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Switched-On Bach

> The whole record, in fact, is one of the most startling achievements of the recording industry in this generation and certainly one of the great feats in the history of "keyboard" performance.
>
> Glenn Gould

It was fall 1968 and Jon Weiss and Bob Moog were attending a midtown record release party. The A&R people at Columbia Records were excited: they had three albums of groovy-new-weird-electronic kind of music on their hands. *Rock and Other Four Letter Words* (1968) was expected to do well. *In C* (1968) by Terry Riley might appeal to the avant-garde crowd from which it had emerged, and the heads were getting to love that sort of music. No one quite knew what the other album, *Switched-On Bach*, would do. It used the Moog and that had helped propel Beaver and Krause's *Nonesuch Guide* into the charts, but it was J. S. Bach and that made it, well, less than cool. As the mandatory bowl of joints circulated, the industry hacks, journalists, musicians, and hangers-on talked up the products. Bob and Jon watched bemused as Terry Riley, dressed all in white, got up and played the electric organ. There was no sight or sound of the unknown artist who had recorded Bach on the Moog.

Rock and Other Four Letter Words vanished without a trace.[1] Terry Riley's *In C* became a landmark record for minimalism, influencing rockers and composers alike, and did very well for Columbia. But *Switched-On Bach* changed the face of pop, rock, and classical music—the first classical re-

cording *ever* to go Platinum. Reviewers predicted the Grammy-winning record would finally release electronic music from sounding like "some obnoxious mating of a catfight and a garbage compactor" and from its predictable use in "cheesy invader-from-Mars movies." Somehow its creator had managed to square the circle, producing electronic music that was dramatically innovative while at the same time being "music you could really listen to."

S-OB was a crossover album, appealing to pop, classical, and electronic music audiences. Its sensational debut embodied a little bit of a rush for everyone: it scared studio and orchestral musicians (and their union), who could see their jobs vanishing if just one synthesizer in a recording studio could now duplicate their efforts. It wearied experimental artists and avant-garde composers, who thought imitative synthesis was a poor use for the dazzling new technology. It inspired a plethora of inept imitators, who anticipated dollar signs. It delighted the public (and, naturally, the recording industry), who bought the albums as fast as they were put on the shelves. It made the Moog synthesizer famous—Moog and Carlos became overnight celebrities, immediately in demand for television talk shows, interviews, and personal appearances.

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Ugly Atonal Styles

Born in 1939, Walter Carlos began piano lessons at the age of six and, with his parents' encouragement, continued to study classical music until he was fourteen. Interested in electronics at an early age, he won a scholarship at a Westinghouse Science Fair for projects involving computers, and by age fifteen was technically skilled enough to build a non-equal-tempered keyboard. At sixteen, he was altering his parents' piano to various "unorthodox tunings." By this point he had also become an accomplished organist.

A year later he became interested in electronic music, making his own tapes, mostly *musique concrète*, "plus whatever you could get out of a laboratory oscillator and splice into some kind of shape."[2] Throughout his

college years at Brown University (1958–1962), Carlos pursued his twin interests in physics and music, eventually majoring in physics. This combination of subjects undoubtedly led to his expert technical knowledge of sound engineering: "I always want to peek and see how the magic trick is done . . . musicians are magicians. Our shop talk ought to be about how the illusion is produced with no holds barred."[3] He then moved to Columbia University, where he earned a master's degree in music composition working with Otto Luening and Vladimir Ussachevsky (1962–1965).

At Columbia, Carlos found himself in the middle of a debate that had been intensifying since the early part of the century. The deliberately atonal, highly systematized movement known as serialism clashed with the tradition of orchestrated tonal music, with its emphasis on melody, harmony, and counterpoint. Carlos hated serialism. "I didn't go for that type of non-rhythmic, non-melodic, non-harmonic music. It seemed more concerned with what we don't do than what we do."[4] The public too was unimpressed with serialism, preferring to attend concerts where more traditional musical fare was served up.

But in academic communities in the late fifties and early sixties, atonal music was dominant. At both Brown and Columbia Carlos encountered "alienation and condescension" on the part of both students and faculty toward his own traditional musical values. With his background in science, he was also skeptical of serialism's mathematical pretensions: "That kept me out of peer groups of students who . . . all got into serial mathematics and 12-tone rows. Having a math background, I thought that it was all gibberish."[5] He quickly learned to keep quiet and discovered that his appreciation for tonal music meant that at college he was not thought of as "a composer in the wider sense."

Electronic Music as Sanctuary

Realizing that his chances of making it as a composer were limited in the prevailing academic climate, he switched his emphasis back to his child-

hood hobby, electronic music. But here too he found that the academic avant-garde had left their mark: "The general public considered it to be avant-garde in the worst sense, completely without redeeming value or commercial interest." Carlos resolved that what the new field needed was an old-style touch: "I thought that if I offered people a little bit of traditional music, and they could clearly hear the melody, harmony, rhythm and all the older values, they'd finally see that this was really a pretty neat new medium."

