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## **Switched On: Bob Moog and the Synthesizer Revolution**

By Albert Glinsky. New York: Oxford University Press, 2022. Pp. 480.

Albert Glinsky's biography of pioneering electronic instrument designer Robert Moog follows in the style of his previous book, *Theremin* (2000), a biography of Leon Theremin for which Moog wrote the foreword. As we learn in *Switched On*, Moog was so captivated by the idea of Theremin's "ether wave" instrument as a teenager that he worked on building his own from schematics published in a magazine. It is fitting to note that nearly half a century later, Moog's modernised versions (the Etherwave Theremin and Theremini) would count among the more popular products keeping the beleaguered Moog brand alive.

The theremin inspired Moog to try designing his own electronic instruments, leading to his development in 1964 of the first commercially available synthesiser, the Moog synthesiser, an instrument that possessed a sonic and visual aesthetic that appealed to the popular consciousness in the mid-1960s. As the author notes in the preface "the Moog synthesiser arrived at the right moment... For millions watching the televised coverage of the first moon landing, it painted the deep caverns of outer space. It was a mind-expanding aural backdrop for drug trips ... a space age techno-hallucinogenic toy..." (xiii). The synthesiser was picked up by bands like The Beatles, The Doors, The Byrds, and artists like Stevie Wonder and Wendy Carlos, whose 1968 platinum selling album *Switched-On Bach* demonstrated the instrument's unique expressive possibilities. It created uncanny, altered moods in the soundtracks to hit films like Stanley Kubrick's *A Clockwork Orange* (1971) and Francis Ford Coppola's *Apocalypse Now* (1979) and opened new doors in popular music aesthetics throughout the 1970s, from funk, disco and early electronic dance music to kosmische, glam and prog rock. The popularity and musicality of

Moog's instruments helped electronic music transition from academic and experimental spheres to the mainstream, helping to establish what quickly became a highly competitive, potentially very lucrative, industry. Moog's voltage-controlled oscillators, articulation envelopes and ladder-style filters became standard features on most synthesisers.

Glinsky's writing is accessible, entertainingly written and rigorously researched. Structured around the narrative of Moog's life (1934 – 2005), the story is fleshed out with privileged insights and rich details drawn from family archives, interviews and years of personal correspondence. Running alongside narratives of technical success, cultural influence and family life, is the parallel thread of Moog's failings and frustrations as a businessman. The posthumous story of how the Moog brand returned to market dominance under the stewardship of successor Cyril Lance is only hinted at. Poignantly, we learn that the company survived in part due to Bob Moog's life insurance policy, taken out a mere year before he died, which resulted in a timely and vital cash injection that ensured the future of the company.

This is the first complete biography of Bob Moog, and it is entertaining and meticulously assembled, revealing an impressively detailed impression of the man and his life's work. Moog loved classical music and collaborated with musicians to develop the musicality and performability of his circuits, the tones and articulations of which were modelled after orchestral instruments. From letters to friends and family we learn about the network of support, financial and otherwise, that he relied on to survive - at first as a start-up business, and later as a business trying to survive in a cut-throat, fast-moving industry. Glinsky writes compellingly about the threat of competition from Japanese manufacturers offering more affordable versions of similar technology, for example Roland's SH-1000 and Korg's miniKORG. He traces Moog's fall from dominance in the 1980s as analogue became eclipsed by the digitally mediated tones of

Wavetable and FM synthesis, ease of use improved by the functionality of MIDI and the creation of performance presets.

This book sits well alongside Trevor Pinch's *Analog Days* (2004), which looks at Moog's wider impact on popular culture. *Switched On* provides insights into the electronic sound revolution by going deep into the technical, practical and personal details of one of the era's most innovative and influential figures. This is surely destined to become an essential point of reference for scholars and researchers interested in the history of music technology.

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Leah Kardos is senior lecturer in music at Kingston University, London. Her first monograph was *Blackstar Theory: The Last Works of David Bowie* (Bloomsbury Academic, 2022), and she is currently writing a 33 1/3 series book about Kate Bush's *Hounds of Love*.