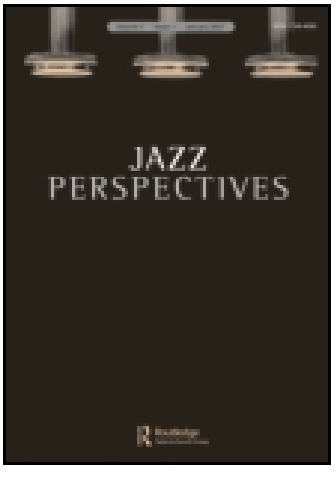

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> This is a new music. It's not free jazz, it's not rock and it is its own new music, and the validity of that will be that it has now opened up a new area for players like ourselves to pioneer. We can add to music and give musicians inspiration to continue, to keep growing, to keep evolving in music and it will serve to keep people turned on. It's exciting.—Annette Peacock[1]

The scene was the prominent New York City jazz club, the Village Vanguard; Paul Bley's trio was preparing to begin their set. Unlike nights in the past, when Bley would walk over to the piano, sit, and begin to play, this show was different. In place of the piano was a Moog synthesizer. The other members of the trio were ready to go. The audience expectantly awaited the start of the music. But, as Paul Bley recalls in his autobiography, "I was on the floor looking up under the synthesizer with a pocket flashlight and a screwdriver and the house mike, asking the audience to please bear with us."[2] Clearly, things were not going smoothly. Bley recalls that Vanguard owner "Max Gordon told me three things: get out, stay out, and don't come back. I haven't played the Vanguard since."

Bley first learned about the Moog in 1969 from a *Down Beat* magazine interviewer. Bley had become acquainted with electronic music by attending performances in the Cologne studio of German composer Karlheinz Stockhausen. Stockhausen composed by using electronically generated sounds, painstakingly built from one layer of waveform upon another, one sound at a time. At times, Stockhausen followed the tradition of Parisian colleague Pierre Schaeffer, who drew upon sounds recorded on magnetic tape. However, both of these processes were slow and deliberate. The goal of the first synthesizer systems, notably those designed by Robert Moog and Donald Buchla, was to make the challenging project of composing with electronically-based sounds more efficient. Built into the system were modules that could generate, filter, and shape complex sounds, and from them construct sequences.[3] Paul Bley was among a cluster of musicians who had different ideas for these new instruments.

[1]Tom Fiofori, "Moog Modulations: A Symposium," *Down Beat*, 23 July 1970, 34.
[2]Paul Bley with David Lee. *Stopping Time: Paul Bley and the Transformation of Jazz*, (Montreal: Véhicule Press, 1999), 113.
[3]Bob Moog's associate Herb Deutsch recalls the historical sequence of the early Moog in this way: "The very first actual sale of a modular was to a choreographer-composer in early 1965. There were a few built and sold in 1966–67. The prototype was assembled in late 1964 and I had it by the beginning of 1965. (It is now in the Henry Ford Museum)." Email correspondence, 13 March 2013. I believe that the choreographer in question is Alwin Nicolai.

Paul Bley's Road to Open Improvisation

What brought Bley to the Moog synthesizer was more than a decade of musical exploration as an improviser. He began his career as a bebop pianist.[4] In 1955, his probing nature became apparent when he told a *Down Beat* interviewer: "I'd like to work with superimposed harmonies and try to write music without a chordal center."[5] In a dramatic departure from bebop, Bley began to move beyond repetitive musical structures such as AABA song forms and the blues. Bebop solos were built upon the recurrent patterns of the chords accompanying these song melodies. Bley's new, evolving conception was to abandon these cyclical forms. Instead, the opening melody would be followed by open improvisation, and that would be guided not by chord changes but by individual and collective intuition.

In 1957, Bley, now in Los Angeles, was playing "long, improvised suites for trumpet and piano" with Herbie Panier. Bley recalls that the month of music at Gene Norman's Crescendo Club on Sunset Strip "was completely free, without tempo, without harmony, without written composition." Bley's assessment was that the results were mixed, the problem being that the first step was learning how to play freely with a drummer who kept a steady pulse. "We had jumped into totally free playing. There had to be a period of playing free, with time, before we could play totally free."[6] Open improvisation with a non-metric drummer awaited Albert Ayler's work in the 1960s with Sunny Murray plus trumpeter Don Cherry and bassist Gary Peacock.

In 1958, Paul Bley and Ornette Coleman crossed paths in Los Angeles. Without knowing each other's work, they were each asking parallel musical questions about free improvisation. This was a year before Coleman's heralded arrival in New York and two years before the recording of his large ensemble work, "Free Jazz." Coleman had not been finding a warm reception for his new ideas. He had been thrown off bandstands for playing in different keys and performing with a plastic saxophone. Yet, his compositions had attracted the notice of Los Angeles-based Contemporary Records; he recorded his debut album for the label, *Something Else!!!!* in February and March 1958.[7]

Bley's musical breakthrough as an improviser searching for a new path occurred in October of that year, when Ornette Coleman unexpectedly joined his band. Bley's quartet was in the midst of an ongoing gig at the Hillcrest Club in Los Angeles when his bassist and then his drummer each left town. Charlie Haden was invited to become the bassist, followed by Billy Higgins on drums. Higgins invited trumpeter Don Cherry to sit in with the Bley Quartet, and Cherry brought along Ornette Coleman. It became immediately clear to Paul Bley and his then- wife, the band's resident composer Carla Bley, that the ensemble should be reconfigured around these

[4] *Introducing Paul Bley* (1953) was a trio setting with Charles Mingus and Art Blakey.
[5] 13 July 1955. Reprinted in the *Down Beat* 50th anniversary issue, July 1994, and quoted in Bley with Lee, 1999, 57.
[6] Bley with Lee 1999, 61.
[7] Ornette Coleman, *Something Else!!!!: The Music of Ornette Coleman*, Contemporary Records S9551, 1958 (CD reissue: Concord Jazz / Fantasy / OJC Remasters 32845, 2011).

musicians. Once this was done, they set out on an exciting exploration that is retrospectively documented on the *Live at the Hillcrest* recordings.[8]

On that first evening, Coleman's solos took Bley by surprise. During the first set, Coleman's playing quickly spun away from anything that related to the opening eight bars. On the second tune, a Coleman composition, "although the solos started in the key of the original, rather than following an AABA form, they followed an A to Z form." This meant a continuously unfolding, non-repetitive line of unfolding free-ranging solos "in which repetition was anathema … It wasn't totally free because totally free was A forever, metamorphosing. It was a form that took hold, because you could finally return to the written music, and the audience had something to hold on to."[9] What Coleman was developing was a motivic approach to improvisation, where the saxophonist drew upon brief elements of melodic phrases, which he interspersed throughout his solo, varying and extending them. The contour of a phrase could be treated as an abstraction, a template to generate new motifs based upon the direction, speed, or angularity of the original, irrespective of its starting note or key.[10] Coleman offered a way to spontaneously compose melodies that seemed to organically emerge from the original, giving his freely drawn improvisations a sense of familiarity and continuity. During this period of time, pianist Cecil Taylor was pursuing a more structured, also motivic approach.