His background, combining technical expertise with composition, was an ideal preparation for his chosen field. For Carlos, electronic sound became a kind of sanctuary—an escape from all that he hated about the academic world of composition. Ussachevsky, the Director of the Columbia-Princeton studio, was a welcoming presence, allowing him free use of the equipment provided he worked the night shift (usually from midnight until dawn). Phillip Ramey, a fellow graduate student in musical composition, describes what those times were like:

> One of my most vivid recollections of those years is of countless night sessions in the Electronic Music Center, and of Walter and myself emerging onto the campus in the early morning, blinking dazedly in the sunlight and staggering across Broadway to the local Chock Full o' Nuts for coffee . . . Walter was maniacally involved with the tape machines . . . each of us worked in constant dread of marauding janitors who seemed unaware of the Ussachevsky-Carlos compact.[6]

Carlos's intensity and his commitment to the new field singled him out, but he had yet to acquire the instrument and explore the genre of electronic music that would make him famous. His Columbia compositions, such as his very first "Dialogues for Piano and Two Loudspeakers" (1963), were clearly influenced by the experimental genre of electronic music and were still a long way away from the "melody, harmony, rhythm and all the

older values" that Walter hoped would be the redeeming feature of the new medium. Indeed it seems that Carlos hoped that the more popular pieces, realized later, would help gain acceptance for his more "adventurous" works.

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A Vocabulary that Spoke Telegraphically

After graduating from Columbia, Walter continued to hone his technical skills, working for three years as a recording engineer, tape editor, and disc cutter at Gotham Recording Studios in mid-Manhattan. He knew that he wanted a synthesizer, and as he looked around he was drawn to the one man in the vicinity who could provide it. He had first met Bob Moog at the 1964 AES convention. He bought a small Moog synthesizer in 1966 that Bob delivered in person to his modest rented apartment on West End Avenue (staying the weekend to make sure it worked properly). Gotham eventually allowed him to haul his newly acquired synth into the studio and store it there, enabling him to use their superior studio equipment for recording, overdubbing, and mixing.

As word spread among the studio's regular clients about the existence of Carlos and his synth, a few much-appreciated jobs followed, such as commercials for Schaefer Beer and the Yellow Pages. Jon Weiss heard those early commercials, and already it was obvious to him that Carlos had a technical skill beyond that of most synthesists. But given the time-consuming nature of putting together electronic music, the temporary arrangement with Gotham was not satisfactory. To progress, Walter realized he would have to assemble his own electronic studio: "Somehow I needed to put together a minimum configuration of a multitrack machine, a two-track stereo machine for mixes, and a basic console/mixer with monitoring and other usual functions."[7]

As luck would have it, another Gotham studio engineer, Bob Schwartz, with expertise in the design and maintenance of studio equipment, became

intrigued by Walter's dream. After finishing work for the day at Gotham, they sketched out plans for the studio, located the necessary pieces of hardware, and assembled it all in Walter's apartment. By the time they had finished, Schwartz and Carlos had become firm friends and the ground had been laid for the real work to begin.

Carlos was not one to be satisfied with just any old synthesizer. He began conferring with Bob to discuss additions and improvements. Reynold Weidenaar remembers Carlos as one of the musicians who worked closest with Bob: "Carlos was very clear [about what he wanted], and I remember there was some frustration because he was really holding Moog's feet to the fire in terms of the way things had to be, and the quality that he needed . . . a very demanding musician who's also very knowledgeable technically . . . This is what he had in Carlos, and he valued that highly."

Carlos's input was very specific. Soon after he purchased his Moog, he realized he had a need for a portamento and hold switch "to delay the intervals between each 1/12-volt step" on the keyboard. Carlos: "Before the hold switch was put on, if you took your hand off the keyboard the frequency went to 12Hz or something. It was terrible until Bob came up with that. That was back when you really felt like you were working with an invention. I miss that time. Bob Moog has a wonderful feeling about music. It was perfect for me because it's hard for me to talk about things, and between the two of us there was a vocabulary that spoke telegraphically."[8]

Bob's detailed knowledge of electronic musical instruments and Carlos's own increasingly refined sense of what he wanted from the new medium made a perfect pair. Carlos, by reputation, was shy and intense, and this melded well with Bob's own slightly unworldly personality. Carlos was also instrumental in helping Bob tweak his design for a touch-sensitive keyboard into a workable mechanism. Bob fully recognizes Carlos's input into his project: "Yeah, and he—she—uh, was always, you know, criticizing—constructively criticizing—telling me what kind of knobs feel good and things about the sound, what kind of function she wanted."

Carlos had his own reasons to help Bob. "Everything going out to Carlos was custom," according to Weidenaar, with "much higher specifications than the standard modules." Weidenaar does not remember seeing Carlos in Trumansburg, and if it occurred "it didn't happen often." This was because Bob often traveled to New York to visit his parents, at the same time bringing prototypes back and forth. Although a central figure in the early history of the Moog, as an individual, Carlos, Castaneda-like, was a shadow, a recluse, quiet and mysterious. Many people who were around at that time, like David Borden, knew of him, and his importance to Bob's project but did not know Carlos as a person. "I never knew Walter—Wendy. I'd hear about, and I remember hearing about the operation and everything, from Bob . . . and he was very close."

Personal Empowerment

The gender ambiguity in Bob and David's recollections of Carlos is explained by the fact that, at precisely this time in his life, "he" was becoming "she"; that is, Walter was changing to Wendy. Walter began hormone treatments and cross-dressing early in 1968 and "permanently [living] as a woman in the middle of May 1969, nearly three and a half years before the [transsexual] operation" in the fall of 1972.[9]

As one of the very first public figures to undergo such a change, Carlos was to be a pioneer in more ways than one. As Rachel Elkind, Wendy's friend and collaborator, told us, "You have to remember this was 1968, there was one transsexual in the whole world that anybody had heard of. That was Christine Jorgensen." The question arises as to whether Wendy's metamorphosis, which occurred just around the time she was developing as a synthesist, had anything to do with the Moog, and with synthesis itself. Perhaps there was something about this most unusual instrument that resonated with the most unusual transformation its star performer was about to undertake.

