Dendro-Provenancing on the example of the construction wood of the Vienna Hofburg

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Introduction

The Vienna Hofburg was the domicile of the Austrian emperors for over eight centuries thus the centre of European politics. During this time a lot of construction timber was used to build the various parts of the building, especial in roof and ceiling constructions. This construction timber was dated in previous work with the help of dendrochronology. But beneath the time aspect the question of the source of it came up. This question was addressed by further analysis of the previously taken samples.

Fig.1: Vienna Hofburg in aerial perspective.
Google Maps

Material and Methods

In the wooden roof constructions of the Vienna Hofburg rafting wedges were found. This proves that the construction timber had to be rafted. Mentioning this, the origin of the wood has to be along the Danube itself or around its feeding rivers. The 425 already dated samples from the roof construction of the Hofburg had been analyzed using dendro-provenancing to address this question. The samples were dated against various reference curves to find the most probable source area by analysing the scatter of the t-values. The results were compared and supplemented by historic writings.

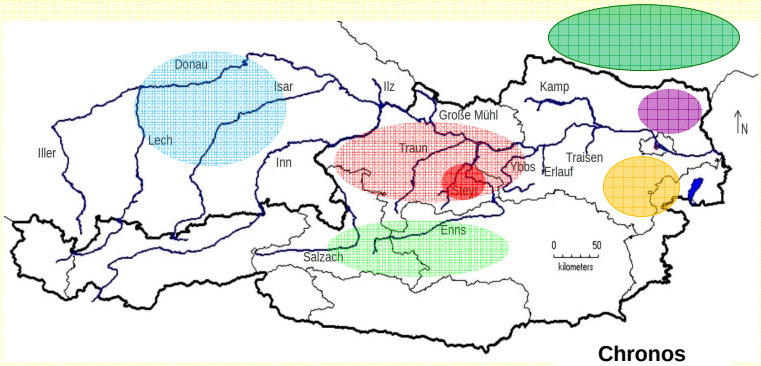

Fig.2: On this figure all feeder rivers of the Danube are shown on which it was possible to raft timber. The origin of the constructions wood must be in this area. The coloured areas indicate the different reference curves.

Results

With the method of dendro-provenancing most of the samples were allocated to “Alpenvorland Nord”, the northern foothills of the Alps in the surrounding area of the Danube river. Those results were affirmed by the information from transliterations from writings of different archives about the wood supplies from this area.

In this work, first results in the field of dendro-provenancing in Austria could be achieved, but only an approximate mapping was possible. Further work has to be done to obtain more reference curves for higher geographical resolution.

Amalienburg: 69.5% Spruce, 28.8% Fir; setting up 1694 Archive of the leadership of Steyr, Writing1691: ”Dippelbaum” ceilings and two roof constructions on existing buildings, 80 *“Schachadillen”*-rafts 15-17 m long, were ordered

Chronos	Overlap	Glk	TvBP	TvH	CDI	Date
AvnAA1cr	61	82	7.4	8.8	522	1692
KalAA-cr	61	83	6.8	8.2	494	1692
S-DeutAA	61	81	6.1	7.2	406	1692
WWWAA	61	77	3.6	4.4	215	1692
OssAA-cr	61	76	3.1	4.2	189	1692
AlpAA1cr	61	67	4.1	4.1	138	1692
TschecAA	61	69	2.4	3.5	115	1692

Table: Crossdating results of a fir wood sample from the Amalienburg

Fig.3: *“Schachadillen”*-raft of fir trees with 15 logs of 8 and a half to 9 *“Klafter”*