Coleman's free playing supported by a metered pulse provided the structure that Paul Bley was missing. "In a single gesture, all the constraints of repetitive structure fell away. The music was very exciting, the logic of it was obvious, and as soon as I heard it I realized that from now on, this was the only way to play with a rhythm section."[11] What Bley realized, listening to Coleman, was "that the improvisation could be directed not by the nature of the composition, but by the nature of what the *premise* is to improvise on. From a musical point of view, it was extremely stimulating … "[12] Solos could be built upon thematic material or intervallic structures, or … any model the soloist desired, without recourse to a flow of chord patterns. Bley also reports that the band immediately lost the interest of its audience at the Hillcrest, although it kept the gig for a while longer.

Ornette Coleman subsequently moved to New York City, his first stand at the Five Spot extended for weeks. Many musicians of note came by to take in the innovations unfolding on the bandstand. Subsequently, around 1962, Bley sat in with Ornette Coleman, as drummer Andrew Cyrille recalls:

> The night I sat in with Ornette at the Five Spot, with [Walter] Dickerson, I asked [drummer Charles] Moffett if I could play. And Paul came up and played too. Ornette said "Play what you hear." If you're talking about playing free, that was it … Paul is an astute musician. I guess [when] playing with Ornette and that kind

[8]Ornette Coleman Quintet, *The Complete Live at the Hillcrest Club,* Gambit Records 69272 (CD, 2007).
[9]Hamilton 2007.
[10]Ekkehard Jost has referred to this approach as a "chain of motivic associations." Ekkehard Jost, *Free Jazz* (New York: Da Capo, 1981 [1974]): 48, 59–60.
[11]Bley with Lee 1999, 63–64.
[12]Bley with Lee 1999, 67.

> of thing, you make a statement, listen to what's around you, relate to what the sounds are. In that kind of setting, I'm not playing time; when I was playing with Ornette that evening, I can't tell you now how I was playing because I was listening to Ornette and [Jimmy] Garrison and [Don] Cherry.[13]

During the decade between the Hillcrest Club gigs and his adoption of an early Moog synthesizer, Paul Bley continued to explore open improvisation. He was a member of the Jimmy Guiffre 3, featuring the clarinetist as well as bassist Steve Swallow. During the mid-1960s, he kept one foot in the jazz club and festival circuit and the other in the circle of free improvisers connected with the October Revolution in Jazz festival at Manhattan's Cellar Café (1964) and, for a time, the Jazz Composers Guild.[14] Among the records of these associations is *Barrage*, a 1964 quintet outing that includes Sun Ra's saxophonist Marshall Allen and drummer Milford Graves.[15] Bley's trio in the later 1960s included drummer Barry Altschul, who would later join Chick Corea, Dave Holland, and Anthony Braxton to form the band Circle.

Bley and the Moog Synthesizer

By the end of the 1960s, Paul Bley was on a new quest. While Bob Moog had designed his synthesizer systems as a means of composing in a studio, Bley was interested in its potential for live performance. "I was very intrigued as to whether his design was compatible with improvisation."[16] This was not a simple question, since the instrument was monophonic, temperamental, and hard to keep in tune. Programming a sound entailed interconnecting modules with cables to create a "patch." Changing patches meant reconfiguring the patch cords, and adjusting knobs and sliders.[17] There was no memory to save these configurations for future use or to quickly switch between them.

Bley contacted Bob Moog, designer of the eponymously named synthesizer, hoping to obtain an instrument of his own. Preparing for lunch with Moog, Bley imagined himself leaving the meeting and driving away with a production model in tow. He recalls telling Moog: "I have my rented station wagon just outside the door and if you grab a corner of the synthesizer we can carry it outside right now."[18] Bley later suggested that he was offering himself as a potential "road tester" of the instrument

[13]Andrew Cyrille, telephone interview with the author, 14 July 2012.

[14]Benjamin Piekut, "Race, Community, and Conflict in the Jazz Composers Guild," *Jazz Perspectives* 3: 3, (December 2009), 191–231.

[15]Paul Bley Quintet, *Barrage*, ESP, 1964 (CD reissue: Caliber 2000).

[16]Andy Hamilton, "Paul Bley: Time Must Have a Stop." *The Wire*. October 2007, http://www.andyhamilton.org.uk/musiccriticism.htm, accessed 2 November 2013.

[17]Fiofori 1970, 15, quotes Moog, who clearly recognized the limitation: "That's the next step, to incorporate a memory into the instrument so that if the musician wants to pull out a pattern that he's played before or a set-up that gives a certain color, he can … In live performance, it should enable the musician to pull out a certain tone color immediately instead of having to take five or 10 or 30 minutes or one hour to set up in the studio. Of course, that is what you have to have in live performance."

[18]Bley claims: "I pointed out to Bob that in reducing this roomful of equipment down to the size of a coffee table and adding a keyboard, he had not made any allowances for real-time performance. And I put it to Bob that his company was doomed to failure unless he had the input of a performing musician. Bob went for it, but said that since there was only one production model in existence, he would have to ship it to me later. I said, 'That's not necessary, Bob" (Bley with Lee, 108–109).

in live performance.[19] Would Bob Moog in fact have traded a synthesizer system for this favor? With Moog's passing in 2005, we may never know whether or not Bley's account is accurate, and there is reason for skepticism.[20] However events unfolded, in the end Bley obtained a Moog synthesizer.

Back in New York City, neither Bley nor singer and composer Annette Peacock, his second wife and collaborator in this project, knew how to make the synthesizer work. There was no user's manual. Even if there were, mastering an instrument with seemingly limitless possibilities was going to take substantial trial and error.[21] Bley apparently sought no assistance from Moog or others familiar with the instrument.

Despite technological and logistical challenges, Bley embarked on a three-year intense engagement with live synthesizer performance and recording, 1969–1972. Andy Hamilton counts ten synthesizer records. "These albums are poised interestingly—and rather uneasily—between free jazz, fusion, Prog rock and video, and film sound effects."[22] One finds much stylistic contrast between Bley's week-long engagement at the Jazz Workshop in Boston—about which he reports: "there was some very raw synthesizer playing, which we decided was too far out to be issued"[23]—and "Parks," from the 1971 recording *The Paul Bley Synthesizer Show*, a syncopated 1960s pop-oriented tune in the style of Dick Hyman's electric organ playing.[24] On the 1972 *Paul Bley and Scorpio* album with Dave Holland and Barry Altschul, "El Cordobes" fits comfortably within the repertoire of early jazz-fusion,

[19]Bley recalls: "He was only too happy to put his instrument through the test of an authentic improvising musician, to see what it could and what it couldn't do. Bob Moog loved his instruments and followed them everywhere," (Hamilton 2007). Tom Rhea, a member of the Berklee School of Music faculty and, previously, a clinician working for Moog who demonstrated synthesizer systems to the public, points out that Moog already had access to substantial input from musicians, among them Wendy Carlos (Tom Rhea, email correspondence, 30 January 2013.

