano.²⁴ All of them were particularly interested in working on electro-acoustic music, and consequently their presence gave immediately a great impulse to the compositional activity of the studio.

²² Hiller, Lejaren A. Jr., "An Integrated Electronic Music Console", *Journal of the Audio Engineering Society*, Vol. 13, No. 4 (April 1965): 142-150; see p.150.

²³ Ames, Charles, "Automated Composition in Retrospect: 1956-86", *Leonardo*, Vol. 20, No. 2, Special Issue: Visual Art, Sound, Music and Technology (1987): 169-185; see p. 171.

²⁴ *Experimental Music*, booklet, p. 2.

The situation remained unchanged for some years, until, in 1968, John Cage returned to the University of Illinois as an associate member of the Centre for Advanced Study. According to Hiller, Cage was particularly interested in collaborating with him.²⁵ Though Cage was not directly involved in the activity of the EMS, his collaboration with Hiller is significant because led to the composition of *HPSCHD*, the last piece Hiller worked on before moving to Buffalo (see picture 5). As a few months later Gaburo moved to San Diego, the EMS remained at the same time without its creator and without one of its most important driving forces.



Picture 5: Hiller and Cage working on *HPSCHD* with the ILLIAC II system (1968)

The list of compositions made in the EMS during the years 1963-68 is quite long. And even more valuable than the individual contributions these people gave to the Studio is the social net of relations they built together as a group. To better understand the difference between the years before and those after 1962, it can be worth to make a comparison between them.

²⁵ Cagne, p. 235.

According to Hiller, his arrival to the School of Music in 1958 was sort of “clandestine”: in fact, the director Branigan had suggested him to complete the preparation of the studio in the summer, when most of the faculty were out of town.²⁶ There was a clear negativity towards Hiller, considered by the academic composers as a non-professional musician, a chemist-programmer who was simply trying to invade a field he did not deserve to belong. This condition of outsider accompanied him throughout the decade he spent at the Urbana School of Music. The only friends he had in the Music department during his first three-four years as director of the EMS, not considering his graduate students, were Harry Partch and Ben Johnston, composers who did not particularly share his interest for the electronic means – the first being devoted to microtonality, and the second to the aesthetics of the just intonation – but nonetheless good friends and supporters of him. The most of the faculty were completely offish to Hiller’s work. On the contrary, the relation Hiller had with his assistants was based on a strong reciprocity: they helped a lot, but at the same time he let them publish co-authored articles with him. And about Hiller’s teaching activity, many of his former students seem to agree that he was an effective and sensible teacher.²⁷

As mentioned above, between 1962 and 1964 the atmosphere of the studio completely changed, thanks to the new arrivals in the faculty. The sabbatical leave in 1961 had given Hiller the chance to visit all the main European electronic studios.²⁸ He plausibly met Herbert Brün during this period, being able to convince him to move to Illinois. In those years Hiller and Brün were both repeatedly invited as lecturers at the *Ferienkursen* in Darmstadt, and as their collaboration shows, their friendship was based on the respectful meeting of two different

²⁶ Cagne, p. 235.

²⁷ Bohn, p. 8.

²⁸ Bohn, p. 9.

musical cultures which aimed to be somehow complementary. This open-mindedness was shared by the other newly arrived, Gaburo, Beauchamp and Martirano.²⁹ The sense of solidarity these people had may be well exemplified by the draft of a letter dated 1963, which Gaburo asked Ben Johnston to edit, and whose intent was to ask a university sponsorship for the works of Harry Partch – who had just left Urbana’s faculty some months before.³⁰ The friendship between these composers is even better shown by the poem Brün wrote after the death of Martirano in 1995. It is at the same time touching and strongly meaningful:

«... there goes Sal:
longs for and loves the opera
yet avoids excessive drama--
passionately throws himself into the embraces
of his ideas
musical poetic realistic daring ideas
and experiments--
then surfaces
with that look of youthful curiosity--
that provoking smile of a
waiting waiting sense of humour--
... there goes Salvatore:
passionately alerted and alarmed
facing the threats of environmental trivialization
and contempt--
indignant furious explicitly expressive
he lends simmering rage
without loud noise
to his weel-honed cutting voice--
... there goes Salvatore Martirano:
Listen!-----and Listen again!»³¹

²⁹ Schwartz, Elliot, *Electronic Music: A Listener's Guide* (New York and Washington: Praeger Publishers, 1973), pp. 138-139.

