

apartment in record time), Michelle Ryan's Jaime recoils from her new body, rues the day that she ever met her so-called bioethicist boyfriend, and vows to thwart the aims of the mysterious Berkut Group, which employs her.

Additionally, despite the darkness of the new *BW*'s world, it is also punctuated with moments of humor, as if the show isn't sure whether to laugh or cry about the reappearance of Jaime Sommers. After her boyfriend is brutally assassinated by her bionic doppelgänger, Sarah Corvus, Jaime tries to bury her grief and sense of betrayal in an evening of tequila shots and casual sex. However, because she doesn't know her own strength, she injures her prospective lover by slamming him passionately against a bathroom stall, and he runs away in fear. The scene ends with Jaime vomiting while her new boss—who presumably had been hanging out in the bathroom listening to the goings-on—lectures her about her new responsibilities. The dramatic tenor of the show's mise-en-scène makes such moments (and many others like them) awkward because of their sitcomlike “wah-wah-wah-wah” ending, during which Jaime learns a new lesson about what she can no longer do now that she is bionic.

These inconsistencies can be—and, indeed, have been—explained as the identity crisis that the show seemed to have experienced as a result of numerous personnel changes and scrapping of storylines that occurred before the 2007 Writers' Strike effectively killed it. But they also arguably speak to a kind of discomfort with the legacy of feminism in popular culture in a way that's worth noting. As much as the remake was an attempt to, as *TV Guide* put it, “turn 70s cheese into gold” (Hochman), it was also Eick's self-proclaimed goal to move the *Bionic Woman* beyond a “discussion . . . [of] equal rights for women” and ask the question, “[H]ow [do] we feel” about the fact that “a woman can do what a man can do” (White)? The answer within the stylistic boundaries of the new *BW* seems to be a pretty resounding “not good,” as women like Jaime Sommers and the murderous Sarah Corvus are depicted as horrific cyborgian monsters who have been betrayed by their own strength and by their trust in institutions like romantic love and the state. In turn, this combination has destroyed their ability to balance their desires with their responsibilities. Some of these desires are depicted by the show as horrifically tragic, as when Jaime discovers her new body postaccident, and others are depicted as comical, as in the failed seduction scene. Together they create an uneasy new *BW* that rejects the “pleasure in the confu-

sion of boundaries” that Donna Haraway's concept of the cyborg promises (424).

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## Technology

### The Cat Telephone

Jonathan Sterne

In 1929 two Princeton researchers, Ernest Glen Wever and Charles W. Bray, wired a live cat into a telephone system and replayed the telephone's primal scene. Following a procedure developed by physiologists, Wever and Bray removed part of the cat's skull and most of its brain in order to attach one electrode to the animal's right auditory nerve and a second electrode to another area on the cat's body. Those electrodes were then hooked up to a vacuum tube amplifier by sixty feet of shielded cable located in a soundproof room (separate from the lab that held the cat). After amplification, the signals were sent to a telephone receiver. One researcher made sounds into the cat's ear, while the other listened at the receiver in the soundproof room (Wever and Bray 344). The signals picked up off the auditory nerve came through the telephone receiver as sound. “Speech was transmitted with great fidelity. Simple commands, counting and the like were easily received. Indeed, under good condition the system was employed as a means of communication between operating and sound-proof rooms” (Wever and Bray 345). After their initial success, Wever and Bray checked for all other possible explanations for the transmission of sound down the wire. They

even killed the cat to make sure there was no mechanical transmission of the sounds apart from the cat's nerve: "[A]fter the death of the animal the response first diminished in intensity, and then ceased" (Wever and Bray 346). As the sound faded from their cat microphone, it demonstrated in the animal's death that life itself could power a phone or any other electro-acoustic system—perhaps that life itself already did power the telephone.

To put a Zen tone to it, the telephone existed both inside and outside Wever and Bray's cat and, by extension, people. They believed that they had proven the so-called telephone theory of hearing, which had fallen out of favor by the late 1920s. Here it is worth understanding both their error and their subsequent contribution to hearing research. While Wever and Bray thought they were measuring one set of signals coming off the auditory nerve, they were actually conflating two sets of signals. The auditory nerve itself either fires or does not fire and therefore doesn't have a directly mimetic relationship to sound outside of it—there is no continuous variation in frequency or intensity, as you would have with sound in air. A series of experiments in 1932 revealed that the mimetic signals they found were coming from the cochlea itself. Called "cochlear microphonics," these signals were responsible for the sounds coming out of Wever and Bray's speaker in the soundproof room. Hallowell Davis wrote in a 1934 paper on the subject:

The wave form of the cochlear response differs from that of the nerve. From the latter we recover a series of sharp transients having the wave form and the polarity characteristics of nerve impulses [which fire three to four thousand times a second in the auditory nerve but only about a thousand times a second in the midbrain], while the cochlear response reproduces with considerable fidelity the wave form of the stimulating sound waves. Even the complex waves of the human voice are reproduced by it with the accuracy of a microphone, while from most nervous structures there is so much distortion and suppression of high frequencies that speech may be quite incomprehensible. (Davis 206)

Davis thus suggested that nerves are bad circuits for reproducing sounds, but the cochlea is an excellent circuit for reproducing sound—much like a microphone.

Davis and his collaborators' work on cochlear transmissions paved the way for a wide range of subsequent research, and cochlear microphonics are still important today. While they did challenge Wever and Bray's conclusions about the telephone theory of hearing, Davis and his collaborators continued down the same epistemological

path where ears and media were interchangeable; in fact, one was best explained in terms of the other. One of the most widely acknowledged and controversial achievements of this work has been the development of cochlear implants. Previous treatments for hardness of hearing or deafness involved interventions in the middle ear; cochlear implants resulted from the project of intervening in the inner ear, a practice that was possible in part because of the line of research begun by Wever and Bray. Meanwhile, the brain's work of translation—from firing neurons to the perception of sound—became a major preoccupation of psychoacousticians as well and remains an open question down to the present day (Blume 99). As for the cats who played a surrogate role for humans in these experiments, theirs is another story.

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### The Story of 50mm Film

#### John Belton

One of the unwritten histories of widescreen film is the story of 50mm, which was innovated by Fox in ca. 1930 as an alternative to the failure of 70mm film. A review of this history reveals that Fox's experiments with 50mm indirectly led it to the successful invention, innovation, and diffusion of CinemaScope in 1953.

One of the chief attractions of 50mm in 1930 was that it was the widest gauge that could be accommodated by existing theater projection equipment, eliminating expensive