

## Sounds as Good as It Looks

The story of the new Seiji Ozawa Hall at Tanglewood reads like a Hollywood movie—a movie by Frank Capra, not Oliver Stone. A famous big-city symphony orchestra decides to build a concert hall at its rural summer facility. An architect must be found to create a beautiful building, not just one that looks good, but one that also sounds good. A long list is drawn up. It consists of the most celebrated practitioners in the country but also, because this is an orchestra that practices blind auditions for unseasoned musicians, several young up-and-comers. Finally, seven architects are invited to be interviewed. (Here is an opportunity for several cameo roles. Let us cast Brian Dennehy, who was the convincing star of Peter Greenaway's *Belly of an Architect*, as well as Richard Gere, who also once wielded a T square.) Gruff and rumped, handsome and Armani-suited, trailing assistants carrying portfolios bulging with photographs of impressive museums, dramatic corporate headquarters, and, of course, eye-popping concert halls, they make their presentations to the orchestra committee.

Surprisingly, one of the unseasoned newcomers is among them. (Tom Hanks has the Jimmy Stewart role.) He is hampered by never having built a concert hall, so he shows his latest project instead—affordable housing on the waterfront! Then he makes an impassioned speech about the rural site of the new hall—its landscape, its spirit, its ambience. He talks about the kind of building

he thinks the orchestra needs: open, informal, yet reflecting the intensity of the music. It shouldn't overpower the place, he warns; he calls it a background building. (This is a fine set piece: the earnest and impassioned architect confronting the attentive but skeptical committee of civic leaders, retired businessmen, wealthy socialites.) Finally, our hero—Hanks is always the hero—returns to his small office. He is dejected. The committee appeared interested, but what chance does he have against the architectural stars?

Meanwhile, back at the symphony the committee deliberates. Everyone has his or her own favorite. The chairman suggests that they have an informal poll, each member to write two names on a slip of paper. When the ballots are read, there is general surprise at discovering that only one candidate appears as the first or second choice on every single ballot—Hanks. There is more deliberation, and the final choice is made. It is, of course, our hero. As in every Capra movie, the outcome is predictable, but that is precisely the appeal of the genre.

The movie is not over. The concert hall must be built. The architect travels to Europe to visit famous concert halls. Together with the acoustician (Charles Grodin in a co-starring role), he develops a design. The building goes up. It certainly looks impressive, but how will it sound? After the rehearsal, the musicians seem happy. "It's going to be fine," says Grodin. But that prognosis is based on an empty hall—how will it sound with an audience at the opening gala? More to the point, how will it sound to the influential music critics? On opening night, we see the critic of *The New York Times* among the concertgoers (it is Edward Rothstein, playing himself). The music starts. The critic sits concentrating intently, his brow furrowed. He looks slightly irritated. During the intermission, he gets up and moves to another seat. We start to get nervous—will this be a movie with a fashionably unhappy ending? (Hanks, elsewhere in the hall, is *really* nervous; Grodin is merely "trepidatious.")

The next day, Hanks and Grodin read the music review.

They—and we—can relax. “Precisely what a concert hall should be,” Rothstein writes. “It is rare for a new hall to begin its career with such a mature, seasoned character.” The movie closes with a reprise of the closing of the gala concert and the music of Randall Thompson’s *Alleluia*, an unaccompanied chorus. The audience joins in. The camera pulls back from the stage and moves across the heads of the singing people and through the great doors that open the rear of the hall to the outside lawn, where more people sit and sprawl on the grass. As the camera rises, we can see the dark silhouettes of the rolling Berkshire Hills on the horizon. Below us, the warm glow of the light spilling out of the doors identifies the concert hall. The patch of light glows smaller. The credits begin to roll.

I am sitting with William Rawn, the architect, who is telling me about that July 7, 1994, concert. His office is in downtown Boston, and outside the window I can see the historic Granary Burying Ground. A dusting of snow covers the grass between the crowded grave markers (Samuel Adams, John Hancock, and Paul Revere lie here). It is a bleak sight in December, but this would be a sobering prospect at any time of year—and an odd view to have from your workplace. But William L. Rawn III is a serious man. He doesn’t look anything like Stewart or Hanks (though he is exceptionally tall), but he does have that affecting combination of gravity and guilelessness that both actors have often brought to the screen.