³⁰ Gaburo, Kenneth, "Letter to David Dodds Henry", May 1, 1963; *Kenneth Gaburo Papers*; University of Illinois Sousa Music Archive, Box 2, Correspondence with Ben Johnston.

³¹ Brün, Herbert, "... There goes Sal", *Perspectives of New Music*, Vol. 34, No. 1 (Winter 1996): 170-171.

To conclude, there is a picture of all these musicians together in the Studio in 1965, smiling as to fill the EMS with an irresistible touch of humanity (see picture 6).



Picture 6 - Charles Hamm, Lejaren Hiller, Salvatore Martirano, Herbert Brün, and Kenneth Gaburo at the EMS (1965).

4. ACTIVITY IN THE EMS

In the above-mentioned letter Hiller wrote in 1957 to the director of the School, after an historical introduction he presents a “Proposal for research in experimental music”,³² giving a list of some of the activities that could be carried out in the Studio: the development of an automatic music printer, the digitalization of appropriate technological equipment for recording and analyzing sound, the utilization of the computer for musicological and theoretical research, the development of new creative compositions, and a new graduate

³² Hiller, Letter 1957, pp. 2-3.

course. It is significant how Hiller, recognizing that this project was indeed ambitious and would have required «considerable time and effort»,³³ underlines that the initial expenses would have been moderate, as the space requirements; he then suggests pragmatically «to start with the simplest and most practical research».³⁴

The first project to approach was the programming of an automatic music typewriter, capable of writing full scores or individual instrumentation parts, through the information received by the ILLIAC computer; in other words, the core of the research was the changeover of a typewriter into a music printer (see picture 7). As Hiller describes in 1961 to the dean of the College, a lot of programs were written by him and his assistant Robert Baker, in order to optimize the readability of the resulting scores; this operations required a continuous dialogue between the ILLIAC and the typewriter.³⁵ In an article written for the *Journal of Music Theory* and published in 1965, the two protagonists describe all the steps they had to follow, and explain the main reason why they felt this project was meaningful: the

³³ Hiller, Letter 1957, p. 3.

³⁴ Hiller, Letter 1957, p. 3.

³⁵ Hiller, Letter 1961, pp. 3-4.

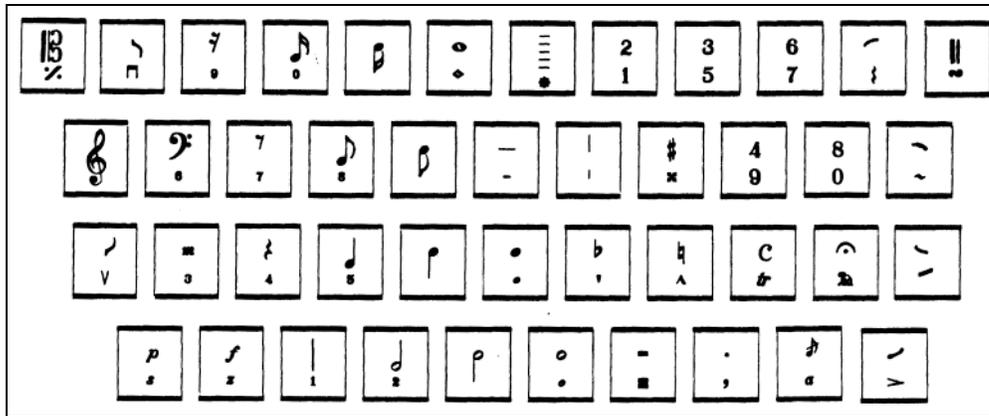


Picture 7 – Hiller and Baker at the custom-designed Remington electric music typewriter (1958).

technology then available for music printing did not properly reflect the most recent compositional activities.³⁶ To the contrary, this special typewriter, created by researchers of the University of Colorado and thoroughly customized at the EMS, had the typeface modified in order to include all the basic musical symbols (see picture 8). In particular, the mechanical changes included the free choice of the length and dimensions of the staves.³⁷

³⁶ Hiller, Lejaren A. Jr., and Robert A. Baker, “Automated Music Printing”, *Journal of Music Theory*, Vol. 9, No. 1 (Spring 1965): 129-152; see p.129.