The question of gender and the synthesizer is a tricky one. Certainly electrical music technologies have traditionally been used for building masculine identities—the boys and their latest toys. But different sorts of masculinity can be involved in how men interact with technologies, and several women we interviewed for this book, notably Suzanne Ciani and Linda Fisher, have developed intense personal relationships with their synthesizers, as we will see. If, as Judith Butler argues, gender identities have to be performed, a key prop in the performance of these synthesists is the machine with which they spent most of their waking hours interacting—the synthesizer.[10] What we want to suggest with Wendy and her synthesizer is that it may have helped provide a means whereby she could escape the gender identity society had given her. Part of her new identity became bound up with the machine. The transformative power of the synthesizer may have allowed her not only to conjure up a new musical meaning but also helped her find herself as a newly gendered person. While some people used the transformative power of the synthesizer to escape from the prison of "straight" society, to help them transcend to new states of consciousness, Wendy, we suggest, may have used it to help her transcend her former body and her former gender identity.

Transcending the Limitations

Wendy was not alone in her work. At Gotham Studios she met her future collaborator, producer Rachel Elkind. With a background in jazz and musical comedy, Rachel had come to New York to work on Broadway. She ended up getting a PhD in music and working for Goddard Lieberson in the recording industry. According to Wendy, their initial meeting was "loathe at first sight. We didn't care for each other at all. It took us about a year before I started bugging her to collaborate with me or produce me."[11] Recognizing that Rachel, with her knowledge of the recording industry, was someone who could help her, Wendy brought her some of her early ar-

rangements on the Moog; the first piece Rachel heard was a synthesized version of "What's New Pussycat." Rachel was unimpressed. It was not until she heard Wendy's version of Bach's "Two-Part Invention in F Major" that she realized what Carlos had stumbled upon: "I really felt that that was something that could really speak, that transcended the limitations of the instrument." Bob Moog also heard that first piece and points out that it is played too fast, done before Wendy had really got the hang of how to do it right. But that early piece had something Rachel and Bob both recognized.

As well as Bach, Wendy was also experimenting with rock pieces, making commercials, and continuing to work on her own original compositions. It was Rachel's idea to do a whole album of Bach. "And she said, 'A whole album of Bach?' And I said, 'Yes, I think so,' because my thing was music had to sing and dance and had to have truth, and if it did, then it would speak to an audience." Wendy's own compositions were still far more experimental pieces than the known and chartered territory of Bach.[12] But Rachel, savvy to the recording industry, recognized that an unfamiliar instrument with an unfamiliar composition was not an alliance ticketed for success. Wendy remembers, "People couldn't even pronounce" the word "synthesizer." It was so unfamiliar that when they were working on *S-OB*, "some of the producers didn't want us to use the word."[13]

Rachel's conclusion was that they could not find a better composer than Bach. And the prospects for a hit were not unprecedented. A London rock band, the Nice, starring Keith Emerson, had scored a surprise hit in Britain with their rock version of the Brandenburg Concertos.[14] The counterculture was also not adverse to a bit of Bach. The organist Virgil Fox played Bach at sell-out concerts he performed at the Fillmore West. The venerable composer had been reworked in many mediums and was ideal for yet another outing.

Having decided to create an album of Bach together, Wendy and Rachel began working on the first movement of the *Third Brandenburg Concerto*. Wendy did all the synthesizer parts and Rachel produced the album. The

musicologist Benjamin Folkman, a friend of Wendy's, also contributed "proper performance practice and idiomatic Baroque ornamentation." Because Benjie was involved, Rachel was confident the results would "be really, really terrific and very salable." Folkman had established credibility in the music world, and his opinion counted. Rachel: "That was important because it sort of allowed the work to stand without tremendous criticism from the classical press. Even if there was, they had to accept that it was really authentic and interesting in its own way."

Wendy and Rachel's working styles were very different. Wendy has an obsessive personality, knowing how each note was realized. Rachel's style is more intuitive, with an emphasis on improvisation. Rachel: "At that time the studio was in her apartment. And [I] would go over and we'd work together. Putting together electronic music was a very tedious process . . . I really came from a very improvisatory discipline. And I think that really worked because I think I pushed it to become as alive as possible, and I think that's what distinguished our music from a lot of the other electronic music that came after it." With the need for endless overdubs and for layering the music, the sound got "thicker" and "you'd have to lighten it up and maybe change the timbre here or there. And that's how I became the critical ear."

As the album unfolded and Rachel realized that Carlos was in the process of achieving a breakthrough, she became nervous about being scooped by the likes of Beaver and Krause. In the end, Rachel believes that Wendy, with classical training and an attraction to polyrhythms, may have been the best-suited to bring the project to fruition.

For Wendy and Rachel, *S-OB* was not a didactic exercise. They wanted to make the music come alive, and finding new timbres was an important part of the process. They were on the frontier in trying to coax a whole new range of sounds out of a cluster of electronic circuitry. To this extent, *S-OB* was not imitative synthesis, although as they worked side by side they relied on the language of contemporary musical idioms to reach for the sounds they were after. Rachel helped Wendy search for certain timbres;

she would not want to imitate a French horn exactly but she might suggest that Wendy craft the sound to be "a little like a French horn, a little more mellow." Indeed, this is part of the achievement of the record: the timbres sound familiar, yet they are clearly new and different electronic timbres.

