

Silk Strings – Making Sense of the Historical Data – Part 1

Introduction

Having recently completed a reconstruction of a 14th C five course fretted oud, the next stage of the project is to attempt to make a viable set of silk strings for the instrument based upon information provided by the early Arab and Persian writers and the early string making practices of the Chinese.

As this project is a work in progress, it is planned to report developments in future Comms. in sufficient detail to enable others to make their own strings.

It is hoped that the results will complement the pioneering work of Alexander Rakov of New York who, in recent years, has set out to prove (successfully) that silk strings can be a viable alternative to gut for lutes, viols and other related instruments.

Silk filament is readily available and relatively inexpensive - requiring less preparation than gut - so is an ideal material for amateur string making using simple, home made equipment.

The 'test bed' oud for this project has a string length of 56 cm (i.e. "woman" size according to Turkish oud making traditions – the "man" size being 58.5 cm). This relatively short string length will present more of a challenge when it comes to making viable bass strings than it might be for a longer string length although use of a plectrum (misrab or risha = feather or quill) may be of some help in generating higher frequency components of the vibrating string.

The project oud has already undergone some preliminary testing using experimental strings made for me some years ago by Alexander Rakov. Although originally designed for a lute of 60 cm string length, the performance, response, sustain and tone 'colour' of the strings has been encouraging.

The completed oud (see Fig 1) is based upon a geometry previously reported in Comms. 1819 and 1851 derived from an engraving in a later manuscript copy of the 13th C Arabic work "Kitab al-Adwar" (the Book of Musical Modes) by Safi al-din Ai Urmawi (1216 – 1294). Other details of construction have been gleaned (with some healthy speculation) from early manuscript illuminations and other related sources (a long story!).

In 1581, Vincenzo Galilei described the lute as a 'simple piece of hollow wood over which are stretched four, six or more strings of the gut of a dumb beast or of some other material' (Note 1). Galilei here confirms that gut was not the only material used to make lute strings but fails to give any information about the 'other materials'.

On the other hand there is no question that oud strings from as early as the 8th C. were made from gut or silk. (Note, however, that as the European lute was developed from the oud, it would seem likely that at some point in history the lute was also strung with silk strings).

The Chinese are thought to have domesticated the silkworm moth (*Bombyx mori*) around 1200 BC. for production of textiles. Legend has it that sericulture was first introduced to Byzantium in the Middle East at the time of Emperor Justinian 1 in the 5th C. Persia had an established silk industry by the 6th C – technology that was then captured by conquering Arabs and introduced to the Moorish occupied Iberian Peninsula.

Sericulture (as well as the wool industry) continued to prosper in Spain until the late 16th C when the Spanish economy failed and punitive measures introduced by the Spanish government – particularly against the silk industry and its practitioners, the Moors and Jews - brought about the demise in that country of these two important sectors of agriculture (as well, presumably, as the dependant gut and silk instrument string trades)