³⁷ Hiller and Baker, p. 133.



Picture 8 - Keyboard of the music typewriter (from Hiller and Baker's article on the *J.M.T.*, p. 135).

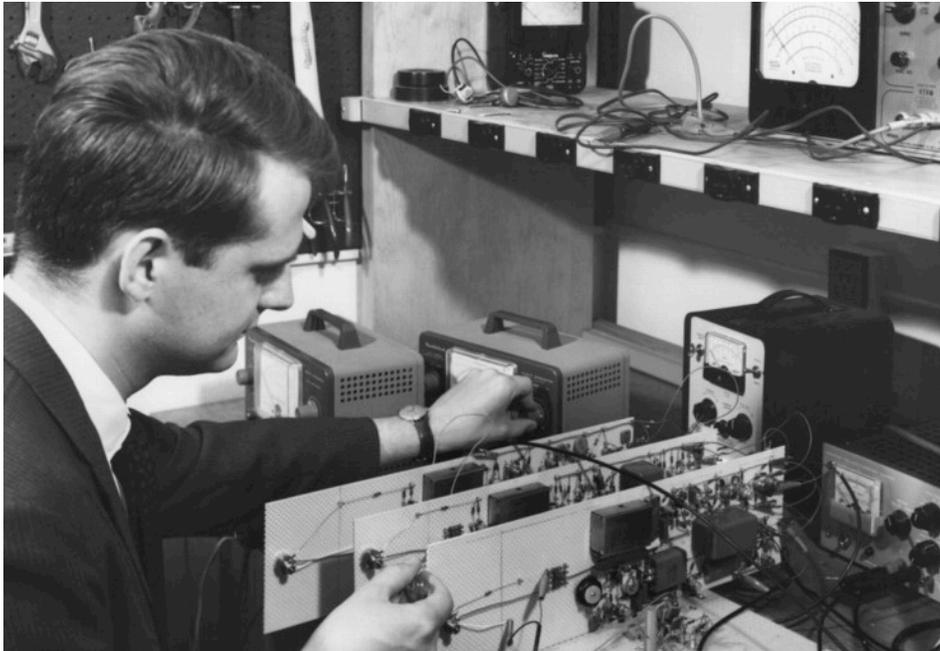
The second direction of research was the development of new methods and instruments for sound analysis and synthesis. The analytical approach was, once again, based on the programming of the supercomputer owned by the University (it may not be exaggerated to say that the best collaborator Hiller had at UIUC was the ILLIAC!). From this perspective we should consider, as one of Hiller's merits, his ability to adapt the same digital medium to many different kinds of research. In particular, the analytical power and flexibility of the ILLIAC led at least to a couple of remarkable theoretical results: the DMA theses of Calvert Bean and Ramon Fuller, respectively based on the application of the information theory to study four Sonata expositions (by Mozart, Beethoven, Berg, Hindemith),³⁸ and to analyze Webern's *Symphonie* op. 21.³⁹ Both the researches were based on the calculations made by the ILLIAC. It is easy to guess that Hiller, supervising these theses, was once more trying to fill the gap between him and the theory-composition division, in order to gain some academic

³⁸ Hiller, Lejaren, and Calvert Bean, "Information Theory Analyses of Four Sonata Expositions", *Journal of Music Theory*, Vol. 10, No. 1 (Spring 1966): 96-137.

³⁹ Hiller, Lejaren, and Ramon Fuller, "Structure and Information in Webern's *Symphonie*, Op.21", *Journal of Music Theory*, Vol. 11, No. 1 (Spring 1967): 60-115.

respectability. If so, the high technicality of these works could not help him to achieve that goal.