By Wendy's own estimate, there were only about "half a dozen basic sounds" available in an analog instrument. So how could she possibly manufacture the varied tonal nuances of *S-OB?* Bypassing the Moog's voice limitations, Wendy developed her rich musical range by learning how to rapidly "jump from timbre to timbre," so that, according to Wendy, listeners (including Bob) imagined they heard "greater timbral resources than really existed" in the machine itself.

Wendy was the ultimate technical craftsperson; her technical proficiency on the instrument was unsurpassed. Bob has a lot of respect for Wendy, as well as fondness and a continuing friendship: "Wendy used techniques that had been available for years—but used them better."[15] Rachel will go one step further: "She knew it better than Bob Moog," and "just was one with that instrument."

Wendy's results are partly attributable to the fact that she was an experienced sound engineer, with excellent splicing, over-dubbing, and recording skills. Reynold Weidenaar remembers visiting her and hearing an early track: "Carlos played some of it for me at her apartment, the original master. I can see the splices go by, see the edits, see the timbral changes. Every time you saw a splice coming up you'd know that you were going to get a different voice. So I saw the bits and pieces, as it were."

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Bach-to-Rock

It took the spring and summer of 1968 to complete *S-OB*. With the music going well, Rachel plotted how to get a record contract. The music business was still "very much a man's world," so she persuaded a colleague and friend, Ettore Stratta, in A&R (Artists and Repertoire) at Columbia to submit the proposal for her. This worked. They were offered a thousand dollars

for the finished master (this was half the advance Beaver and Krause received for their *Nonesuch Guide*), and a two-album commitment from Columbia. They were thrilled, although it was clear to both of them that the record company had no real interest in them personally. It just so happened that *S-OB* was a fit with Columbia's marketing scheme, which at the time was a Bach-to-Rock campaign.

Jon Berg, the art director at Columbia, came up with what, in hindsight, was a stroke of genius—the album's title. Wendy and Rachel had been toying with various catch phrases such as "Electronic Bach," but it was Jon who hit on the prefix "Switched-On." Rachel conceded: "The minute I heard it I hated it, but I knew it was the right title, you know?" "Switched-On" conveyed perfectly the electrical origins of the sound, plus the appeal of being tuned in and turned on. The cover photo—a wigged baroque musician quizzically listening to a Moog synthesizer—continued the symbolism. The keyboard in front of the panel of knobs tells you that this is an instrument, and the power cords let you know electricity is involved—but laughably, for those who knew anything about the Moog, there are no patch cords. This synth would have been unable to utter a bleep, never mind play Bach.

Columbia's interest in Rachel and Wendy was no doubt in part a response to the pressure they were under from Jac Holzman's newly developed Nonesuch label. Jon Berg's catchy cover design owed much to other baroque albums being marketed by Nonesuch in a thoroughly modern way. Nonesuch's *The Baroque Beatles Book* (1965) juxtaposed wigged baroque musicians with Beatles songs, including one wearing an "I like the Beatles" tee shirt.

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Silver Apples

Just before *S-OB* came out, another important electronic music composition appeared, more in the style of experimental music but nevertheless ap-

pealing enough to produce significant classical sales and to even become an underground hit. Morton Subotnick's *Silver Apples of the Moon* (1967) was commissioned by Nonesuch, and the entire piece was made on a Buchla 100 synthesizer. Subotnick by this point was also in New York, having had Buchla build him a replica of the original Buchla Box 100 before leaving the Tape Center. The exciting tonal colors, the spatial movement of the music, the rich counterpoint of gestures, and the purity of the sound (particularly the sine waves) were all elements that typified the Buchla. As one reviewer noted, "It's a beautiful record . . . it seems to glitter with precision."[16] The sequencer-generated rhythmic sounds soon found a home in dance and ballet.

Interestingly, given that her own record was due out soon, Wendy reviewed—and panned—Subotnick's record for Bob's magazine, *Electronic Music Review*. Although conceding it to be "one of the 'prettiest' electronic compositions" that had been released up until that time, she had to admit, "I'm sorry, but 'Silver Apples' is a bore." She complains that perhaps the album is too long "for a single electronic composition of this style and type"; or the problem might be with the Buchla itself, which "contains certain operational 'traps' [such as the sequencer] which are avoided only with great difficulty." Wendy's most damning criticism was that "the phrasings and articulations are not particularly expressive; they either sound inflexible and mechanical, or aleatoric and unimportant." In summary, "All is euphoric and pleasant, but never musically compelling." Wendy does cut the composer himself some slack at the end of the review, declaring that although "Silver Apples" turns out to be "a poor performance of a fine composition," it and "the very talented Morton Subotnick" are to be commended.[17] Wendy's criticism of the record seems to be as much about criticizing the Buchla as about criticizing Subotnick.

A comparison between the two most famous works on the two synthesizer pioneer's different machines—the Moog and the Buchla—reveals a paradox. The Buchla had been designed to make music in real time and as

an instrument that the performer could really interact with. Wendy, on the other hand, with the Moog had had to use endless tape dubs to produce her masterwork. Yet it was Wendy's music, which could never be performed, that was the more expressive, the more alive, the more like a performance. Although Subotnick's record won critical acclaim and sold considerable numbers for that sort of experimental record, it was Wendy's record that achieved the breakthrough.

