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organ, hurdy-gurdy, oboe, oboe d'amore and tenor oboe, an elegant spinet by J. H. Silbermann, pedal harp, two jew's harps and cases, a "jingling Johnny," four flutes (one a rare instrument with two keys), and a Stein fortepiano. A minor flaw which the sharp-eyed reader may notice is that the photograph of the four flutes was reversed—making them appear to be designed for left-handed players.

DALE HIGBEE

Don E. Teeter. *The Acoustic Guitar: Adjustment, Care, Maintenance and Repair*. Norman: University of Oklahoma Press, 1975. 200 pp. \$20.00.

Don Teeter has written a truly remarkable book. It is unusually complete and gives detailed instructions on most phases of guitar repair and refinishing as well as describing the tools, jigs, and fixtures that can be made to facilitate the work. It is lavishly illustrated with excellent photographs and sketches. The style is breezy and not stilted. By the time you have finished the book you will feel that you know Don personally. After having read many books on guitar construction and repair, some of which were misleading and even erroneous, I approached Teeter's book with some skepticism. I found to my surprise that it is correct in the largest degree. Many things are brought out in it that desperately needed saying and had never been written before. It also includes a fine exploded view of a guitar, and it explains the sound production of the acoustic guitar, though I do not agree with Teeter's assessment of the difference between a classic and a flamenco guitar.

The chapter on tooling—slanted towards the use of most modern power tools, a true economic necessity for today's repair shop—is complete and well written. The device for drawing up the patches from the inside to repair cracks is excellent. It has evolved from a simple dowel with a hone in it to several versions of the one shown in the book. Among specialty tools, however, the fret miter box could be improved by making the upper part of the slot fit the saw blade closely and providing relief at the bottom for the set of the saw teeth, the saw entering from the side. And the strut jack,

while versatile, is rather like killing a gnat with a sledge hammer; old-timers simply used a small wooden prop cut to the exact length for each job. The description of the specially bent chisel blade for removing bridge plates is fine, but one step is omitted: the tool must be heated cherry red and quenched, not let cool gradually. It should then be reheated to draw it (I would prefer a blue color) and quenched again. Concerning the bending iron for forming guitar sides, the heat could be more easily controlled if an electric element were used instead of a gas burner. It would also be more advantageous to form the tube in an oval shape and to set it up vertically; nevertheless, the iron shown will work very well. The instructions for the use of the Dremel tool are worthwhile and fully detailed. For removing bridges, I prefer a wide wood chisel rather than the reworked putty knife, but this is just personal preference. The flush-ground end cutters are great for removing frets. They can also be used to cut fret wire, leaving a square-ended cut.

Teeter's remarks on wood selection and storage and on the handling of purfling installation are right on the mark. Of great importance in guitar work is the selection of the best glue for a given application, and Teeter covers this well and thoroughly. His syringe for glue injection will be of value to repairmen working inside instrument bodies. The handling of crack repairs as well as of disassembly and reassembly is also well explained, though I am a little dubious of the practice of cutting through the fret board at the location where the neck joins the body, except on a steel stringer when the truss rod goes through the neck block inside. The description of the guide on the Dremel tool for rabbetting the guitar body is a fine approach to the preparation for installing the bindings and purfling. In this connection, the use of painter's masking tape makes the job easier, just as Teeter says.

In the thorough and well-written chapter on string adjustment and truss rods, Teeter tells how to adjust the strings so as to make the fingering as effortless and rapid as possible. His information on refretting and neck reinforcements is original and very good. In dealing with intonation and bridge placement, Teeter outlines the various steps that must be taken so that each string sounds correct notes when fingered in each fret position. Particularly difficult on steel-stringed instruments, this problem has bedeviled instrument

makers since early times. I was gratified to note that Teeter exposes the fallacy of compensating for fingered string tension by shortening the first fret spacing. This was first advocated in a book by A. P. Sharpe, and I have seen otherwise excellent guitars spoiled by using this approach. Another direct hit by Teeter is his suggestion for improving certain steel-string guitars by replacing a "tie on" bridge with a pin bridge; the vibration is thus transmitted directly to the spruce top rather than being filtered through the wood of the bridge. On a nylon-strung guitar, however, it is preferable to have this filtering effect, so the classic bridge is better. I was surprised to note that Teeter uses a factor of 17.8170'' to calculate fret layout, since most authorities consider 17.835'' to be correct. Teeter's figure is the result of a computer calculation and is said to be .010'' more nearly accurate at the twelfth fret than the older figure.

The chapters on doing pearl inlay and on finishing and refinishing are excellent. In the latter the emphasis is on modern lacquers and spray techniques. French polishing is not dealt with. I am a little skeptical of Teeter's advice about using thinned epoxy as a sealer, but I have never tried it. Teeter is of the opinion that it is bad practice to mix different types of finish on the same instrument. Old-time wood finishers usually used shellac as a sealer and varnish for finish coats with the resulting "alligatoring" to be seen on most old furniture. Modern fillers, sanding sealers, and spray lacquers, if well used and not too thickly applied, make a beautiful and durable finish without killing the tone.

To sum up, I was very favorably impressed by Teeter's book and am glad to have a copy in my library for future reference. The few things I have discussed are just a small sampling of the wealth of information it contains.

H. E. HUTTING II

Review Editor's note: Hideo Kamimoto's *Complete Guitar Repair* (New York: Oak Publications, 1975; 160 pp.) arrived too late for Mr. Hutting to compare it to the Teeter book in the above review. He writes, however, that the Kamimoto book is very thorough, well written, and a bargain at \$6.95.