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which involves more than a minimum of repair to a surviving historical document.

This "Kijkboekje" is marvellously—indeed, lavishly—illustrated with both photographs and detailed drawings. Furthermore, the English translator, Ruth Koenig, is to be commended for the smooth, idiomatic quality of her prose. While the book is clearly directed primarily toward the nonspecialist, it does contain considerable information of value to both the organologist and the builder with regard to three specific instruments. One looks forward to future similar publications.

R. PETER WOLF

François Bédos de Celles. *The Organ-Builder*. Translated by Charles Ferguson. 2 vols. Raleigh, N.C.: The Sunbury Press, 1977. \$320.00.

Until Dom Bédos published his treatise *L'art du facteur d'orgues* (1766–1778), there was no book that explained the practical and theoretical aspects of organ building in a systematic way. Since Dom Bédos, no author has equaled his achievement, although several have given us books of similar scope. Dom Bédos must remain unique, because no other will face the challenges he did.

His shortcomings are few, but obvious in retrospect. His "Brief History of the Organ" is based on a broad humanistic and theological culture and little else: having traced the bellows organ from ninth-century Germany to Rome and thence to the rest of Europe, his essay becomes ever rougher and more fragmented as it approaches the Renaissance. Throughout *L'art du facteur*, French craftsmen and particularly the leading Paris workshops are taken as the vanguard of progress, progress being of course steady and desirable. Dom Bédos says nothing of organs abroad, except to comment on German reeds (poor) and bellows (worse). His main reference to Flanders is an admiring description of some case pipes in Béziers. If he knew the Spanish tradition, as he must have in his native Midi, he never mentions it. His only known trip abroad was a visit to the great new Gabler organ in Weingarten: the instrument was locked, and Gabler

was away. So Dom Bédos returned home with only a vision of pure tin pipe work and a puzzling stop list. For him, France was the center of the organ world. Never again would a French writer be so sure of his country's cultural leadership that he could ignore the others almost completely.

Such cultural self-assurance on the national level is redeemed, however, by Dom Bédos's honesty as craftsman and teacher. He pleads throughout for sound materials and careful workmanship as opposed to substitutes and short cuts. He argues for simplicity and ease of access in designing chests and mechanisms, logic and uniformity in designing consoles. If he follows fashion—illustrating a case design without visible pipes, “organ-izing” pianos or hurdy-gurdies, devising player mechanisms—he never loses sight of tradition and never compromises sound practice. In Dom Bédos's time there was little uniformity in measurements or materials. He was obliged to give arbitrary gauge sizes for bits, as there was no standard. The same was true for wind pressures and of course for pitches. He visited the leading workshops, noting Clicquot's reed scales and a jigsaw Lépine used for cutting out keyboards, but he recommended only those practices he judged to be the soundest. He investigated the state of the art in a time when technical information was chiefly a matter of custom, and often a secret. We are reminded again and again that standardization of pipe scales and measurements was a by-product of the industrial revolution that came to France only after the Napoleonic era.

L'art du facteur has been a reference for two hundred years, despite revolutions in shop practices and musical tastes. The English translation comes at a time when increasing numbers of musicians and organ builders are returning to practices of Dom Bédos's time. The translation has its own weaknesses and strengths, as I shall point out shortly. First, however, I think it appropriate to give a general description of the Sunbury Press volumes.

Like the original, *The Organ-Builder* appears in folio format. There are two volumes, one of text and one of plates, as Dom Bédos intended. The English text fills 391 pages as compared to 710 in the original; despite the condensed typography, the margins are generous and the text easy to read. The 137 pages are reproduced in the

original size, and the publisher gives the technical information necessary for using them as a source of measurements, again as Dom Bédos intended. A plastic scale is provided, marked with the *pied du Roi* and the English foot in parallel.

The text volume opens with a list of subscribers (about 345) and of "Additions & Corrections"; an errata slip is also provided for pasting in at the foot of the last column. A "Translator's Preface" presents a rapid survey of Dom Bédos, his times, and his work, places *L'art du facteur* as one of the technical treatises commissioned by the *Académie des Sciences* in response to Diderot's *Encyclopédie*, and describes the only organ known to have been designed and built by Dom Bédos. In "The Translation," Prof. Ferguson explains obsolete French weights and measures and defines his policy regarding terminology and style. His decision to label the enharmonic pitches D sharp and A sharp as E flat and B flat is inappropriate to the temperament Dom Bédos uses. Some readers may not favor Ferguson's antiquated diction (long sentences, subjunctive in *if* and *purpose* clauses, and peculiar use of the hyphen), but these affectations do not blur the sense of the text. On the other hand, all readers will enjoy the style, for example, in subsections 1233-1237 ("Maintenance") or 1262 ("Design").