[20]Tom Rhea communicates several reasons for skepticism. "I don't think Bob would have just 'handed over' a system at any rate," he began. Also, "the keyboard for 900 Series Modular Moog synthesizers didn't get 'added on', it was there practically from the git-go." Finally, "Bob Moog consciously chose a monophonic over a polyphonic keyboard from the start" (Rhea, ibid). Rhea elaborates elsewhere: "It is interesting to note that the first prototype of the Moog synthesizer was a polyphonic instrument. Bob unilaterally dismissed such an instrument, with Herb's subsequent blessings, as not bringing anything new or interesting into the existing musical milieu. Herb leaned toward avant-garde electronic music of the era, and Bob intuitively felt that musicians did not need another electronic 'organ.' This viewpoint facilitated the musically more-radical but profoundly more fecund monophonic and modular instrument that Bob Moog presented to the world." Tom Rhea, "Robert A. Moog: Business Man and Businessman." *Music Business Journal*, 1(October 2005): 5.

[21]Bley claims in his autobiography that: "It took me and Annette two years to get to the point where we could give a performance on it. Finally, we found sound one. That was a nightmare, because once we'd found sound one, we had to go back and start again to find sound two. We literally spent two years or so drawing charts of the face of the instrument and the patch cording that was required for each desired sound and treatment. I had pretty much decided early on that I wanted the keyboard synthesizer to do things that the piano couldn't do." Bley with Lee, 110. Drawing upon my own experience with a contemporaneous Moog system and that of colleagues, I question how long this process might take, as do Tom Rhea and Joel Chadabe. Email correspondence with Rhea, 30 January 2013, and in person conversation with Chadabe, 27 January 2013. Also, Moog's close musical associate Herb Deutsch, having performed with the synthesizer during this period, was already an excellent source of information. Why Bley wouldn't have consulted musical colleagues, or Moog himself, remains unclear.

[22]Hamilton 2007.

[23]Bley with Lee 2007, 113.

[24]Paul Bley, *The Paul Bley Synthesizer Show* Synthesizer Show, 1970.

like Chick Corea's "Sea Journey."[25] The music is in a straight meter, with a tightly linked rhythm section.

Bley's electronic explorations also drew upon Annette Peacock's voice-triggered Moog modules. Peacock's voice synthesis appears on eight of the synthesizer recordings. "She was plugging voice microphones into jacks that were looking for oscillator signals. That took even more work and the whole system became even less stable, because the instrument had zero memory. But she got some wonderful things." Bley describes their concert at Philharmonic Hall in New York, December 26, 1969, as "the first live performance ever done with audio synthesizer and voice treatments."[26]

Indeed the premise behind the Moog synthesizer wasn't simply to offer a new way to play music for which acoustic instruments were arguably better suited. Bley noted in 1970: "There's no reason to make the synthesizer sound like an oboe player, because an oboe player sounds a lot better. The synthesizer has new sound possibilities."[27] As he observed, the shift from acoustic to electric and from electric to electronic, meant something more than a change in instrumentation: "As the sound of an instrument changes, so will all the music that is made, solo or ensemble, with the instrument. […] In my case, the change from piano to electric keyboards, including the first primitive synthesizers, was to lead to results that I could not have fully predicted."[28] Among possibilities that intrigued Bley were "infinite sustain, another was infinite speed, and another was infinite range."[29]

Clearly, as Bley discovered, the early synthesizer was not an instrument for the faint of heart. The first Moog synthesizer recordings among them were The Zodiac's *Cosmic Sounds* (1967), with electronic sounds by Bernie Krause and Paul Beaver,[30] Wendy Carlos's *Switched-On Bach* (1968), and numerous rock albums, mostly created within the security of the studio. One of the first musicians to move the Moog into the concert domain was keyboardist Chris Swanson, who began performing Bach and subsequently jazz in 1968.[31]

Live Moog Performance before Paul Bley

The first concert featuring a Moog synthesizer was given by Herb Deutsch and his New York Improvisation Quartet. Deutsch was Robert Moog's collaborator in the initial design of the synthesizer. The concert took place at Town Hall in New York City, 25 September 1965[32] and included drummer Jim Pirone, reedist Bob Stein,

[25]Paul Bley, *Paul Bley and Scorpio*, Milestone Records, 1973 (CD reissue: Universe/Milestone UV 001, 2001).
[26]Ibid, 113.
[27]Fiofori 1970.
[28]Bley with Lee, 108.
[29]Hamilton 2007.
[30]Trevor Pinch and Frank Trocco, *Analog Days: The Invention and Impact of the Moog Synthesizer* (Cambridge: Harvard University Press, 2002): 110–116.
[31]Joel Chadabe, *Electric Sound: The Past and Promise of Electronic Music* (Upper Saddle River: Prentice Hall, 2007), 143. Chadabe quotes an extended interview with Robert Moog.
[32]Herbert A. Deutsch, "The Moog's First Decade, 1965–1975," New York State Museum, *NAHO*, Fall 1981. Excerpted at http://www.moogarchives.com/moog1.htm. Accessed 1 May 2013.

and Steve Elmer playing percussion and piano.[33] The Moog's larger public unveiling took place two years later, in New York City on 28 August 1969. The concert was the final in a series of summer concerts, "Jazz in the Garden," in the Museum of Modern Art (MOMA) Sculpture Garden. Tickets cost seventy-five cents plus the price of museum admission.[34] It was an event to behold.

The MOMA concert showcased four small-scale Moog systems, as Herb Deutsch describes:

> One was a rather typical simple system used primarily for bass sounds and voices, a second was much more complex, and assembled to allow a soloist to access a wide variety of voices with fast selection by both patching and flipping switches … [T]hat was the primary synthesizer. A third and very interesting unit was one designed to provide many different percussion, cymbal and drum sounds playable, of course, from a keyboard. The fourth was actually a hybrid of Moog modules with a polyphonic keyboard, which allowed the pianist of the group … to play solos as well as "comp" behind other soloists.[35]

Deutsch led a quartet that included pianist Hank Jones playing the polyphonic synthesizer, with Artie Doolittle on bass synthesizer, and Jim Pirone on percussion synthesizer. Jones was chosen at the suggestion of Herbie Hancock who, ironically given his later history, felt too uninformed about synthesizers to play. Chris Swanson fronted a quartet that included guitarist John McLaughlin, recently arrived from England, pianist Hal Galper, and drummer Bob Moses. Critic Bertram Stanleigh wrote: "These were real musicians playing real music, and it was clear that their message was getting to the audience."[36]

While the electronic nature of the Moog was at the heart of its unique timbres, it was also the source of its vulnerability. In a 1994 interview with Joel Chadabe, Bob Moog recounted the scene: "Chris and his group just banged away and wailed away and everybody freaked out. There were 4,000 people there. Well, the whole system—four performance stations, big amplifiers—was plugged into one outlet in the garden, and right when Chris hit an absolute frenzy, someone stood up on the outlet and slipped and knocked the plug out. So Chris got up and said, 'Well, that's it folks.' And that was the end of the concert."[37]

Stanleigh observed: "Poor Robert Moog was clearly disconsolate as he announced the power failure and advised that the concert was at an end," a fact that was sufficiently disturbing to Moog that he concluded in a 1975 interview, "unfortunately, the show went very badly."[38] It might be more accurate to say that it went well, but had a sudden interruption, as Stanleigh continues: "But he was dealing with an audience