On a different level, the EMS was also used to work on the available equipment or even to build new instruments for sound analysis and synthesis. The most interesting example of technological application thus obtained is given by the *Harmonic Tone Generator*, a device capable of controlling the attack, steady state, decay and amplitude of six partials of a generated tone (see picture 9).⁴⁰



Picture 9 - James Beauchamp works on this Harmonic Tone Generator (1963)

This modular voltage-controlled generator, based on the principles of sound additive synthesis, was completed the same period Robert Moog finished working on his *Moog*, acknowledged as the first commercialized synthesizer of the 1960s. It is interesting to note that, while Robert Moog chose to start with a friendly approach, providing his instrument with a

⁴⁰ *Experimental Music*, booklet, p.2.

user's manual in order to meet market's requirements, Beauchamp's *Tone Generator* was specifically aimed at doing research on the nature of sound. It would have been possible for him, with Hiller's help, to try to sell his synthesizer to a wide public, but apparently both of them preferred to devote their efforts on pure research.⁴¹ Anyway, in 1965 they could proudly publish the results of their studies in an article for *Science*.⁴²

From a compositional point of view, the first years were mainly characterized by Hiller's electronic experiments like the *Seven Electronic Studies* – completed in 1962 – that though make use of two-channel tapes still tend to have a monophonic approach; in fact, Hiller was rather unenthusiastic about the use of spatialization in stereo field.⁴³ Many elements confirm that the compositional activity in the Studio had a strong increase after 1963, in correspondence with the contributions of the newly arrived composers. More specifically, the years between 1964 and 1966 were dominated by important works for instruments and tape, based on an extended use of the computer as generator of the instrumental scores: important examples of this approach are *Machine Music* by Hiller itself, *Soniferous Loops* by Brün, and *Underworld* by Martirano. Hence, in this phase electro-acoustic music was eventually integrated with instrumental sound, with a resulting eclectic aesthetics through which the single composers were free to develop their personal styles. The lectures given by Hiller and Brün at Darmstadt confirm that the “Urbana School” was acknowledged in the middle 1960s as one of the more innovative music environments world-wide.⁴⁴ At the same time, it is interesting to notice that Hiller's and Brün's cultural perspectives were to some extent far to

⁴¹ Personal conversation with Scott Wyatt, October 25, 2006.

⁴² Hiller, Lejaren, and James Beauchamps, “Research in Music with Electronics”, *Science*, New Series, Vol. 150, No. 3693 (Oct. 8, 1965): 161-169.

⁴³ Hiller, “Electronic Music”, *JMT*, p. 119.

⁴⁴ Ames, p. 170.

each other: while the first was clearly fascinated by information theory and European theoretical approach in general, the second was convinced that the genuine exaggerations and even the mistakes of young people, not yet arrived to a full theoretical knowledge of the art of music composition, had to be preferred.⁴⁵ Still, the meeting of different perspectives in the same environment could guarantee the development of a positive and creative atmosphere, which lasted throughout the 1960s.

The last proposal Hiller presented in 1957 to the director of the School of Music concerned the institution of a graduate course, «covering material relevant to contemporary experimental music».⁴⁶ Once again the proposal was accepted; before starting the class, though, Hiller «had been warned by the director of the school to be circumspect about what [he] taught, since a large contingent of the faculty was out to get [him]».⁴⁷ To avoid these prospective problems, he then started with teaching a course of traditional musical acoustics (see picture 10).⁴⁸

By 1962 there were already three subsequent classes, open both to graduate and advanced undergraduate students, mainly majoring in composition and musicology.⁴⁹ The first class, “Basic Music Acoustics”, was an introductory course, not strictly related to electronic music; it had among the requirements the use of some technical principles of mathematics (as sine and cosine tables, and calculations with logarithms). There was no laboratory for this course, because of the lack of space, but the material included

⁴⁵ Brün, Herbert, “Against Plausibility”, *Perspectives of New Music*, Vol. 2, No. 1 (Autumn – Winter 1963): 43-50; see pp. 49-50.

⁴⁶ Hiller, Letter 1957, p. 3.

⁴⁷ Hiller, “Jim Tenney at Illinois: A Reminiscence”. *Perspectives of New Music*, Vol. 25, No. 1/2, 25th Anniversary Issue (Winter – Summer 1987): 514-516; see p. 514.

⁴⁸ Cagne, p. 235.

⁴⁹ For fuller discussion see Hiller, “Electronic Music”, *JMT*, pp. 122-123.

demonstrations made using the equipment in the studio. The second course, “Electronics and Music”, pertained to basic electrical circuit theory and basic electronics.