Something Wasn't Right

Always reclusive, during the production and then the release of *S-OB* Wendy did not make many public appearances. An exception was her presence (as him) in the audience for Bob's famous October 1968 airing of a selection from the album at the New York AES meeting (just before the album was released). It was part of a paper Bob presented, "Recent Trends in Electronic Music Studio Design," and Bob played Carlos's realization of the *Third Brandenburg Concerto*. The story of its impact is one Bob loves to tell: "I put the tape on, and I wanted to let it run. So I just walked off the stage into the back of the room. And I can remember peoples' mouths dropping open. I swear I could see a couple of those cynical old bastards starting to cry. At the end, she got a standing ovation, you know, those cynical, experienced New York engineers had had their minds blown."

The success and instant notoriety of *S-OB*, where synthesized sound was finally "acclaimed as real music," demonstrated that the medium could be used for electronic music the public could appreciate.[18] Wendy and Rachel's achievement was a success beyond their wildest dreams. But there was one down side—the album thrust Wendy unexpectedly into the limelight, just as she was trying to keep a low profile in order to undergo her transformation. Although Wendy had thought of herself as a woman from well before *S-OB*, her public persona was still Walter. Wendy's transformation certainly overwhelmed her ability to perform in public and interact

with other musicians and listeners. It was for her a "very sad time."[19] She had success but she couldn't enjoy it.

Rachel, who by this time was sharing her West 87th Street Brownstone with Wendy, was a witness to the pressure she was under. Living together was partly an effort to protect Wendy during her metamorphosis. Rachel herself recalls being "so neurotic that people were going to find out about Wendy's situation." During this period, Wendy would not appear in public, and she felt that she had to hide herself from other musicians. When George Harrison or Keith Emerson appeared at the door, Wendy would listen from "upstairs" as Rachel explained to them that "Walter was away."[20] When Stevie Wonder came over once to play the synthesizer, realizing that he had exquisite hearing, she did not speak to him for fear that he would hear her voice and realize that "something wasn't right": "The fact that I couldn't perform publicly stifled me. I lost a decade as an artist. I was unable to communicate with other musicians. There was no feedback. I would have loved to have gone onstage playing electronic-music concerts, as well as writing for more conventional media, such as the orchestra."[21]

She found herself becoming a star but was unable to make live appearances. As time went on, the folks at Columbia became "disinterested" in Carlos; they needed to showcase "a real artist" that "they could have in pictures and stuff, and running around concertizing."[22] The personal issues must have been agonizing. For a 1970 appearance on the Dick Cavett Show, Carlos dressed as Walter, and in ads from this period, for instance, standing in front of a synthesizer advertising the Dolby Sound System, Carlos is dressed as a male with prominent black sideburns.[23]

In 1969 after her follow-up album the *The Well-Tempered Synthesizer* (1969), Wendy made one concert appearance with the St. Louis Orchestra. For Rachel "it was just such a nightmare," that she decided enough was enough; she told Wendy "it wasn't worth it and I would never sort of do it again." Just before the show, Wendy "began to cry hysterically" and informed Rachel that she did not want to proceed with the performance. She

had arrived at the theater dressed in women's clothing, but now the necessity of getting up in front of all those people as Walter, was, understandably, overwhelming. In what must have been a desperate the show-must-go-on spirit, Carlos "touched up his face, which the estrogen had softened. He pasted on sideburns, stuffed his long hair under a man's wig, ran an eyebrow pencil over his smooth chin to simulate 5 o'clock shadow," and went on with the concert. After this experience "Walter Carlos refused to perform in public again."[24]

When their collaboration began, Rachel did not know that Carlos had a hidden personal issue that would impact their work and how it might be received by the public: "At the time that I was working with Wendy I did not know about her gender problems. In other words, I sort of accepted her just as she was, a wonderful human being. And it was really after I had made the deal with Columbia that she told me about this problem, which is why the album cover really was done the way it was with 'Trans-Electronic,' because she really didn't want to have a name like the Beatles or the Rolling Stones."

Walter, envisaging a new persona, was already trying to make space for Wendy. Rachel, too, was facing a difficult time adjusting to their unaccustomed success. As well as managing the complications of cross-gender politics, there was also the thorny issue of her own role in the partnership. "Having built up Walter Carlos, I also got tired of people thinking that I was there serving tea." It is not surprising that they both felt as though they were living two lives during this time. Rachel: "Truthfully, I was juggling many things because I was not only producing the record, I was acting as the lawyer-negotiator, and I was also protecting sort of Wendy's persona . . . [we were] living a hidden life, as it were. So I know I felt a lot of pain that we couldn't sort of celebrate this and be really out with it . . . the thing is that I think we both felt that we didn't want it to become a circus."

Even if Wendy had been able to accommodate the requests to appear in

public with her synthesizer, the Moog was almost impossible to play live, and certainly in a way that reflected her artistry. Wendy's great achievement had inadvertently led her into this conflict: *S-OB* was totally a studio production. Wendy was not only trapped by her gender but by her own proficiency and meticulousness. She was in the same situation as the Beatles after *Sergeant Pepper*—a milestone production for its unique sound but an effort that could not be reproduced live.

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Carlos's Achievement

Regardless of the mixed evaluations *S-OB* received, depending on which side of the popular/avant-garde or traditional/modern divide the critic resided, there is no doubt that Wendy changed the public's notions about electronic music and the synthesizer. Everyone we have talked to for this book, even people in very different musical genres, freely acknowledges the impact of *S-OB*. For such notable keyboardists as Keith Emerson, Patrick Gleeson, Tomita, and Stevie Wonder, it was *S-OB* that switched on their own interest in the synthesizer.[25] As the years passed and the *S-OB* imitators multiplied, the singularity of Carlos's achievement has become more and more apparent.