“After one of the first rehearsals, several of the musicians came up to me and told me how happy they were with the sound of the hall,” Rawn says. “I think I knew then that we had something good. Still, we were concerned about the reaction of the media. The first reviews will stick in the public’s mind. Not that there haven’t been halls that initially got bad reviews and were eventually considered to be excellent.”

The critical reception of the acoustical qualities of Seiji Ozawa

Hall has been consistently positive, although Rothstein did have a quibble about “too much being shaved off the top frequencies.” After the first season, Rawn’s acoustician, R. Lawrence Kirkegaard, ordered an eighth inch of the absorptive cellulose fiber that covered the ceiling to be removed. The sound is judged to be improved. Such tinkering is not uncommon in a new hall. What is unusual is for the sound of a new concert hall to be so widely praised, for the reaction to new halls has frequently been lukewarm, if not downright hostile. It is usually the old halls that are loved and admired.

That is certainly the case with Boston’s venerable Symphony Hall. It was built at the end of the nineteenth century and designed by McKim, Mead & White, working in its full-blown Italian Renaissance mode. Symphony Hall is generally held to be the first hall in whose design the new science of acoustics played a role, for the architects had the assistance of Wallace Clement Sabine, a professor of physics at Harvard and the father of modern architectural acoustics. The music critic of the *Boston Evening Transcript* was not impressed, however. After the inaugural concert, he wrote that “the tone was beautifully smooth . . . but it had no life, there was nothing commanding and compelling about it.” Nevertheless, Symphony Hall has become known precisely for its exceptional sound. “Even the first time that I conducted there, I was struck by its acoustics,” said Bruno Walter; “it is the most noble of American concert halls.” Herbert von Karajan was even more effusive, and even went so far as to say that for much music Symphony Hall was even better than the Grosser Musikvereinsaal in Vienna. Now, that was saying a lot because the Musikvereinsaal is considered by many to be the best hall in the world.

Of course, “the best hall in the world” is a slippery concept, because the setting for music—and hence music itself—has changed considerably over time. Baroque orchestral music was played in small rooms with relatively short (less than 1.5 seconds)

reverberation times. Reverberation time refers to the length of time that sound gives the impression of lingering in a room, the result of being reflected by the surrounding hard surfaces. Short reverberation times are ideal for intimate and highly defined music. Much sacred music, like Bach's fugues, was written to be performed in private chapels whose reverberation times are also relatively short. Bach's major choral works, on the other hand, were usually staged in churches and took advantage of the larger, more reverberative spaces. During the classical period, the music of Haydn and Mozart was performed in what were the first concert halls. Although these halls were small by modern standards and sat only several hundred people, the reverberation times were longer, 1.5 to 1.7 seconds. The second half of the nineteenth century saw a new generation of larger concert halls that reflected the popularity of orchestral music. The Musikvereinssaal, for example, opened in 1870 and has 1,680 seats. Such halls have longer reverberation times (1.9 to 2.2 seconds), fuller tones, but slightly lower definition, which complements the music of Romantic composers like Brahms, Tchaikovsky, and Richard Strauss. The music of the twentieth century is more varied in its demands.

A contemporary hall, in which works ranging from Bach to Górecki are performed, must always, to a certain extent, be a compromise. Nevertheless, there is a surprising amount of agreement about which are the best-sounding concert halls. Most musicians, critics, and concertgoers would probably include not only Vienna's Musikvereinssaal and Boston's Symphony Hall but also Amsterdam's Concertgebouw and New York's Carnegie Hall. A systematic study of these and other halls is contained in *Concert and Opera Halls: How They Sound*, a vastly revised and enlarged edition of the now-classic study *Music, Acoustics, and Architecture* (which was originally published in 1962). The author is Leo L. Beranek, a Cambridge, Massachusetts-based acoustician who is co-founder

of one of the world's leading firms of acoustical consultants—Bolt, Beranek & Newman.