[33]Herb Deutsch, email communication with the author, 1 May 2013.
[34]MOMA press release No. 73, 5 June 1969.
[35]Moog Archives, "Interview with Herbert A. Deutsch, October 2003 and February 2004. http://moogarchives.com/ivherb01.htm. Accessed 1 May 2013.
[36]Bertram Stanleigh, "Moog Jazz in the Garden." *Audio*, November 1969.
[37]Chadabe 1997, 144.
[38]Dominic Milano, "Bob Moog" (1975 interview). Greg Armbruster, ed., Tom Darter, compiler, *The Art of Electronic Music: The Instruments, Designers, and Musicians Behind the Artistic and Popular Explosion of Electronic Music*. New York: Quill/Keyboard, 1984, 69–73.

that was having too much fun to quit. The plug was reconnected, and another piece was played to everyone's delight. One thing was clear; from now on the Moog will have an established place in live performances." Herb Deutsch speaks of the concert as "amazing" and the ending "dramatic … which the excited audience considered part of the show and screamed their approval."[39] The New York Times offered a muted response (albeit counting the audience at 3500). Allen Hughes wrote: "Actually, not too much happened that really held the attention. Much of the time, the music sounded like a rather clumsy imitation of jazz."[40] [41]

Bob Moog was well aware of the obstacles to his synthesizer's use in live performance. In fact, he later pointed out: " … our modular synthesizers were never designed for live performance! They had lots of patch cords and panel controls, all of which had to be set just 'so', in order to get the right tone color. But the idea of putting on a live concert sounded like fun, so we decided to build four special synthesizers, and to equip them with push-button presets so that they could be played in live performance." At Jazz at the Garden, "our instruments actually didn't work that well, primarily because we didn't have enough time to test and tune them. However, the musicians were so great that they made the concert a memorable occasion."[42] More generally, learning to play the Moog took considerable time and effort. In 1970, Moog acknowledged: " … lots have [become frustrated with the instrument]. Some musicians have just junked it and gone to something else. The instrument requires involvement and a willingness to put in work."

"As the synthesizer exists now," Moog continued, "it should be a studio instrument because of all the changes you have to go through with the patch cords and the control knobs to get a different tone color … you can't do it conveniently on stage. There have been lots of live performances where the synthesizer has been used, but the performances have been built around the limitations of the instrument and this is a case now where the musicians are ahead of the instrument. Right now it's the instrument designer's job to catch up and that is exactly what we are doing."[43]

Herb Deutsch's concerts were not the only early live electronic music performances with the Moog. In 1967, Richard Teitelbaum, a young American composer living in Rome, found the Moog to be the right system for his work exploring alpha brainwave biofeedback. These compositions included "In Tune" (1967), "Organ Music" (1968) and later works. Instead of using the Moog system as a keyboard instrument, Teitelbaum had performers use "internal techniques of mental control similar to traditional meditation practices" in order to "increase or decrease the amplitude and continuity of the alpha wave trains." Moog designed technologies to extract and amplify the changes

[39]Moog Archives interviews Herb Deutsch, ibid.

[40]Allen Hughes, "Moog Approves of Moog-Made Jazz: Synthesizers Perform in Museum Series 3,500 Throng." *The New York Times*, 29 August 1969, 24.

[41]Pianist Dick Hyman played a Moog "Jazz in the Garden" show a year later, leading a group that included bassist Richard Davis, drummer Ed Shaughnessy, and saxophonist Arnie Lawrence and his children. John S. Wilson, "Hyman, at Museum, Gives Moog Synthesizer Concert." *The New York Times*, 20 August 1970.

[42]"Bob Moog Remembers." Closed to Home, Keith Emerson tribute website, http://www.interstellar9.com/emerson/bobmoog.htm. Accessed 1 May 2013.

[43]Fiofori 1970, 16.

in alpha waves (as well as heartbeat, breath and galvanic skin responses), so that these could be used as control voltages for the synthesizer. Control voltages are non-audible electrical information used to control attributes of sound. They can be used to control various features of tone-generating oscillators: frequency (pitch), amplitude (volume), timbral features including filters and waveform (frequency spectrum), and envelope shape (the rise and fall in amplitude from the onset to the final decay of a sound). Teitelbaum speaks of this translation as "orchestrating" brain waves.[44]

The next prominent keyboardist to feature live Moog performance was British rock musician Keith Emerson. He had heard the newly released *Switched-On Bach* in a record shop and purchased it largely for the cover photograph of the Moog synthesizer. Hearing that fellow British musician, multi-instrumentalist Mike Vickers of Manfred Mann, had recently purchased his own Moog, Emerson arranged to see the synthesizer for himself. During the demonstration, Vickers vigorously insisted that live performance was impossible; Emerson later recalled Vickers' assertion: "No way. You don't realize the complications in this. There's no way you could do that." Emerson suspected otherwise and coaxed Vickers into helping him play the Moog at a show that Emerson's band, the Nice, was playing with the Royal Philharmonic Orchestra. Vickers remained largely backstage, periodically approaching the Moog to plug in a patch chord. As Emerson remembered later: "It worked excellently. So I immediately sent off to Moog and got some literature back. At that time Bob was developing his preset thing, so I said, 'I want one.'"[45] Moog recalls that Emerson's synthesizer was actually one of the systems used at "Jazz in the Garden," sold through R. A. Moog's London distributor.[46] In fact it was the one played on that date by Herb Deutsch.[47]

After a frustrating experience trying to get the newly purchased synthesizer to make sound (like Bley's experience, there was no instruction manual and, as Emerson recalls, "It arrived in a box, no instructions or anything. It was all in bits and pieces"), Emerson solicited Vickers's help and the rest is history. The Moog arrived in time to be used on Emerson, Lake and Palmer's first recording; Emerson's solo on Lake's tune, "Lucky Man" premiered the long, slow *portamento* (pitch glide) that has become one of the instrument's signature sounds. Bob Moog visited Emerson in London, just in time to receive a test pressing of the record, and Emerson told him "how happy he was to have the Moog modular synthesizer."[48] Subsequently, Emerson took the Moog on

[44]Richard Teitelbaum, "Improvisation, Computers and the Unconscious Mind." *Contemporary Music Review*, 25: 5/6, October/December 2006, 497–500. New York: Routledge, 2006. Also see Richard Teitelbaum, "In tune: some early experiments in biofeedback music (1966–1974)" in David Rosenboom, ed., *Biofeedback and the arts: results of early experiments*. Vancouver: Aesthetic Research Centre of Canada, 1976.

[45]Dominic Milano, interview with Keith Emerson, October 1977. Greg Armbruster, ed., Tom Darter, compiler, *The Art of Electronic Music: The Instruments, Designers, and Musicians Behind the Artistic and Popular Explosion of Electronic Music*. New York: Quill/Keyboard, 1984, 142–143.

[46]"Bob Moog Remembers." Closed to Home, Keith Emerson tribute website, http://www.interstellar9.com/emerson/bobmoog.htm. Accessed 1 May 2013.

[47]Herb Deutsch, email correspondence, 13 March 2013.

[48]"Bob Moog Remembers," ibid.

tour for the first time in its history. In fact, it continues to remain a featured instrument in his touring life even today.