Wendy and Rachel went on to many other projects, including three other Switched-on-Bach-like albums: *The Well-Tempered Synthesizer* (1969), *Switched-On Bach II* (1973), and *Switched-On Brandenburgs* (1979). They composed the scores for two Kubrick films, *A Clockwork Orange* (1972) and—their last work together—*The Shining* (1980), a horror movie. These classic films continue to be watched and talked about. The surreal tensions and eerie ambiance that each score provides has much to do with the movies' impact. Synthesizer sounds had finally come of age.

At this point (in 1980) Rachel got married, having met her husband (an astrophysicist) on one of the eclipse-chasing trips that were among Rachel

and Wendy's few indulgences (Wendy is fascinated by astronomy). When Wendy herself found a new companion, Rachel felt that it was time for her to move on.

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Union Troubles

S-OB had a dramatic impact on the entire music and recording industry. One effect was totally unexpected. The Moog synthesizer was for a time banned from use in commercial work. This restriction first surfaced in a contract negotiated between the American Federation of Musicians (AFM) and advertising agencies and producers in New York City in 1969. The union was worried that following on from Carlos's success, the synthesizer was going to replace musicians. Indeed, this possibility was noticed before *S-OB* came out, when Rachel Elkind played it for the famous jazz bassist Ray Brown: "It was really important to me to have jazz musicians appreciate this. And he told me that this was going to be very bad for musicians, and I said, 'No way, how can you say that? They'll never replace the richness of a real instrument, this isn't as fabulous, blah, blah, blah.' But it turned out that his fears were correct."

While recognizing its potential for emulating other instruments, the crucial point for synthesists was that the Moog should be treated like any other instrument, and playing it was anything but easy, a point the union had yet to grasp. Moog: "Basically the union didn't understand what the synthesizer was. They thought it was something like a super Mellotron. All the sounds that musicians could make somehow existed in the Moog—all you had to do was push a button that said 'Jascha Heifetz' and out would come the most fantastic violin player!"[26]

Out on the West Coast, Paul Beaver and Bernie Krause were running into similar difficulties with the union. Bernie Krause: "The AFM threatened to shut us down unless we promised never again to try and emulate strings and/or horn sounds, thereby replacing other musicians."[27] The bat-

tle with the union was eventually won by the combined efforts of Paul Beaver and Walter Sear. Beaver found that the union had lost an earlier restraint-of-trade case when they had tried to prevent a rhythm machine being used to accompany a Hammond organ. Beaver threatened to take the union to court based on the precedent of this earlier case. Meanwhile in New York, Walter Sear, an old union hand, managed to convince them that the Moog was little different from a Hammond organ and still required a skilled musician to play it. The category of "synthesizer player" was eventually accepted into the union, although synthesists still experienced suspicion and hostility from the union well into the 1970s.

Several synthesists have pointed out to us that, indeed, the union's fears were well grounded. As Suzanne Ciani, who worked in the New York studios and saw its impact directly, told us, "Actually over the years the impact of electronic music in studio production in New York was drastic." Almost a whole generation of session musicians were put out of work by the synthesizer. On the other hand, there is no doubt that the growth of the synthesizer industry and the new sorts of musician it encouraged led to plenty of new work. The success of the synthesizer, without question, in the long term led to a major change in the business, to be ranked alongside earlier upheavals, such as the one brought about when the talkies replaced silent movies and the live musicians that accompanied them were put out of work.[28]

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It Became like a Factory for Awhile

Bob Moog likes to joke that Wendy was the first person to make real music on the synthesizer. "You know what real music is for the record industry? Music that makes real money!" Everyone knew that Wendy had sold a ton of records. There were dollar signs in the electrified air. With commercial music producers believing "it couldn't be the artist—it had to be the machine," the switched-on copycat industry was born. It resulted in literally