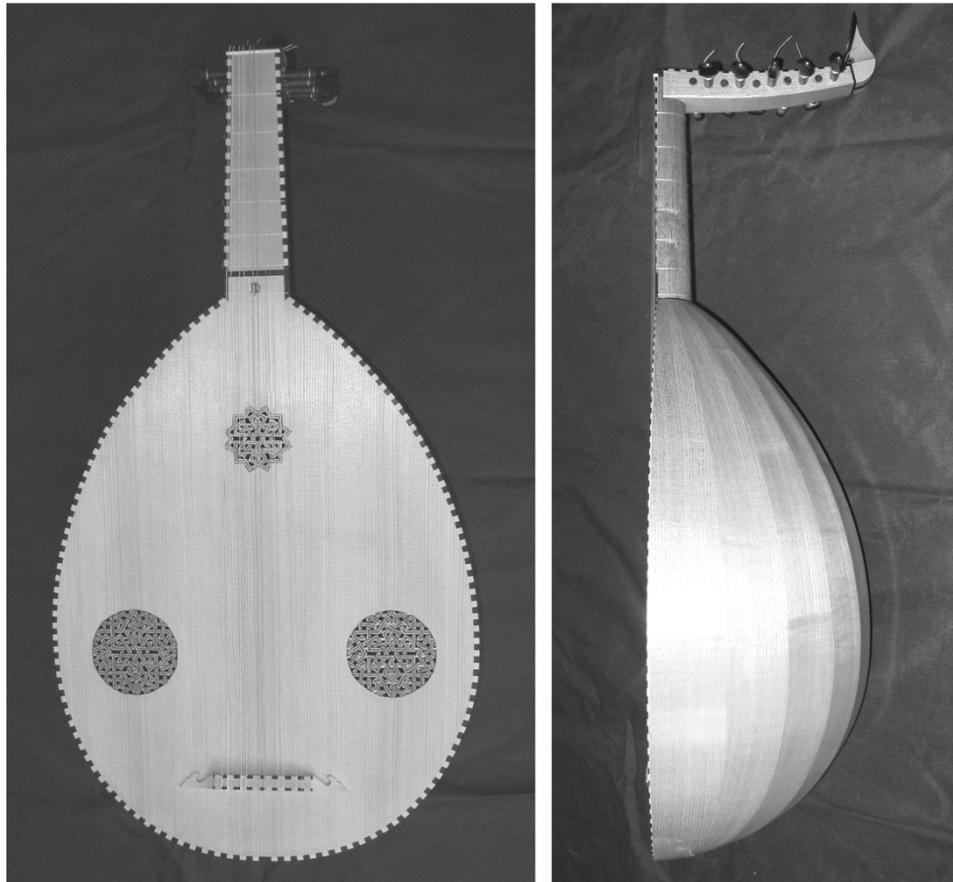


Fig. 1

Historical information about silk oud strings and their construction, sparse though it is, can be found in various manuscript sources dating from the 8th C to 14th C. After the 14th C there is no information to confirm for what period of time silk strings continued to be used (but it is likely to be until such time as metal overspun strings with silk filament core became generally available world wide – late 18th C/early 19th C?) (Note 2)

As the Persians may have learned how to make silk instrument strings from the Chinese, descriptions of string making found in the early Chinese texts may also be relevant.

One problem facing a would be historical silk string maker is that the early Arab, Persian and Chinese texts - as primary sources - are inaccessible to most of us in the West so we are dependant upon English translations that may be incomplete with crucial details 'lost in translation' or couched in confusing terminology by the translators.

Another problem in trying to replicate early silk strings is that the material itself – silk - is not the same stuff today as it was even in the 19th C let alone over a millennium ago. The silk of

commerce, produced by the species *Bombyx mori*, is a species that, over the centuries, has been selectively bred to produce silk filament suited to specific commercial requirements (for example silk filament better suited to modern machine processing at high speed rather than by hand). Furthermore, the properties of cocoon silk (diameter, length, strength etc.) are also critically dependant upon a number of factors - particularly environmental and quality of feed (for example silk workers in India have recently report a recent significant deterioration in the quality of cocoon silk - thought to be due to acid rain and its adverse effect on silkworm feedstock). The same kind of problem likely faces today's historical gut string makers who are using the guts of modern breeds of sheep raised under conditions quite unlike those experienced by the now extinct domesticated breeds of sheep formerly used for string making.

Next to examine the properties of silk the material, past and present – Part 2

Note 1

From a translation of Galilei's 'Dialogo della musica e della moderno' by Oliver Strunk 'Source Readings in Music History' (New York 1950). A scanned copy of the original 'Dialogo' is available as a free download in PDF format from the 'Internet Archives' website at <http://www.archive.org>.

Note 2

For information, I purchased a set of oud strings in Cairo in 1964 – French manufacture - with gut trebles and wire over spun basses on silk filament core. Perhaps the store was just glad to get rid of old stock? I wish now that I had purchased some more sets - for their historical interest alone!