Electric to Electronic Keyboards as Sound Design Instruments

Electric instruments have historically been integral to rock guitar: the lengthened sustain, increased volume, feedback potential, and use of distortion are all key to rock's sound. But, since Charlie Christian's introduction of the electric guitar in the 1930s, jazz had generally drawn from a tradition of acoustic instruments, and aesthetics in electric guitar-playing favored minimal sustain and distortion. Following the lead of Josef Zawinul, pianist in Cannonball Adderley's band, Miles Davis insisted that his pianists Herbie Hancock and Chick Corea play electric piano in his late 1960s bands. The Wurlitzer and, with its introduction in 1967, Fender Rhodes electric pianos were qualitatively different from the acoustic piano. While, in practical terms, the portability of these instruments saved pianists from dependence upon not infrequently inferior and out-of-tune acoustic pianos in clubs and halls, the new technology also pointed towards a change in aesthetics.

Ray Charles, who first introduced the Wurlitzer to popular music in 1954, set the stage for the shift that signified a gospel sound, timbrally somewhere in between the piano and organ. The warm, rich sound, and the instruments' potential for sharp attack and long sustain (particularly on the Rhodes), moved pianists to change the way they accompanied and soloed. One could luxuriate in ringing sustained chords or percussively punctuate a rhythmic feel. Following Charles' lead, Sun Ra soon became the first to play electric piano in a jazz setting, with Zawinul making this move in 1967. Soon, the addition of wah-wah and other effects adapted from the electric guitar allowed a keyboard player to mimic vocal inflections while moving closer to an electric aesthetic.[49]

The notion of an *electric* aesthetic doesn't fully explain the shift to the synthesizer. The first available keyboard synthesizers clearly had technical limitations. Most significant for the jazz player, monophony made it impossible to play chords. This was a key function of the piano within bebop and post-bop traditions. How could a player "comp" (accompany) without the ability to play chords?[50] The electric piano was already an excellent comping instrument.

If continuity is to be found between the electric piano and synthesizer, beyond being able to play as loud as other electric instruments, it can be found in their shared potential to serve as sound design instruments. This was the true function of several key jazz performers' involvements with electronic effects: Herbie Hancock's adaptation of the Echoplex and wah-wah in the context of his Sextet and with Joe Zawinul, the Echoplex's prominence on Zawinul's eponymous recording, and Chick Corea's use

[49]Bob Gluck, *You'll Know When You Get There: Herbie Hancock and the Mwandishi Band*. Chicago: University of Chicago Press, 2012, 63–65, 70–75.

[50]Although Herb Deutsch's synthesizer in the 1969 MOMA concert did have a polyphonic keyboard, this was an unusual feature until the introduction of the Polymoog in the mid-1970s.

of fuzz and ring modulator when Corea was a member of the Miles Davis Quintet.[51] In this way, the performer could play a note or chord on the Rhodes while simultaneously altering its timbre and other sonic attributes.

It was only a short move to adopt an instrument, the synthesizer, specifically designed to effect changes in timbre. Such changes became as integral to performance as choice of notes. This is a move that both Hancock and Corea would make in later bands, starting in 1973–1974, when more user-friendly synthesizers became readily available. But first, Hancock's curiosity about synthesizers led him to Patrick Gleeson, whose sound design on a Moog III system (without a keyboard) provided the electronic overdubs on the second Mwandishi band album, *Crossings* (1972). Gleeson was one of the first musicians to play synthesizer in live jazz performance settings when he brought an Arp 2600 on the road with the Mwandishi band in 1972 and 1973.[52]

A piano offers limited control over timbre. And after a key is depressed, the amplitude immediately begins to decrease. Few alterations can be made once a note has been played. An electric piano broadens control over attack and sustain to some degree, and using electronic devices, timbre can be altered during the decay of a note. Timbral nuance of this sort has historically been an integral element in jazz performance practice. On the saxophone, depth of vibrato, degree of breath in the sonic mix, and changes in tone color, the shift into honks, and multi-phonics are among numerous techniques that can be applied to a note following its attack. Plunger mutes have long been used by trumpeters and trombonists to shape the filtering and timbre of instrumental sounds. These devices contribute to the creation of a personal sound and at times to building tension and its release. But they are not available to the pianist, and in the early 1970s this lacuna suggested an area where technological innovation could alter the nature of keyboard instruments.

Throughout the history of jazz some pianists, Teddy Wilson and Oscar Peterson prominent among them, have adjusted to the timbral and sustain limitations of pianos by developing a thick chordal approach. Others have developed rapidly streaming flights of melodic filigree and ornamentation, a technique exemplified by Art Tatum. These techniques derive from ones developed with the classical modern piano in the nineteenth century and continue today; Chick Corea, for example, makes use of grace notes to highlight a point in a passage. One function of these techniques is to suggest tonal and pitch malleability. Recordings by Peterson and Herbie Hancock feature oscillating octaves at a point of heightened tension, a technique which compensates for the lack of sustain and inability to alter the sound of the piano once a note has been played. The development of the synthesizer offered—and continues to offer—pianists (now more properly conceived as keyboardists) the ability to play in subtle or dramatic ways with an expanded palette of timbres and to extend a note's life beyond its attack.

[51]Gluck, ibid.
[52]Gluck, ibid.

Bob Moog explains that synthesizers were designed with timbral shifts in mind: "With the synthesizer or other electronic instruments, you can change a tone color continually from pure pitch to pure noise, from very bright to very mellow, from completely traditional to completely strange, and that's up to the musician." Paul Bley adds another way in which a synthesizer player can alter a sound during its period of sustain: "I learned that there were three kinds of vibrato: pitch vibrato as in a violin tremolo; volume vibrato, as if turning the volume knob up and down quickly; and timbre vibrato, as in turning the filtering knob up and down quickly."[53]

Expanded control over attributes of musical sound also changes the nature of how the instrument can be performed. While Hancock and Corea turned knobs on devices with one hand, playing on the keyboard with the other (or using a pedal in the case of the wah-wah), there were so many knobs, sliders and cables on the first synthesizer systems that changing the sound while playing added a daunting level of complexity for the performer. More performer-friendly synthesizers, like the Minimoog and Arp Odyssey, had not yet arrived and might be understood as a response to the early experiences of musicians like Bley and Emerson. On these future instruments, most connections were hard-wired, limiting the performer's involvement to user-friendly pitch and modulation wheels and a limited set of knobs to make more drastic changes in timbre. Focus could remain on playing the keyboard.

Paul Bley, playing an early synthesizer, was interested in asserting broader control over musical parameters without impeding his freedom to perform skillfully. His first synthesizer, a Moog from the MOMA show, could store patch configurations, as Moog recalls. The instrument "had preset capabilities. So, instead of changing a whole bunch of panel controls, you just pushed a button."[54] Bley wanted to move further in the direction of a design that increased control yet impeded his hands the least possible. "Since my hands were fully occupied with the keyboard and the patching, I had the luxury of designing twelve foot pedals for controlling these parameters."[55]

Bley's custom-designed interface was accompanied by a change in his choice of synthesizer in late 1969, from the Moog to the more portable Arp 2600. The Arp 2600, designed and marketed by Alan Perlman, was better suited to live performance. It featured more presets, as well as sliders to make subtle sonic shifts and quickly change constellations of patches. Previous synthesizers required extensive patch cord changes to achieve these results.