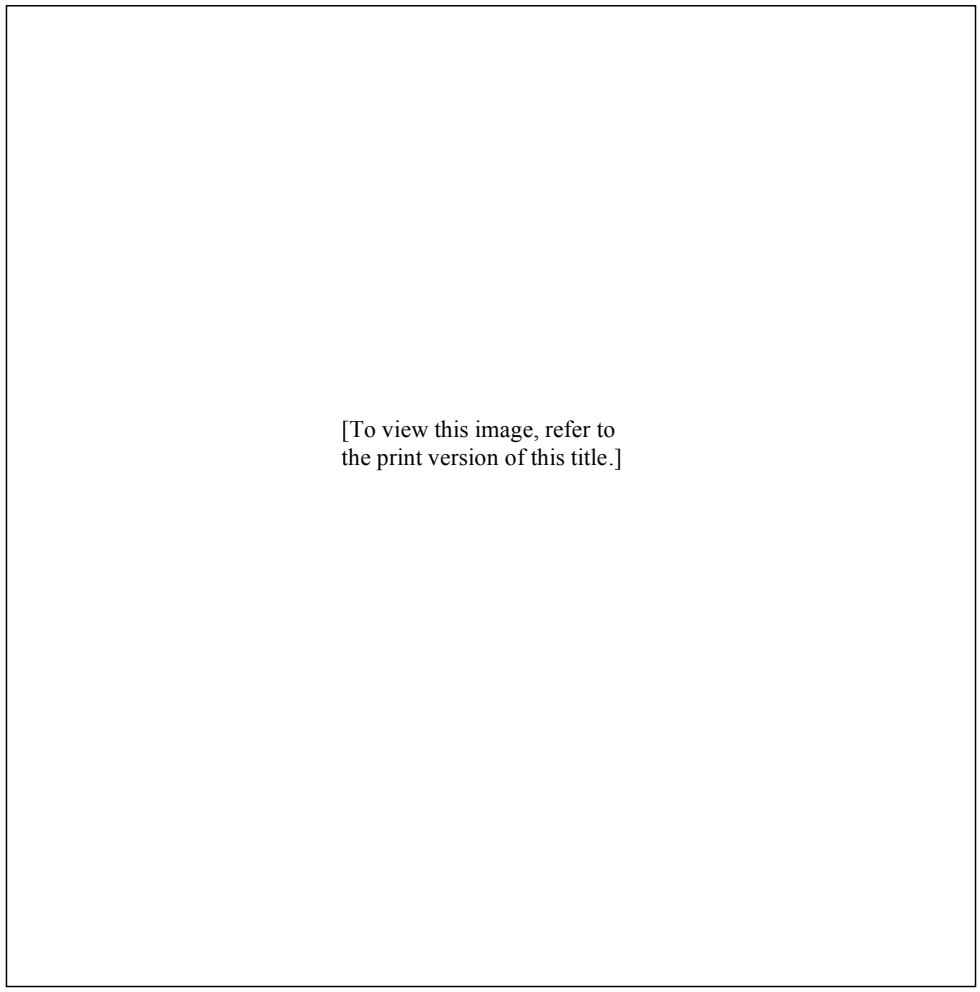


Figure 20. Switched-On Santa

hundreds of albums being rushed out that all used the Moog in some way, shape, or form. Musicians and recording industry hopefuls wanted part of the Moog action in order to replicate Carlos's success. With names like *Switched-On Bacharach* (1969), *Switched-On Rock* (1969), *Switched-On Nashville Country Moog* (1970), *Switched-On Gershwin* (1970), *Switched-*

On Santa (1970), *Chopin á la Moog* (1970), *Moog Power* (1969), *Moog Espãna* (1969), *Moog Plays the Beatles* (1970), and *The Plastic Cow Goes MOOOOOOG* (1969), it seemed as if every corny title and genre of music was ripe for exploitation.

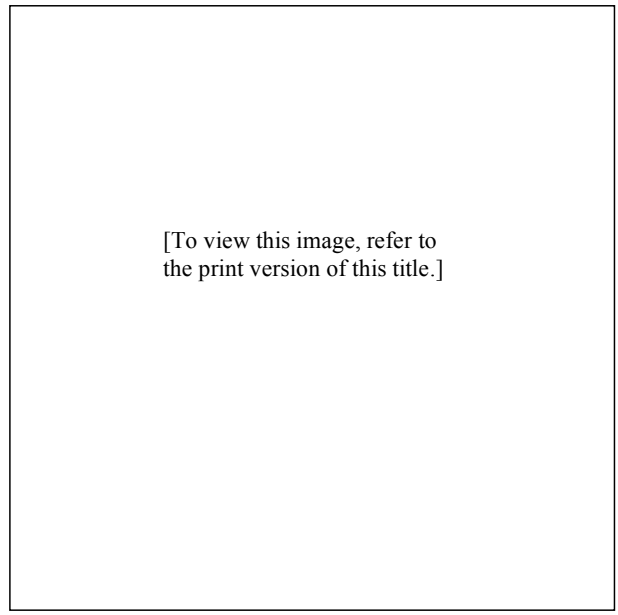


Figure 21. Switched-On Gershwin

These pseudo-Moogists needed to produce fast, while the public was still attentive. Very few of these composers, arrangers, and performers approached the task with anywhere near Carlos's artistry (one exception was Dick Hyman), and none were anywhere near as successful. Jon Weiss, who personally demonstrated Moogs to some of these new visitors, quickly found that all they wanted was a cash cow that went "Moog": "I saw this influx of the most disgusting, copycat efforts . . . Some of the most insipid garbage."

Bob remembers well a recording session for *Moog Espãna*:

> We got a call from RCA, you know, would we help them? Next thing there's a pickup truck with an eight-track recorder on it, came up from New York City, pulled up at our door, they unloaded this eight-track recorder, which is like . . . a supercomputer is today . . . These guys came in with their cigars and, "Gimme something" [imitates speaking with a cigar in mouth] like this, you know, a New York redneck. An entertainment business redneck, you know? They're very crass, and their cigars are very smelly, and I asked Jon to do this, go into the studio and do this. That poor guy

