

E. & G. G. Hook Organ, Mechanics Hall, Worcester, MA

Restoration Report
Fritz Noack
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Many of the best organs built today by American organ builders take much of their inspiration from classical European instruments. I was fortunate to have received not only my first impressions about organs but also my professional training among North Germany's finest historic instruments. Yet it was the complete and uncompromising restoration my firm carried out on the 1864 Hook organ in Worcester that had the most profound influence on our later work. In a world where we perform literature written in a rather vast variety of styles, play for choral accompaniment and do all this in usually less-than-ideal acoustics, this organ can give us some useful advice. This sort of instrument provides perhaps the most effective and honest bridge between styles in a musically attractive manner. For this reason, we include a general report on the restoration here. A more extensive study, including more complete technical and scaling data, is planned.

In July of 1855, ground was broken for the new hall of Worcester's Mechanics Association. The space was to be used not only for exhibits that would show off the products of Worcester's young industry, but also for other sorts of educational uses, including concerts. Part of the stated purpose was to improve the singing of the choirs in the various churches of the area and therefore an organ was included in the plans for the hall.

It was not until late summer of 1863 that Ichabod Washburn offered \$1,000 to the Mechanics' Association as the start of an organ fund, and in August of that year the contract with E. & G. G. Hook was made for their Opus #334. It called for an organ of four manuals and pedal of seventy-four "registers" (52 speaking stops plus couplers, vents, etc.). The cost of \$9,020 was entirely borne by subscriptions. A new façade was built for it by the Hooks, who (in the words of Francis Hastings, then their foreman) wanted to have "their best work represented by artistic and showy fronts," since "large numbers of people hear with their eyes." When the organ was opened by John Henry Wilcox on October 26, 1864, it was an unquestioned success. Even the — in modern terms — relatively heavy action was praised; for such a large organ, it was said, the action was "operated with unusual ease and promptness." While much ado was made about the Vox Humana on the Swell, we must point out the beauty of the essentially complete Diapason Choruses on each manual. Even the Solo was at least provided with a coupler to make it possible to add the Choir Sharp Mixture to that division. The strings were pleasant, some done as Bell Gambas rather than the narrow-slotted type. The wooden flutes were clean but warm, and always paired with an appropriate 8' string to achieve that sort of velvety sound unattainable any other way. The reeds, slotted only in the bass, had a fast speech and quiet brilliance we find rarely in any other builder's work. The organ had no 32' stop, but used a 10 2/3' to achieve a beautiful 32' effect without the weight and the burden on the wind system. The wind pressures, consistent with the Hooks' goal of an easy-going sound, were relatively low — 3" for all but the Solo and Pedal, which were blown at a "high pressure" of only 3 1/2".

Electricity had been brought into the hall in 1875, but even when in 1876 the organ was gone over by "Messrs. Hook and Hastings, the original builders of the organ, at an expense of \$385.97," the organ was still pumped by hand — a formidable task when one considers the size of the instrument.

During January of 1889, George S. Hutchings of Boston, who apparently had supervised the installation while in Hook's employ, was asked to make recommendations about two important improvements on the organ. The first one was to bring the pitch of the organ from the old Boston pitch (apparently about $a=455$) to the "French Normal Diapason" of $a=435$ Hz; if this organ were to be useful in the musical life of Worcester, it had to be at the right pitch for the orchestra. The second one was the introduction of hydraulic motors to operate the bellows. At the same time he rearranged the combination controls and introduced some touches of "modern times": a new Grand Bourdon 32' and a Quintadena 8' in place of the Twelfth $2\frac{2}{3}$ ' on the Swell. His method of down-pitching was strictly pragmatic: most large pipes were extended, while most smaller pipes were moved up one note with a new pipe added at the start of that range. Apparently, no substantial revoicing was done at that time.

The organ was used regularly with intermittent maintenance and a major tuning in 1914. About a dozen years later George W. Reed and Son of West Boylston did what everybody was doing in the Twenties: the keydesk, entire stop and key action and wind system were replaced by electro-pneumatic action, a wind system with small reservoirs and sheet metal ducts (replacing solid wooden ones) and a new Swellbox around the Choir division. He also made some tonal changes.

When I first saw the organ, it was in virtually unplayable condition. The very poorly done work of the Twenties essentially had deteriorated to the point of uselessness. To me, the task of somehow bringing the organ back to life was a unique opportunity to restore it to as nearly original condition as possible. The wisdom the Worcester's AGO advisory committee (Stephen Long, chairman) and the governing board of the Mechanic's Association (Julia Chase Fuller, executive director) showed in deciding on this daring move can only now be fully appreciated.