Bley addressed the monophonic nature of the synthesizer by combining it with additional keyboard instruments. "As our technology grew, I found myself with several keyboards at my disposal. Photographs from that period show me stacking them. At that time, there was no precedent for putting one keyboard on top of another, what we now call the keyboard sandwich. I had to think of that by myself."[56] A monophonic synthesizer could be complemented by a polyphonic electric

[53]Bley and Lee 1999, 110.
[54]Milano, "Interview with Keith Emerson," 142–143.
[55]Bley and Lee 1999, 110.
[56]Ibid, 113.

piano, upon which one could play chords. For Bley, the electric pianos were particularly useful for playing additional melodic lines, at times polytonal, juxtaposing material in unrelated keys or in no particular key at all.

Multiple keyboard performance was not new. Organists have had multiple keyboards ("manuals") at their disposal for several centuries. Polyphonic lines, each with a different voicing, are a feature of Bach organ performance practice. Organs offer two of the features available on synthesizers: long sustain and the ability to change timbre on the fly. The sandwiching of keyboards of very different kinds and technologies, however, was something new, as were unique control possibilities and features like *portamento*.

Multiple keyboards allowed Bley to play polytonally, following from his personal, Ornette Coleman-like approach to improvising. In this way, Bley could use synthesizers, as he noted in 1970, with a "conception that flows directly out of our past recordings."[57]

As Bley observed in his autobiography: "There was no difference between the electric music and any of the free jazz we played acoustically. We didn't bother using the instrument to change the music; we were just hoping to be able to do some things that you couldn't do on acoustic instruments."[58] In some ways, synthesizers, due to their timbral control and microtonality, enhanced his ability to continue similar work. As we shall see, though, the electric music of Paul Bley was far too eclectic to fit such a simple description.

Synthesizers: Intonation, Microtonality, and Pitch Instability

The ability to play microtonally was one of the most important revolutions that the synthesizer represented for keyboard players—and particularly for Paul Bley. In many cultures, melodies sung and played can seem "out of tune" to the ears of people whose reference point is European classical music and the even-temperament tuning (A = 440 khz) it embraces. The piano keyboard forms a grid containing a clearly defined set of note choices. There are no notes placed between the keys – at least none that can be played on the piano. Unlike a violin or guitar, the piano keyboard doesn't make allowances for gliding between pitches. Unlike a saxophone or flute, one cannot change the pitch once it has been played. One cannot "bend" notes with one's fingers. And once a note is sounded, the optimal goal is for the pitch to remain stable and unwavering. There are simply no in-between-notes. Western classical music, at least the tonal variety prior to the twentieth century, and even much folk music, is diatonic, meaning that all available pitches can be found on the piano keys. In many cultures, however, there are indeed notes within those in-between places.

Jazz and blues performance practices on instruments that offer pitch flexibility reflect the influences that African musical traditions have brought to the Western hemisphere.

[57]Fiofori 1970.
[58]Bley with Lee 1999, 113.

Instruments that carried the melody in early jazz ensembles—prominently, the cornet or trumpet, the violin, and eventually the saxophone—could replicate the human voice's *tessitura*, pointedly through each instrument's ability to slide between pitches and to alter its timbre like the human voice. All of these instruments are played in the western classical tradition with the expectation of hitting discrete, stable pitches, but jazz players exploited approaches to pitch outside these norms. Microtonal notes could be played, and notes could be bent, brought in and out of tune (slowly, offering pitch instability, or rapidly with vibrato). The sonically rich piano, often a rhythm-and-harmony alternative to the banjo, offered the additional opportunity to include melody lines.[59] But its grid-like keyboard design placed a built-in constraint particularly at odds with a musical tradition whose distinctive qualities included pitch and intonation flexibility.

Saxophonists playing jazz have long bent notes or used other techniques to create pitch flexibility. Ornette Coleman expanded this approach dramatically by making microtonality a consistent, rather than momentary, periodic feature. Generally, microtonality refers to tuning systems where the distance between notes is smaller than a Western minor second. With Ornette Coleman, there is a fine line between microtonality and idiosyncratic intonation. "Lonely Woman," from Coleman's third recording *The Shape of Jazz to Come* (1959), shows the saxophonist carefully shaping the intonation, amplitude envelope, articulation, breathiness and other qualities of every note. Western classically trained ears will hear some notes to be out of tune. The counter theme of "Lonely Woman" (at 1:09) shows Coleman simultaneously overblowing, playing slightly "sharp." Within the brief solo line that connects this passage with the final repetition of the theme, Coleman's highest notes in each phrase are treated similarly, as is the first note of his extended solo. Following a passage in Western intonation, "sharp" notes accentuate the arc of his phrases at 1:53 and 2:02. Coleman proceeds to alternate between passages in Western intonation and passages that are tuned slightly higher.

Bley observes: "From a traditional bebop point of view, it was shocking, because bebop didn't use microtonality. That was one of its problems: it could see no way to go except into endless permutations of well-tempered notes. Ornette introduced the idea of erasure phrases, where there were some phrases that were tonal and well-tempered, and some phrases that were deliberately not tonal and well-tempered."[60] The synthesizer introduced the possibility for pianists like Bley to play microtonal pitches—notes off the Western pitch grid, in between the available notes—and introduce true pitch instability. Players of keyboard instruments who did so were following a trail blazed not only by Ornette Coleman and other horn players, but also by pianist Sun Ra, on the Clavioline, an electric keyboard instrument,[61] and later on the Minimoog.

[59]Gunther Schuller. *Early Jazz: Its Roots and Musical Development* (New York: Oxford University Press, 1968, 1986), 8, 67, 157–158.
[60]Bley with Lee 1999, 67.
[61]"The Sun Myth" from *Heliocentric Worlds, Volume 2* (1965).

Close Listening to Paul Bley's Synthesizer Playing

To explore the range of Paul Bley's synthesizer sounds and performance techniques, I will be drawing upon three recordings: *The Paul Bley Synthesizer Show* (1971), *Improvisie* (1971), and *Paul Bley and Scorpio* (1973).[62] The recordings for *The Paul Bley Synthesizer Show* were made over the course of three sessions between December 1970 and March 1971.[63] *Improvisie* (1971) was recorded live in March 1971, and *Paul Bley and Scorpio* in October–November 1972. Interesting to note, Bley's solo piano improvisations, *Open, To Love (ECM),* were recorded within weeks of Scorpio.[64] A compilation of many of these tracks (not including *Improvisie*) was released as *Circles* (2004).[65]

Paul Bley, like Ornette Coleman, is fundamentally a melodic improviser. The synthesizer provided Bley with a malleable instrument that melded the expressivity of the human voice with electronic timbres and technologies that enabled him to flexibly alter the nuance of the melodic line. The synthesizer afforded Bley control over a far greater range of performance techniques than possible on a piano. The ability to alter intonation, whether throughout an entire passage or for a single pitch bend, suited Bley's musical proclivity, which he shared with Coleman, to move away from the conventional Western pitch grid.

