



From the Standards Blog

#25 How strict a standard? In Praise of the Hammond B-3 Organ

A perennial question in the world of standard setting is this: "How tightly should a standard define, and thereby constrain, its implementation?"

In one type of standard (so-called performance standards), only the ends, but not the means are mandated. For purposes of truth in packaging, a 60-watt bulb is a 60-watt bulb, so long as it produces 60 watts of illumination, and regardless of how it achieves that feat. The second type of standard enables interoperability, and this type of standard is far less forgiving. It is this type of standard that assures you that the same 60-watt light bulb just discussed will invariably fit in your light socket.

Clearly, the first type of standard permits great flexibility, while the latter provides virtually none at all.

Is one type of standard better than another? Clearly not; they simply serve different goals. The art, as in so many things, is to find the right balance (even in the second type of standard) between ensuring usability, while enabling beneficial creativity.

This need for balance is recognized in one of the core tenets of modern standard setting, applauded by competitors, antitrust authorities and economists alike. That tenet goes something like this: vendors should be encouraged to collaborate on the creation of the standards necessary to enable new goods and services to be offered, and then compete in the creation of additional value-added features that will distinguish their particular wares in the marketplace from each other. And, in fact, this is exactly what does happen all of the time.

This conjunction of collaboration and competition has been in existence for far longer than the modern process of voluntary consensus-based standard setting. Consider, for example, the ancient tradition across all peoples of creating musical instruments (and surprisingly similar instruments, at that).

Anthropologists investigating cultures in out of the way places invariably find each of the three principal musical types in use. Those timeless variations comprise instruments that create sound by (a) hitting something with the hand or some other object, (b) blowing through something hollow, or (c) making a stretched string vibrate. Thus, the first level of musical standardization arises from the realities of physics and the universal availability of certain types of natural materials.

From this common beginning, local forces may have exerted the most influence on how these universal progenitors further evolved. Those forces could involve variations in locally available materials, or perhaps purely eclectic tastes (compare, for example, the modest pan pipes of the Andes with the ten foot long Alpenhorns of the Tyrol).

Still, within specific cultures standardization of musical instruments invariably did take place - for the same general reasons that standardization usually takes place. Once instruments become similar, several can be played together to yield a more pleasing result, and music can be created that best suits the capabilities of the same instruments. Eventually, music (such as classical music) can be shared on a global basis, inspiring the creation of an ever-growing body of compositions that can be performed as intended anywhere in the world.

At the same time, individual craftsmen can still compete in the creation of instruments, based upon their talents and the non-standardized elements (or permissible variations within standardized elements) that they may employ to greatest effect. Thus, the particular pieces of wood selected and the secret glues

and varnishes devised by master Luthiers Amati and Stradivarius helped produce instruments that, while visually indistinguishable from those constructed by lesser mortals, yield sounds of a richness and purity never replicated by their descendants in the same craft.

Happily, the specifications for musical instruments intended for non-symphonic use are more forgiving than those employed in telecommunications. This is in part because some musical instruments embody multiple layers of compliance, not all of which are mandatory. Thus, the builder (and the buyer) can choose the level of compliance that is desired. The result is that there is more room for experimentation, and therefore also for evolution in the state of the art.

All of which suffices to bring us to one of the truly iconic instruments of the second half of the twentieth century: the Hammond B-3 Organ (with Leslie speakers).

While you may not recognize the name "Hammond B-3," if you are an American (or, indeed, a jazz aficionado of any nationality) between the age of 30 and 75, you are nonetheless intimately familiar with its unique. To give but a single example, if you recall the soaring organ riff at the end of Crosby, Stills & Nash's "Love the One You're With," you will instantly recognize the instrument of which we speak, and the sound we are eulogizing. Again, if you are a fan of Gospel music, you've heard far more from the B-3 than you ever did from your eighth grade math teacher. Odds are that you paid more attention as well.

If you have ever seen a B-3 up close at a jazz or rock event, you will not likely have forgotten its unlikely physical presence, either. I made my first acquaintance with one around 1972, at a college mixer. In the middle of the colored lights, black speakers on stands, mikes and amps there incongruously stood what looked like (and was) a full-sized organ, complete with walnut case, double keyboard, full range of foot pedals and stops, and heavy (attached) wooden bench.

At 400 pounds, the B-3 is a roadie's nightmare and a keyboardists' delight. But a B-3 without a set (two, not one) of six foot high Leslie speakers, each almost as heavy as the organ itself and similarly encased in wood, is not in fact a Hammond B-3 at all. Throughout his life, this reality rankled Laurens Hammond, the inventor of the B-3. While a genius when it came to magnetic field tone generators, Hammond was not as gifted a designer of speakers as was Don Leslie, the acoustic magician behind the eponymous speakers that so brilliantly translated the best the B-3 had to offer into actual sound.

Those Leslie speakers added a further unworldly aspect to the presence of the Hammond B-3 in concern, with their spinning horns that could, at the whim of the musician, be accelerated from a slow spin to a near-blur that produced a paroxysm of Doppler-effected warbling that was like no other.

Was the Hammond B-3 an organ? Indisputably, just as Marilyn Monroe was... You get the idea. The basic elements were standard, but the way they were put together was unique. If Stradivarius was just another craftsman, then Laurens Hammond was just a technician.

Amazingly enough, Laurens was closer to that description than one would expect. By most accounts, he may even have been tone deaf. But he was an incredibly gifted engineer that brought (then) cutting edge technology to the design of a venerable mechanical instrument, creating a bridge between the church pipe organ (with which it was intended to compete) and the modern music synthesizer.

In the roughly 20 years that the B-3 was in production, over 100,000 were sold -- making it the most popular electric organ ever built. An enormous number are still in use, partly through the efforts of the skilled refurbishers that have sprung up to keep them in action. So popular did the Hammond B-3 organ become, and so perfectly matched to it were the Leslie speakers, that Don Leslie never bothered to advertise his wares at all. In fact, he was barely able to meet the demand.

Today, manufacturers continue to offer instruments that consciously (if never totally successfully) mimic the combination of a Hammond B-3 and a set of 122 Leslie speakers. But listen to the DJ give the credits on a jazz show, and you'll always hear them carefully intone who is "on the Hammond B-3 organ" on a given track. Look closely on the liner notes of a CD, and you'll see the same thing. That's not Eric Clapton's session musician on the "electric organ." He's on a *Hammond B-3* organ. In other words, the Hammond B-3 has received recognition as an instrument in its own right - something even Stradivarius failed to achieve.

Does all of this make the B-3 a "gold standard?" Not at all. A B-3 sounds like a B-3, and nothing else truly does (or perhaps ever will). Instead, the Hammond B-3 set a unique standard that continues to be valued for the qualities that set it apart.

Or, in modern standards parlance, Laurens Hammond out-competed all others with his ability to create truly superlative value-added features. A conclusion in which all music lovers would concur.

All, perhaps, except those who also happen to have been roadies.

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Useful Links and Information:

See Alpenhorns in action at:

<http://image.guardian.co.uk/sys-images/Travel/Pix/pictures/2002/05/31/1alpen.jpg>

For another affectionate (and more technically detailed) history of the Hammond B-3 Organ, see Nelson, Glen E. "History of the Hammond B-3 Organ," at: <http://theatreorgans.com/grounds/docs/history.html>

For confirmation and debunking of commonly held beliefs about the Hammond B-3 organ, see Olsen, Harvey. "Leslie Speakers and Hammond Organs: Rumors, Myths, Facts, and Lore," at: http://www.hammond-organ.com/History/hammond_lore.htm

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