Beranek's top rating is "Superior," and it is accorded only to the Musikvereinssaal, Symphony Hall, and the Concertgebouw. An additional six concert halls are described as "Excellent": Basel's Stadt-Casino, Berlin's Konzerthaus (formerly Schauspielhaus), Cardiff's St. David's Hall, Tokyo's Hamarikyū Asahi Hall, Zurich's Grosser Tonhalleaal, and Carnegie Hall. The rest of the halls are consigned to lesser categories, although Beranek diplomatically does not give a detailed ranking of all the halls. An amateur musician, he visited sixty-six famous concert halls and ten opera houses around the world, listening to performances, measuring reverberation times, and studying blueprints. He polled concertgoers and talked to music critics. He also interviewed musicians, including Charles Munch, Leopold Stokowski, and Leonard Bernstein, as well as von Karajan and Walter. Eugene Ormandy told him, "In my many years as a conductor, this is the first time anyone has come to me to ask my opinion about acoustics."

Why do old halls sound better than new ones? To a large extent, it is a question of their shape. The Musikvereinssaal (1870), the Concertgebouw (1888), and Symphony Hall (1900) all have what is known as a shoe-box shape. (So do four of the six halls in the "Excellent" category.) In a typical shoe box, the orchestra is at the narrow end, and the seats are on the floor and in one or two galleries that extend along the long sides and across the rear. Sound is reflected to the listener from the two parallel walls (which are about sixty to eighty feet apart) as well as from the ceiling. Because the concertgoer is relatively close to the musicians, the atmosphere is intimate, visually as well as acoustically.

The majority of concert halls during the twentieth century have departed from the successful shoe-box formula. Why? One reason is the requirement for greater seating capacity (as well as

enlarged standards of comfort and safety). Basel's Stadt-Casino has 1,448 seats; many contemporary concert halls, especially in America, where orchestras lack government subsidies and rely on box office receipts, approach 3,000. To bring the rear seats closer to the stage, halls have been made wider, or fan shaped. This sacrifices some of the acoustical qualities of the shoe box, especially the ability to reflect bass notes from the side walls. Audience capacity may not be the only reason, however. After all, Boston's Symphony Hall, the largest of the shoe-box types, accommodates as many as 2,630 concertgoers. This is about the same as Lincoln Center's Philharmonic Hall, but Philharmonic Hall, which opened in 1962, adopted a distinctly untraditional shape. So perhaps size is not the whole story. Maybe some architects' willful desire to reinvent the wheel is also part of the explanation.

The acoustician R. Lawrence Kirkegaard, who was responsible for the 1989 renovation of Carnegie Hall, has a sound respect for tradition. Originally Harvard-trained as an architect, he apprenticed with Bolt, Beranek & Newman precisely at the time that the firm was struggling with the acoustical shortcomings of Philharmonic Hall—"Beranek's Waterloo," Kirkegaard calls it. (The acoustics of Philharmonic Hall proved so bad that the interior was gutted, and a new hall—Avery Fisher Hall, a classic shoe box—was put in its place.) Because Ozawa Hall was to be small, it could follow the tried-and-true models. "The shoe-box shape was identified very early," Kirkegaard says. "The Boston Symphony loves its hall, and all their favorite concert halls were that shape." On his European tour, Rawn had been especially impressed by the architectural presence of the Musikvereinssaal and Berlin's Konzerthaus (another nineteenth-century shoe box, designed by the great neo-classical architect Karl Friedrich Schinkel), so it did not take much prodding from Kirkegaard for him to adopt the shoe box as the model for the new hall. Ozawa Hall is 65 feet wide, 130 feet long, and 50 feet high, about the same size as the Musikvereinssaal; like

Symphony Hall, it has two galleries. One feature of Ozawa Hall is unique, however: the rear wall consists of a fifty-foot-wide door that permits another two thousand concertgoers sitting on the gently sloping lawn outside to listen to the music.

Beranek's *Concert and Opera Halls* concludes with three general observations: small halls generally sound better than large halls; halls built for a single purpose are superior to multipurpose halls; and old halls sound better than new ones (all three of the "Superior" halls were built by 1900, as were four of the six halls rated "Excellent"). These insights obviously influenced the design of Seiji Ozawa Hall. From the beginning, the Boston Symphony decided that the new hall should be small, the audience not to exceed twelve hundred. Because the new hall was being built as a replacement for a wood structure (built in 1941 by Eliel and Eero Saarinen) that served for both opera and orchestral music, the initial plan was for the new hall to likewise accommodate both types of music. However, "as the design progressed, Bill Rawn slowly but firmly steered us to the conviction that a hall designed uniquely for music was the best solution," recalls Daniel R. Gustin, the assistant managing director of the orchestra. This was not only a question of avoiding the complexity—and the cost—of an orchestra pit, a stage house, and backstage facilities. Opera houses require relatively short reverberation times to ensure the intelligibility of the human voice, which inevitably compromises the acoustical qualities required for orchestral music. And, as we shall see, an orchestra hall can benefit from the lack of a proscenium stage.

