

Orchestrating the World

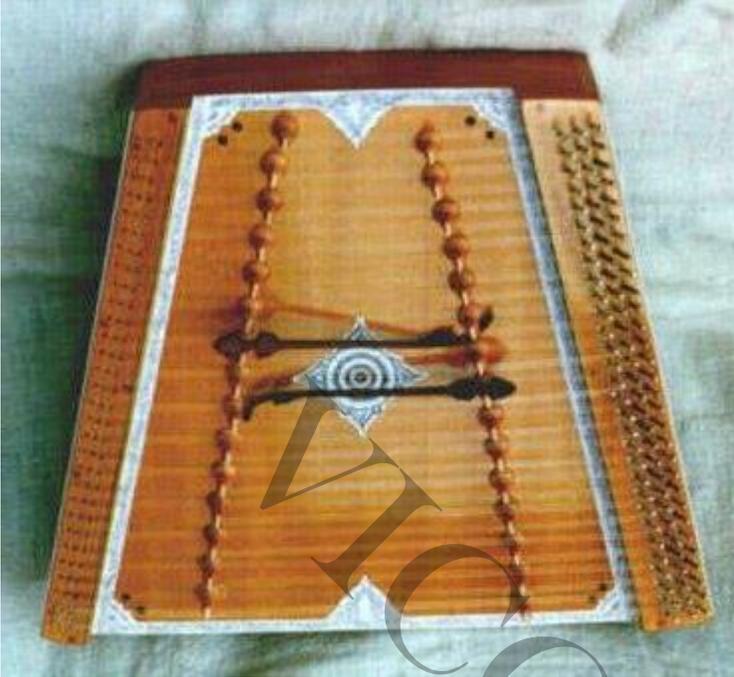
- a manual of intercultural music making

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- Santur



[picture of Santur]

General Description

The santur is the Persian hammered dulcimer (more precisely called a *struck zither*) whose trapezoid body is made of a hard wood such as walnut or rosewood. It normally has two sound holes, and 72 strings, which are strung over two sets of 9 bridges on either side of the instrument. The instrument is strung 4 strings to a note, and the gamut rendered has a diatonic range of just over 3 octaves. Its tuning pins are much like a harp's. It is played with 2 wooden beaters made of wood (the darker the wood the better) with felt tips.

Tuning and Range

On the santur only 2 notes are fixed, the C and the G, and all the remaining notes will be tuned in relation to these. We can assume that the C and G accord with standard pitch in the west – certainly this would be the tuning called for.

There are alternate tunings, to enable certain places where one can play certain maqams (modes) or dastgahs (modal groups). Again, it is not a chromatic instrument, but it can be tuned according to the mode(s) called for, including their quarter tones and/or microtones.

The bridges can move, to enable different tunings, and small corrections are made with the tuning hammer to make the four courses sound a unison. Players do not usually like to move the bridges, but it may be useful in certain cases to enable a small tuning change.

The range of the Santur can be taken as from c (octave below middle C) to f^3 (2 octaves and a fourth above middle C). Note that the lowest octave is not complete - only one note below f (a fifth below middle C) is possible, and has to be chosen ahead of time).

Santur

Santur - new info on tunings

The updated Santur incorporates a **lever system** for tuning. With this system, the bridges are fixed, and each speaking length of string can be varied at the nut to give two new speaking length variations - $\frac{1}{4}$ tone (actually a microtone, not necessarily a $\frac{1}{4}$ tone) and $\frac{1}{2}$ tone.

The updated possibilities for the diatonic positions are as follows (check this against the diagram I have):