Picture 10 - Hiller teaching the first class in the EMS (fall 1958)

The third and last class was a “Seminar in musical applications of information theory, computers and related topics”. Hiller put a great stress on the knowledge of electronic equipment, so that, before starting to compose electro-acoustic music, the students were required to build or work on at least some piece of equipment.⁵⁰ In 1965 a fourth classes was added, so that the series was composed by “Musical Acoustics” I & II, and by “Seminar and Laboratory in Musical Acoustics” I & II. Now the attenders were mostly composition majors,

⁵⁰ Hiller, “Electronic Music”, *JMT*, p. 123.

some from musicology or theory, and few from electronic engineering, physics, mathematics, speech, architecture and even psychology.⁵¹

Thanks to this academic activity, in the late 1960s the EMS was eventually fully integrated in the School of Music: when Hiller left the University in 1968, the complementarity between research, composition and teaching had been successfully achieved.

5. TEMPORARY CONCLUSIONS: THE VALUE OF THE EMS

The analysis of the historical development of the Studio, combined with the investigation on the people involved and on the activities carried out, gives us now the chance to better understand some of the events happened in the EMS during the considered decade. The main conclusion derived from the collected information concerns the value of this environment, as a place open at the same time to research, creativity and teaching. It is even astounding to see how, in such a small space, so many activities could happen and overlap. There is an historical and social dynamics which tells of a progressive growth, both quantitative and qualitative, of the Studio: the number of persons involved strongly increased during the decade, and the projects became more and more variegated. Experiences as the construction of the *Harmonic Tone Generator* underline the cleverness and inventiveness of these people, who were used to deal with technology in a pragmatic way, being at the same time composers and to a large extent engineers. The relation between the EMS and the department of computer science could at the same time guarantee the excellence of computer music projects, while Hiller's creative management provided the EMS with an innovative musical typewriter whose use was open to musicologists and theorists. Among the most

⁵¹ Hiller, "Electronic Music", *Im Zenit*, p. 129.

significant activities, the analyses of Classical Repertoire, the studies on the nature of sound, and the creation of original compositions were all different sides of a prismatic structure. Last but not least, the presence of graduate classes allowed the studio to become progressively part of the School of Music, giving many young people the chance to be fascinated by the charming mix of technology and creative inspiration.

Moreover, the participation, during the 1960s, of both Hiller and Brün to the *Ferienkursen* in Darmstadt shows the international value of this environment, and suggests us that the awareness EMS composers had about European contemporary music was probably higher than that possessed by their European colleagues towards American music. This aspect is even more significant if we consider that, nowadays, this sort of “one-way” communication is still perceivable, at least in continental Europe, and more specifically in countries, like Italy, that still look at France and Germany as the only foreign models to learn from. The investigation on the EMS, as far as this is concerned, suggests that this studio was born with an open-mindedness difficult to find elsewhere, both in America and Europe.

6. FURTHER POSSIBLE AREAS OF STUDY

This research was intended to be a first step in the investigation of the UIUC *Experimental Music Studio*, and the promising results so far achieved should only be considered as a temporary set of answers, which need to be further confirmed and articulated. There are many questions that could be considered, in order to hone this research: first, it would be strongly recommended a comparison between the period here examined (1958-68) and the following one, going from 1968 to 1974. By the way, many of the dynamics happened during the last phase of the 1960s have not been sufficiently clarified, and need to be investigated

more in depth. A comparison with the current situation of the EMS could be useful to give a stronger historical perspective to this research; of course, the analysis of information pertaining to almost fifty years of activity would require a strong documentary effort, and the utilization of a careful methodological approach. A comparison with other realities which were born in the same period – in particular, University of Toronto and Columbia-Princeton – could sustain or weaken certain results achieved so far, providing the research with a wider cultural and historical perspective.

The combination of these further investigations could supposedly lead us to a more satisfactory set of answers for an even larger number of questions. Of course the research would acquire a different value and – non unimportant consideration – size. In this case, anyway, it would be also possible to delve into single aspects of this research, focusing on a narrower topic. Anyway, the relevance of the EMS should encourage other researchers to develop this first study. In case, I hope this first effort can be somehow useful to them.

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