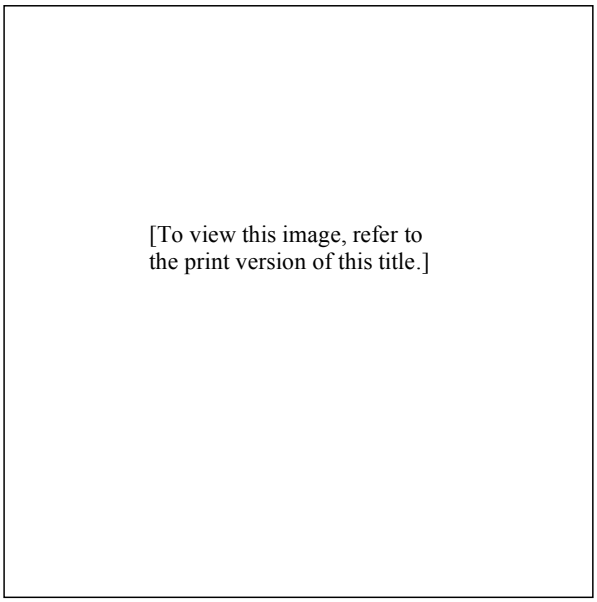


Figure 22. The Age of Electronicus

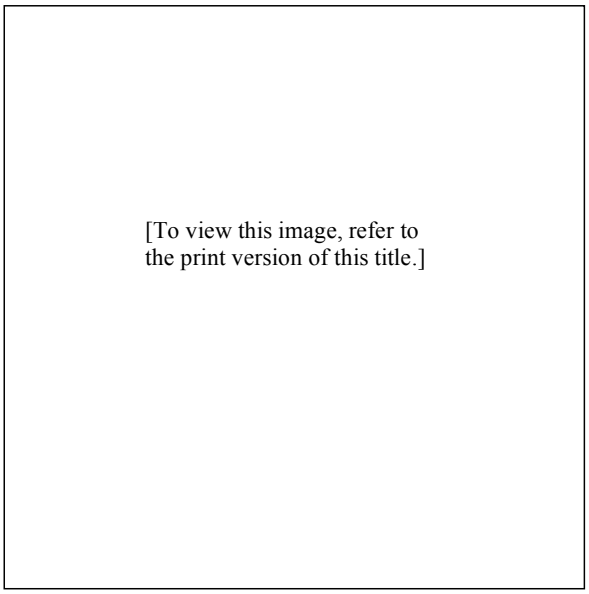
was in there all day, and he was shell-shocked. Here's this sensitive, artistic guy, and it was—musically, it was not—it was dreadful.

Another, more welcome impact of *S-OB* was that, for a short while, the Moog company (newly incorporated in 1968 as R. A. Moog, Inc.) could not keep up with the orders. Bob:

> Before *Switched-On Bach* came out, and a couple other things, nobody believed that this kind of thing could be used for anything more than a novelty. You couldn't make real music with it, you couldn't be expressive with it. You couldn't make it swing. Then Carlos and a few other people demonstrated they were wrong. You know, they just [made an] end-run around the music business. And then, you know, in 1969, all hell broke loose. Everybody had to have, you know, every commercial musician had to have a synthesizer. Well, [we] had to hire people and buy parts.

Jon tells the same story from his perspective: "The difference in the Moog Company was astronomical. Before *Switched-On Bach* it was a lazy, sort of experimental concept that we're making this machine that some universities would use. And then after there was this explosion of interest, and he hired a business manager and new staff, the production went way up and they were testing things around the clock. It became like a factory for awhile."

One last impact was that Trumansburg was suddenly a destination, if not



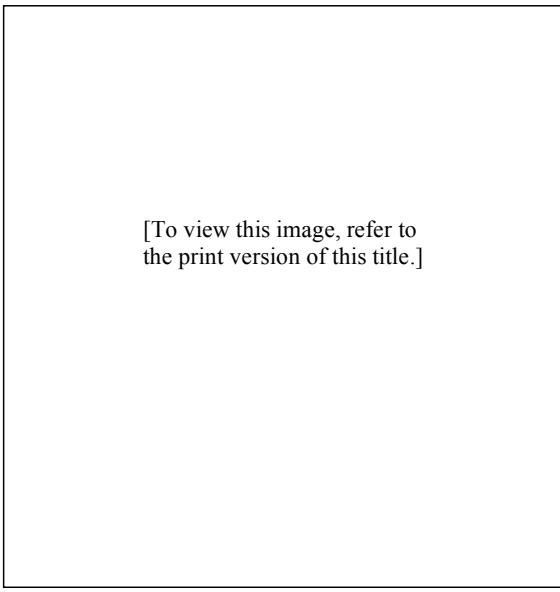


Figure 23. Music to Moog By

a national musical landmark. Many more musicians, composers, and commercial sound engineers began visiting the Moog factory. Borden: "A lotta jazz guys came through just to look at it, and people who were doing electronic music before also came through to check it out . . . I remember being surprised that J. J. Johnson . . . one of the great trombone players, he came by, and we thought he was using it for a jazz instrument, but no, he was using it for commercials."

Unquestionably, 1968 and 1969 were boom years for R. A. Moog, Inc. Carlos's big hit coincides with this period; and, looking back from thirty years later, it looks like this hit came out of the blue and led to the Moog's success. The real story, as we have seen, is much more complicated. Bob was preparing the groundwork for years beforehand. Synthesized sounds had already been introduced to the public by commercial musicians like Eric Siday (and even Carlos), who used them for sound effects, logos, and signatures. "Good Vibrations" (1966), although using a modified theremin

and not a synthesizer, popularly connected far-out, electronic sounds with rock 'n' roll. And when Bob Moog offhandedly says that there were "a couple other things" besides *S-OB* that led to the interest in synthesizers, it is understating the impact of what was building toward an influential trend. The Moog was featured in a number of pre-*S-OB* albums and some of the best known rock groups were using the Moog a year before Carlos's hit, as a result of Beaver and Krause's successes on the West Coast, particularly after Monterey. And their success in turn built upon the psychedelic movement that had emerged a year earlier from the Trips Festival and the influence of Kesey, Sender, and Buchla.

S-OB was in reality part of a much wider cultural transition encompassing the changing expectations of musicians and listeners—electronic sounds were now in the culture. *S-OB* was in effect a Trojan horse. Bach had, as one reviewer noted, been made psychedelic, but it was still Bach—and the synthesizer had been snuck in with it. Perhaps in the long term *S-OB*'s impact as a musical achievement will be seen as an oddity, a footnote. But in terms of the history of the synthesizer and popular culture, Carlos's influence was unsurpassed. It brought the synthesizer from psychedelic obscurity fully into the mainstream, where it has remained ever since.