The present state of the organ is indeed as close to the original as the available information permitted, with the exception of the pitch (now $a=440$ Hz. to accommodate present-day instruments). All parts replaced during the two rebuildings were removed and reconstructions of were made following examples from other Hook organs of the period. The Twelfth and Clarinet stops that had been displaced by later stops were replaced with original Hook pipes from Opus #371, and the 32' stop was removed.

The majority of the pipes looked very much unchanged, the voicing resembling that of the few Hook organs we knew to have had little done to them. Besides the obvious repairs needed, we cleaned all pipes with soap and water but no abrasives. We were particularly fussy not to alter reed-curvatures by scrubbing. It was amazing that throughout the entire organ only about a dozen tongues had to be replaced, in addition to the handful of pipes we had to reconstruct, many from Hook parts. The toes had been closed and were restored to original size on the Great Viola da Gamba 8', Principal 4', Twelfth $2\frac{2}{3}$ '; Choir Dulciana 8', Mixture III; Solo Salicional 8'; and Swell Vox Humana 8'. Several Trumpets and the Oboes had roofs ("stopped" Trumpets) that, of course, needed to be removed. All conical reeds had been slotted to the smallest pipe, resulting in many weak, often hard-to-tune pipes. These needed no revoicing once the slots on all pipes 2' and smaller were soldered shut, as it was common Hook practice to cut these pipes to dead-length. Some things the Hooks did not do so well we simply had to accept: as an example I like to point out the wooden bass octave of the Swell Open Diapason 8'. Material was hard to get in 1864 (the Civil War still made life difficult), and zinc was at a premium. Pine just does not make very good Principals, but I saw no reason to second-guess what they would have done had the metal been more available. Actually, such marks of that painful war are an integral part of the musical picture of this organ. So, like many other quaint features, the wooden Diapason pipes remain.

Authenticity of the organ alone would require a return to the high pitch, but there is also an authenticity of function, i.e. that of being an active part of the orchestral/choral concert scene. I decided for the latter. Obviously then it was a question of how we could minimize the effect of that choice on the sound of the organ. We ascertained which pipes had been slotted, coned, etc., and made sure that at least this important feature was reconstructed. All trebles were left in their one-note-moved-up position, as that means the appropriate scale for that pitch. Some larger bass stops still retain their 2/3 of a half tone lengthened state, as the cost of replacing all low C pipes of the larger stops was not worth the minimal tonal difference; also often there would not have been the space to accomplish this. I feel very confident that the sound you hear today is the sound you would have heard in 1864.

The sound is, of course, a function of more than pipes: one must also consider the windchests. The chests were all there, all in their original places, and only thorough repairs (done on location), but no actual reconstruction, were needed.

The layout and dimensioning of the completely reconstructed wind system was very similar to the original one of the 1863 organ at the Church of The Immaculate Conception in Boston, which was used for a guide. The two bellows, one taken from the 1865 Hook organ we purchased from the Charles St. AME Church in Boston and one a reconstruction, are of the size originally recorded, each holding close to 200 cubic feet of air. It was impossible to place the pumping mechanism into its original location in the room below the organ, as this is now used for other purposes. Although the organ may again be pumped by hand, an electric blower was also added.

The console and key and stop action had to be made new. Some things we knew for sure. The fact that there was a Barker lever for the Great and what auxiliaries the organ possessed were published in several places. We even found a fuzzy picture of the old console. The order of stops was no problem: they always went by the order on the chest. For the keyboards we used bone instead of ivory, but the key dimensions — down to the funny wide tail on the “d” key, weighted to achieve precisely one ounce balance on each key, and the cloth bushings — we kept meticulously. We built a Hook pedalboard even though there are more quiet pedalboards.

The key action of the three manuals excepting the Solo are an exact copy of the same parts of the 1870 Hook at the Woburn Unitarian Church. For the key as well as stop action, many parts had to be machined in Hook’s fashion, including casting iron squares of various description.

The organ is presently maintained by the Andover Organ Company. A few minor and quite reversible changes were done by our colleagues from Andover to make the instrument more useful in the astonishingly active role it plays today. This involved the addition of muffler panels to the pneumatic lever, which was too noisy for modern recording use. I personally feel that the rather modest power of the original Swell was essentially not the result of careful planning but of happenstance. Revoicing being out of the question, the temporary removal of one set of Swell shutters has somewhat mitigated the Hooks’ miscalculation. A few Swell bass notes now have pallets with relief valves (a later Hook style) to make the action a bit less difficult to play.

The Worcester Organ, as it was originally called, today ranks among the most important historic organs in America. We are grateful to have had the opportunity to bring it back to life. We learned that the reconstruction of historic material can be quite successful when done with uncompromising thoroughness.