Throughout these recordings, the features of greatest interest to Paul Bley include the synthesizers' ability to select and subtly alter timbres, shape articulations, such as attack and note-bend, hold long sustain, and craft variable portamento gestures, sometimes combined with leaps between registers.[66] Bley's timbral choices range from a singing voice, often used during lyrical passages, to highly distorted sounds. Distortion is used for two very different purposes: to provide contrast between related timbres or to juxtapose unrelated sounds. The use of two or more keyboards allowed juxtapositions of sounds and monophony/polyphony. The result was an unusually expressive tool kit well suited to open improvisation.

Sonic choice: One of Bley's favored timbres is a reedy, singing sound. It appears during the synthesizer solo in the slow paced elegy "The Archangel," beginning at 1:20, near the conclusion of "Improvisie," and in the opening section of "Touching."[67] In each example, Bley draws upon this particular timbre to help articulate and project the solo line. The effect is almost like a sculptor sharply carving a shape into stone, a

[62]Paul Bley, *Improvisie*, French American Recording, 1971 (CD reissue: Verve/America/ Universal Division Jazz 9809616, 2005)

[63]These include two trio sessions with different bass players, in December 1970 and January 1971, and a third brief session in March with an entirely different trio.

[64]Paul Bley, *Open, To Love*, ECM, 1972 (CD reissue: ECM 8277512, 2005)

[65]*The Paul Bley Synthesizer* Show: Milestone MSP 9033; *Improvisie*: America 30 AM 6121 and released on CD in 2004, America 980 691-6; *Circles*: Milestone MCD 47102-2.

[66]Some of these features, particularly *pitch bend* and portamento became favored devices of Chick Corea and Herbie Hancock once these performers adopted the synthesizer.

[67]"The Archangel" appears on *The Paul Bley Synthesizer Show* and *Circles*. "Improvisie" and "Touching" both appear on *Improvisie*.

useful tool in the hands of a melodic improviser seeking to expand beyond the piano's limitations to project a vocal line.

Sonic contrast: A highly active dialog between two synthesizers of opposing timbres opens "Touching," juxtaposing the soloistic singing voice against a distorted, lower-frequency sound of barely discernable pitch, played on a second keyboard by Annette Peacock. Later in this performance, the distinction between sounds is highlighted when Peacock lengthens the note durations, modeling the sounds to varying degrees. Peacock subsequently increases the level of distortion, approaching straight feedback. This heightens the sonic contrast as Bley's phrases eventually become more melodic and pitched, albeit periodically altered in tuning, thus maintaining tonal ambiguity. Generally, Bley's use of sonic contrast helps to create a narrative arc, often replacing functional harmony as a means of building tension and repose.

Use of multiple keyboards to create sonic contrast: In "Archangel," spare sustained chords on a second keyboard instrument (RMI electric piano) provide an accompaniment, foregrounding the melodic line. At times Bley's goal is to embed that line within a more complex musical environment. In "The Archangel" and towards the conclusion of "Improvisie," a dense texture is enabled by the juxtaposition of two keyboards. In "Improvisie," the singing synthesizer sound weaves in and out of a thickening sonic mélange consisting of two electric pianos, one distorted and played in a low register, the second providing higher pitched, sustained sounds.

Rapidly changing register or instrumentation for sonic contrast or to enrich the texture: At times, Bley suddenly switches keyboard instruments between phrases or even within a phrase. The result seems less geared towards surprise than it is akin to orchestration in which a composer continually varies or contrasts multiple timbres available within a given sonic palette.[68] There is a conversational quality to the rapid sonic contrasts, where one sound articulates part of a phrase, then hands it off to another for completion. What results is a variation of emotional tone akin to the difference between voices and personalities within an intimate interchange between friends.

The serpentine melody with a descending arpeggio that opens "Nothing Ever Was Anyway" is played on an alternating pair of keyboard instruments, an Arp synthesizer and RMI electric piano.[69] Each instrument articulates a similar yet subtly distinct timbre. Greater timbral contrasts follow during a call and response between the RMI electric harpsichord sound and the synthesizer; the sounds are timbrally fragmented and broken. The fragile, intermittent solo synthesizer line becomes suddenly more declarative yet collapses under the weight of careening pitch shifts and rapidly repeated three- and four-note sequences and leaps between registers. Later, a singing synthesizer sound contrasts with the instrument's earlier fragility. Towards the conclusion, the synthesizer and electric harpsichord resume their previous alternation.

[68] An extreme example is Anton Webern's orchestration of the Bach's "Fuga (Ricercata) a 6 voci" from *The Musical Offering BWV 1079*. See The Hilliard Ensemble and Munich Chamber Orchestra, Christoph Poppen, cond, *Ricercar* (ECM New Series 1774, 2001).

[69] Note that the exposition was recorded by a different band from the opening section.

In "Improvisie," two alternating electric pianos are followed by a declarative synthesizer sound modulated to craft portamento, pitch bend, and vibrato. Further on, quiet acoustic piano provides a subtle countermelody to the synthesizer solo, subsequently giving way to a sparsely played, over-driven and slightly distorted electric piano (possibly electric pianos, each an octave a apart). At the conclusion of the performance, a contrast is drawn between a register-veering synthesizer and a lower-pitched repeated note on electric piano, the attack and decay altered by using a volume control. At the opening of "The Archangel," one monophonic melody moves in mostly step-wise fashion, while a second consists largely of sustained notes, highlighting the timbral differences between an Arp 2600 synthesizer and RMI electric piano.

Altering notes once they've begun to sound: This capability provides Bley with a nuanced way to alter a chosen timbre. In "The Archangel," sustained notes are at times given emphasis through vibrato and, at one point, with a trill. Nearing the two-minute mark, there is a hint of pitch bend as the solo moves into the highest register and then gradually travels several octaves lower. In the absence of conventional harmony, pitch bend and vibrato provide a heightening of emotion. Bley also makes use of long sustain to release tension built in the course of rapidly played preceding notes, such as at the 8:00 point in "Touching," where Bley plays a multi-note phrase that concludes with a long sustained note.

Use of portamento and pitch shifting to create a sense of drama and surprise: Listen during Bley's solo in "The Archangel," at 2:30, after a rapid upwards run, followed by two rapid portamenti (downward and, after a pause, upwards). This sets up Bley's use of the pitch wheel, freely and suddenly sending notes rapidly rising and falling. In "Nothing Ever Was Anyway,"[70] as Bley's solo synthesizer line descends, the timbre becomes fragile and intermittent. Suddenly more declarative at 2:20, the phrase is interrupted by careening pitch shifts and rapidly repeated three- and four-note sequences. Elsewhere in this performance, Bley employs sharply angular playing leaps and jumps between registers to a similar effect. In "Improvisie" at 8:00, a mid-range synthesizer sound, periodically rising and falling in frequency, occasionally jumps into a high register, wildly pitch shifted and frequency modulated, with angular responses on the electric piano by Annette Peacock. The two dialog for several minutes, sometimes calling and responding.