The translation of *L'art du facteur* proper begins with the "Brief History of the Organ" discussed above. Parts I and II, intended for apprentices and amateurs, describe the design and construction of every part that goes to make up an organ. Part III is addressed to organists and deals with specifications and contracts, testing, tuning and maintenance, and registration. Part IV discusses organs for non-liturgical use, player organs, preparing cylinders for player organs, and building organs into pianos, harpsichords, and even hurdy-gurdies.

The plates follow the plan of the text, with few exceptions. They illustrate, among other things, the tools used in organ building, especially those peculiar to the craft; flue and reed pipes; pipe scales and instructions for deriving actual measurements from them; case design and construction; the construction and assembly of every part and pipe; cabinet organs, table organs, and barrel organs; the tools required for making pins for insertion on music cylinders and how the pins are placed in order to reproduce the interpretation of music,

including ornaments and phrasing; and the piano-organ, the harpsi-chord-organ (*claviorganum*), and the hurdy-gurdy-organ.

The quality of the original plates is superb, and the Sunbury Press reproductions are perfect except for a few small blemishes. Because the paper is of excellent quality, the figures and legends have excellent legibility: many plates have great decorative value quite apart from their primary function.

The Organ-Builder is intended to be a practical guide to design and construction, but the bulky folio volumes have been judged by some to be inconvenient for reference in the shop. The alternative—a smaller text volume accompanying folio plates, or plates reduced in scale (as in the Bärenreiter reprint) or folded smaller—would have been a much greater inconvenience, however, in the library or the shop. Persons using *The Organ-Builder* as a shop guide must be cautioned first of all to mark all the additions and corrections into the text itself. While the large number of errata is a disappointment in such an ambitious work, we must credit the publisher for listing them prominently, at the front of the text. In addition, certain pipe dimensions given for a few stops must be corrected according to data given by Christhard Mahrenholz in “Die Labialmessungen des Bédos,” *Die Berechnung der Orgelpfeifenmessungen* (Kassel: Bärenreiter, 1968). The translator has overlooked this source, which lists several errors and inconsistencies found in the scales themselves or in the tables summarizing the data on which the scales are based. Finally, if a reader were to set about building a chest according to the data given in *The Organ-Builder*, he or she would do well to check Dom Bédos’s column totals, since the original contains some errors not corrected by the translator. As Prof. Ferguson points out, the numerical data are an essential part of *L’art du facteur*. Unfortunately, they seem also to be the Achilles’ heel of the translation. Just as Dom Bédos acknowledges the help of readers in pointing out certain errors, so the Sunbury Press might well issue a definitive errata sheet someday.

Apart from these defects, *The Organ-Builder* has the unquestionable merit of opening up to a broad new readership a fundamental text in the history of organ building and a valuable source for the history of technology. Moreover, the section on “tonotechnie,” or notation on cylinders, provides an important analysis of problems of

rhythmic notation—a matter of current concern to all who perform early music. As to the section on registration of organ pieces, every organist who wishes to play early French music will find *The Organ-Builder* an important source of help. The translator and publisher are to be congratulated on this large-scale venture, and they deserve every positive contribution towards correcting the last defects in their monumental work.

I am astonished to discover that examples of this superb work are still available for purchase. The limited edition of one thousand, if it had been energetically advertised, should have been sold out in the first year.

FENNER DOUGLASS

Owen Jorgensen. *Tuning the Historical Temperaments by Ear*. Marquette: The Northern Michigan University Press, 1977. 453 pp. \$22.50.

A number of recent reviews¹ have already commented on the serious deficiencies of content and style in Owen Jorgensen's *Tuning the Historical Temperaments by Ear*. The present writer was no less confused, amused, and vexed by the author's curious way of assembling words and sentences, by the seemingly endless pages of mechanical duplication of text in the tuning instructions, and by the welter of undocumented and unverifiable historical statements and claims. The real problem with this book, though, is that the novice tuner will find within its pages no real help in evaluating the eighty-nine tunings and temperaments, or the methods presented, and must resort to other sources, or to trial and error.

Even for the more experienced, the barriers erected by the book's structure and language remain obstacles to the use of its content. Jorgensen himself is a skilled practitioner of the art of musical temperament, and his ideas about the historical development of the tuning of keyboard instruments are certainly thought provoking. A

1. In particular, those by Mark Lindley in *Notes* 34(1978): 616–17, and in *Early Music* 6(1978): 453.