Another lesson that old concert halls teach concerns construction. Their walls and ceilings were usually plaster applied directly to brick or stone; there was relatively little wood. Heavy massive walls sustain a low-frequency bass response, unlike hollow walls or lightweight wood paneling, which tends to reflect only the treble notes. Although the interior of Ozawa Hall has a lot of exposed wood—teak—it is confined to the seats and the gallery railings;

the walls are stucco over foot-thick masonry, and the ceiling consists of heavy concrete coffers. The result is a reverberation time of about two seconds and, as Rothstein put it in his review, “a resonant, warm space that comes to life with sound.”

The enjoyment of music in a concert hall is not only the result of construction, dimensions, and shape, however; architecture, too, plays a role. If Ozawa Hall is traditional in its overall internal arrangement, it is much less so in its decor, for Rawn’s respect for the past does not extend to the use of the classical architectural language. There is no figurative ornament here, no statuary as in Symphony Hall, no caryatids supporting the galleries as in the Musikvereinsaal, no crystal chandeliers as in the Stadt-Casino. On the other hand, this is definitely not a coolly abstract modernist interior like the recently constructed Opéra Bastille.

Some have likened Ozawa Hall to a Quaker meetinghouse or a New England town hall. There is certainly an air of gathering here, for in doing away with the proscenium that is a feature of so many American concert halls, pulling the stage into the main body of the hall, and placing some of the audience beside and even behind the musicians (as in the Concertgebouw), Rawn has given concertgoers the feeling of being participants rather than merely spectators. The teak grilles that make up the gallery railings reminded me of yacht gratings, and the seats, which are mostly movable chairs, recalled the deck furniture on a cruise ship. So, if this is a meetinghouse—and there is a sense of Quaker artlessness in the unembellished forms—it is one whose frugality is tempered by hints of boating, and leisure, and summer vacations. My only quibble is that the decor is almost too refined; one misses the makeshift, camp-like quality that is a feature of the other buildings at Tanglewood.

On the exterior, the general shape of the building recalls McKim, Mead & White’s Symphony Hall, except that the roof is gently

curved instead of pitched, and the lower flanking wings are open porches instead of solid buildings. Because the main hall is brick and the structure of the porches is heavy timber (recycled from old wharves and trestle bridges), the overall effect is of an industrial building, the kind of nineteenth-century mill, say, that one can still see in many small Massachusetts towns. That sounds unusual, but Tanglewood itself is an odd combination of urban culture in a country setting, of intensity and informality.

Before I leave Bill Rawn’s office, he shows me one of the sketchbooks he kept during his European tour of concert halls. All architects keep such visual diaries. What struck me about Rawn’s sketchbook was that while there were many thumbnail drawings, there were also pages and pages of written notes. Obviously, he had been looking, but he had also been listening and thinking. Contemporary architecture can represent a range of qualities: refinement, excitement, even—in the case of much deconstructivist work—angst. It is rare, however, to come across an architect whose work can be described, first and foremost, as intelligent. I think this is probably what impressed the Boston Symphony Orchestra committee and led it to make what must have seemed, at the time, a risky choice. A bold client, an intelligent architect, and a perceptive acoustician—that is a Hollywood script, indeed.

*In the 2004 edition of Concert and Opera Halls, Leo Beranek ranked Ozawa Hall the fourth-best American concert hall ever built, after Boston’s Symphony Hall, Carnegie Hall, and the Morton H. Meyerson Symphony Center in Dallas (designed by I. M. Pei). Rawn and Kirkegaard have since collaborated on several music halls, notably the Music Center at Strathmore for the Baltimore Symphony and Weill Hall at Sonoma State University, both shoe-box designs.*