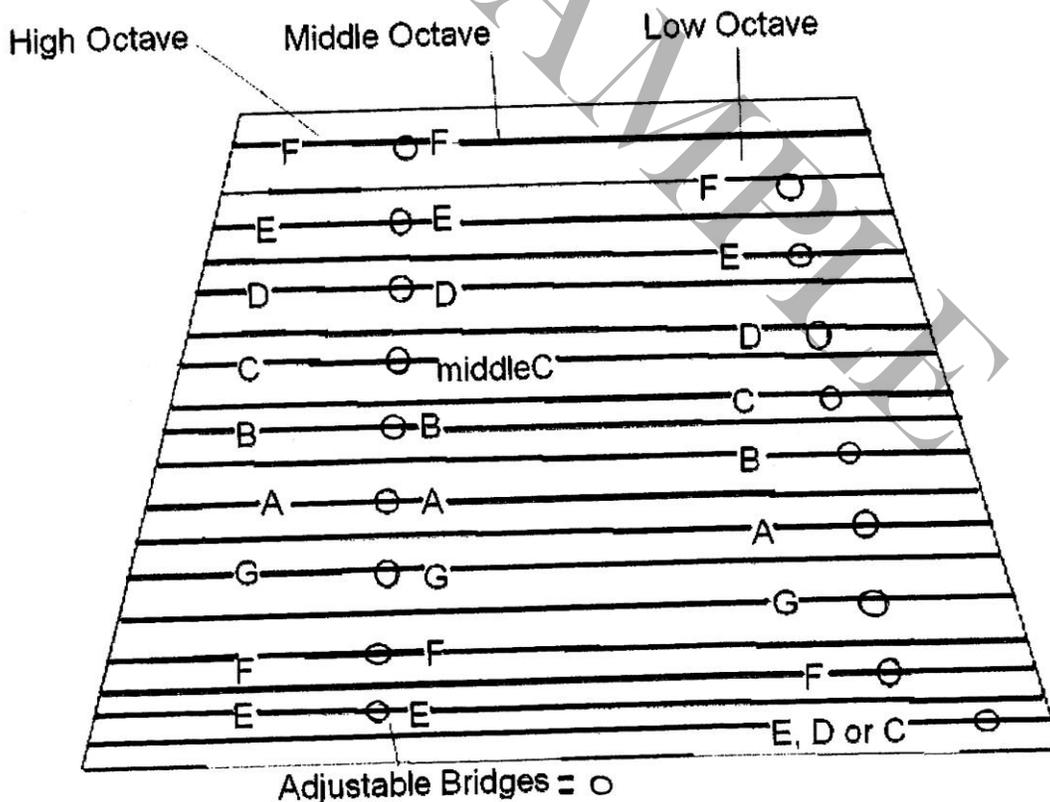
C > C# (up $\frac{1}{4}$ and $\frac{1}{2}$)
(down $\frac{1}{4}$ and $\frac{1}{2}$) Db < D
(down $\frac{1}{4}$ and $\frac{1}{2}$) Eb < E
F > F# (up $\frac{1}{4}$ and $\frac{1}{2}$)
G > G# (up $\frac{1}{4}$ and $\frac{1}{2}$)
(down $\frac{1}{4}$ and $\frac{1}{2}$) Ab < A
(down $\frac{1}{4}$ and $\frac{1}{2}$) Bb < B

General Considerations

Sound

The santur has a long decay, and there are sounds which continue sympathetically after a note is struck. This is typical for the santur, and it gives it a very full sound as a solo instrument.

Performance and Tunings



Note: In the diagram above, the note names are 'pitch classes', in other words, B can be Bb or B quarter flat etc.

Santur

Performance

The performer facing the santur to play it has the broad part of the trapezoid closest to him (see diagram above). This situates the tuning pins on the player's right. The lowest pitch is at the bottom, close to the player while the highest pitch is at the top, furthest way from the player. The lowest string is stretched over a bridge on the right and extends to a hitch pin on the left. This lowest note acts as a kind of pedal point, a bass note that can be repeated. The courses above it are melodic notes, not necessarily related scale-wise to the low bass note.

The bridges on the left allow for notes to both the left and the right of that bridge – thus one course can render two different notes. However, the bridges on the right do not allow this. Thus, certain string courses are strung over a right bridge and render only one note, and other courses go over a left bridge and render 2 notes. These two notes are an octave apart – one is in the middle octave and the other in the high octave;

Notation

Generally one writes at pitch, utilizing the treble clef alone. The bass clef is not really necessary, though it may be useful now and then to avoid the ledger lines below middle C. The low C note would be notated below the 4th ledger line below the treble clef staff. In other words, the pitch is *c* (or C28 in piano notation). Consult with the performer to make sure he is comfortable with the clef choices.

Speed of Execution

Very fast is almost always possible, in this respect the santur is very flexible. Scalar figures are a bit easier to execute than intervallic leaps, but tremolos which go from a high string or strings and jump to tremolos on the lower strings are do-able and idiomatic.

Some Technical Considerations

Dynamics are very effective, from *pp* to *ff*. The dynamic shift is accentuated by moving to the higher octave, which has a greater energy and cutting quality.

Intervallic play is possible and idiomatic; for example, falling thirds and so on as well as intervals simply played in tremolo.

Arpeggios are performable, but the note choices are important, as the harmonic quality will be compromised severely by the microtonal notes.

Glissandi – as an extended device and a special musical effect, one may obtain a glissando by striking a string and sliding a smooth metal object over it from one side to another. Like a slide guitar effect. It needs to be worked out with the performer.

Harmonics – are not utilized, but on the lowest string harmonics are playable, since it is a single string. A delicate sound results. The other notes, having 4 strings each, would seem not to render harmonics, unless one could touch the nodes of all 4 with exactitude. It is something that could be researched further.

Grace notes, nuances – these are very idiomatic, and there are many kinds that are part of the traditional vocabulary.