Bley's fullest integration of the keyboards at his disposal is on display on his 1972 recording *Paul Bley and Scorpio*, with bassist Dave Holland and drummer Barry Altschul. "King Korn" is a tour de force performance of Carla Bley's lightning-fast tune. At 1:00 Bley calls and responds between acoustic and electric piano, alternately playing the two in unison and back and forth, joined by the synthesizer at 1:30, the synthesizer then engages in a similar dog-and-pony show with the Fender Rhodes as it had earlier with the piano. At 2:20, Bley begins a synthesizer solo, slightly detuned at times, punctuated by wildly ranging pitch bend. This is followed by more back and forth between the keyboards with the rhythm section close at Bley's heals. Bley's solo becomes briefly more chaotic around the three-minute mark and, after a brief

[70]On *The Paul Bley Synthesizer Show* and *Circles*.

moment of calm, pitch bend is interjected steadily as Bley plays a repetitive riff. He then jumps into a higher register, gliding about, joined by a second synthesizer line reminiscent of fuzz bass, albeit higher in pitch. The electric piano lines return at 4:00, followed by a bass solo, returning us to the head. The overall effect is a perception of emotional drama and intrigue between multiple characters all in conversational dialog. Pitch instability and nuance, and sonic contrast replace functional harmony as a source of tension and release.

Observations

Although Paul Bley engaged only briefly in synthesizer performances and recordings, this body of work represents the earliest sustained example of electronic instruments in a jazz setting. The team of Paul Bley and Annette Peacock is surely not as widely known as Keith Emerson, whose contemporaneous live Moog performances captured the imagination of mass rock audiences.

Bley was not the first jazz musician to consider adopting an electric or electronic instrument capable of microtonal playing. He was preceded by Sun Ra, who found the Clavioline well suited to his choice of sounds and intonation. Bley's work also follows closely on the heels of Chick Corea, Herbie Hancock, and Joe Zawinul's electronic extensions of the electric piano, initiating a conceptual shift among jazz musicians that pointed towards the use of synthesizers in the 1970s. The smaller scale, more user-friendly Minimoog and Arp Odyssey, which replaced the extensive cabling required by the early Moog with hard-wired pre-set patches intuitively altered by knobs and sliders, were not yet available. These were the electronic instruments that Corea, Hancock, and others would soon champion in their more populist bands of the mid-1970s.

Others, most notably Richard Teitelbaum and Bob Moog's associate Herb Deutsch, had previously performed with the Moog synthesizer. Deutsch used it on a handful of occasions as a keyboard instrument in a jazz context. It was not until late in Paul Bley's synthesizer experiences, in 1972, that Patrick Gleeson (who played an early Moog on Herbie Hancock's *Crossings*) and Joe Zawinul (who played an Arp 2600, programmed by Roger Powell, on Weather Report's *I Sing the Body Electric*) first added their synthesizer sounds to jazz recordings. The same year, Gleeson brought an Arp 2600 on the road with Hancock's Mwandishi band, using it as a sound design, not a keyboard, instrument.

As an early adopter of new technologies in a distinctive and original manner, Paul Bley was a pioneer. His work is distinctively original in its use of the synthesizer as a keyboard instrument capable of nuanced live performance. Bley found ways to make the synthesizer his own, responsive to subtle changes in intonation, timbre, and articulation. In his hands, the synthesizer keyboard became capable of effecting sudden changes appropriate to an open, improvisatory setting. It became an emotionally expressive instrument akin to a technologically expanded human voice, particularly when used in tandem with other keyboard instruments with contrasting sounds and

articulations. It was also one with a sound quite distinct from other keyboard instruments, its electronic timbres and careening portamenti suggesting novel sonic possibilities.

Paul Bley and Annette Peacock appear to have developed their means of patching and performing their instruments in relative isolation. It would surely have been more efficient had they hired a programmer/sound designer for assistance, particularly during that challenging Village Vanguard date. But this seems not to have been Paul Bley's style. Working as a neophyte allowed his performance technique and sound design to emerge organically, aligned with his improvisational approach to the piano. It allowed him to discover the sounds he wanted to hear, and to explore microtonality in his own way. In all of these ways, the synthesizer provided a means for Paul Bley to approach the aesthetic values he had long shared with Ornette Coleman.

Endings

After Paul Bley and Annette Peacock returned home to New York from a technologically challenging European tour,[71] a fire moved through their apartment. Bley managed to get the synthesizer out of harm's way, and returned, through thick smoke, to rescue the keyboard, bringing it out onto the roof. "Sitting there on the roof, my hand throbbing (from slamming it in the window frame), I realized I was totally naked. This giant synthesizer was on my lap, and suddenly I felt very serene" with a dawning sense that his life was not ultimately about owning things, such as the synthesizer.[72]

Bley concluded that it was time to leave the synthesizer behind: "Ironically, I wasn't really interested in playing the synthesizer anymore and I had risked my life for it twice that day. It was totally charred and the keyboard melted. My shelves of tapes survived because they were in cardboard boxes. The boxes were all burnt on one side, but the tapes played fine."[73] Bley recalls that he played synthesizer on at least one other occasion, at a 1973 planetarium show in Coconut Grove, near Miami. The performance featured a long portamento, emerging from "its lowest rumbling noise, which was a real window-rattler … to the highest possible pitch that the human ear could hear," to accompany the simulated blast off of a rocket ship.

No longer performing with a synthesizer, Bley continued to play electric piano until the end of the 1970s. At this point, he returned to the acoustic piano. The reasons were likely exhaustion over the technological challenges of live electronic performance.[74] Despite its limitations of sound and intonation, the piano was an instrument with which Bley was familiar and comfortable. Bley's intense exploration of the potential of the synthesizer was limited to the three-year period from 1969–1972. During this

[71]Bley does not verify the date, which is likely in 1971.
[72]Bley with Lee 1999, 120.
[73]Ibid.
[74]The reasons why Bley did not seek outside expertise or assistance remain unclear. Neither is it clear why Bley chose not to subsequently explore more user-friendly synthesizers (such as the Minimoog and Arp Odyssey) once they became available very shortly after he ceased to play the synthesizer. Bley made a subsequent, 1993, synthesizer recording, *Synth Thesis* (Sound Hills, 1994; Postcards CD, POST 1001, 1997).

brief time, he went on a fascinating sonic ride. Bley's recorded legacy offers a window into the achievement of a pioneer who briefly considered a new means of achieving a forward-reaching aesthetic vision. The future of this new technology was to turn far more commercial in the hands of others who would follow in his footsteps.

Abstract

In search of new avenues to pursue his interests in free improvisation, pianist Paul Bley and singer/composer Annette Peacock drew upon the innovative sounds and performance practices of recently developed Moog and ARP synthesizers in 1969–1972. Bley sought to realize, on a keyboard instrument, aesthetic ideas developed by his former collaborator Ornette Coleman. These concepts—timbral variety, flexibility of intonation, and non-grid-based tonality—all push beyond limitations of the acoustic and electric piano. Despite a lack of technical experience and many trials and tribulations, Bley's "Synthesizer Show," with its stack of electronic keyboards, patch cords, and unexpected sounds, toured jazz clubs and concert halls, baffling critics, club owners, and audiences. Use of the synthesizer in live jazz performance had previously been limited to the explorations of Moog associate Herb Deutsch. Bley's work paralleled Chick Corea's, Herbie Hancock's, and Josef Zawinul's contemporaneous electronically processed electric piano and anticipate the coming more accessible use of the Mini-Moog in the early 1970s. Bley's Synthesizer Show represented a highly idiosyncratic, non-commercial approach reflecting his highly personal sound, well suited to open improvisation.