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### ... BUT NOT SO STRANGE REALLY

When the seminar participants toured the village they noticed the unusual nature of window- and balcony sills, which were constructed in two pieces for no apparent reason. This prompted the local team to look more closely at these atypical "anomalies".

By pinpointing their position in relation to the buildings existing at the time of the three major earthquakes and by comparing the maps with our analysis of the construction periods of the various buildings we found that:

- some window-sills in the old part, which probably experienced the earthquake of 1688, are made in a single piece and are cracked;
- all window- and balcony-sills in the part built after the 1688 earthquake are constructed in two parts;
- balcony-sills constructed just before or some time after the 1805 earthquake project much further, are made in a single piece and are nearly all fractured.

Reasoning in terms of earthquake culture it was suggested that the frequency of window-sill cracks caused by the 1688 earthquake showed the inhabitants that this was a natural way for structures to behave. But when the sills are broken and displaced, the rough surfaces of the crack prevent the divided parts from moving freely against each other; they get stuck. The fractured sill thus loses its original set, and the frame has to be repaired or replaced. It would thus appear logical for people to have constructed their new sills "ready-split". The smooth, non-contiguous surfaces of the two divided parts allow them to slide past each

other when the earthquake strikes and then return to their original position. This technique was probably successfully tested in the course of the century and in the 1805 earthquake, and until fairly recently the two-piece sill was a typical feature of the well defined and readily identifiable "San Lorenzello window".

The question of balconies is different. Functional necessity, together with the desire to emulate the balconies of the more affluent houses, caused sills to be built projecting further and further outwards. But whilst a sill projecting by only 20 cm will hold without being end-fixed (it extends 40-50 cm into the interior and is thus held up by the wall), sills which project 50-60 cm will lift if they are not end-fixed. Consequently they must extend beyond the width of the opening at both sides.

When the original intention that the structure should be earthquake-resistant inevitably became forgotten, the consequence was inevitable too: new sills



were cut from a single block of and failed withstand the next earthquake which came along (1930?).

Our reconstruction of the history of windows and balconies totally convinced the architects and town planners, who found echoes of it in their own experience. But the historians and archaeologists, whilst conceding that the hypothesis was probable, voiced reservations about the methods used: they would only accept this explanation if it was confirmed by comparison with similar systems which had the same kind of history, culture, economy, etc.

We thus extended our analysis to the neighbouring village of Cerreto Sannita. This was destroyed by the 1688 earthquake and totally rebuilt soon afterwards on a different site. Its buildings can thus be dated exactly and they are unquestionably representative of the earthquake culture of the period. In Cerreto, *all* the window-sills are in two parts, though the vertical

members are often longer than the sill itself, as in San Lorenzello.

We thus concluded that these two-part sills are probably an integral part of the local earthquake culture, acquired from observation of how the oldest sills behaved immediately after the most recent earthquake of the period.

A number of questions persist, however: why are the two parts not equal in length? Why are their relative sizes always constant and very close to the golden section? Why is the smaller block nearly always on the right?

Architects and town planners raised these questions following their field study in Cerreto (which provided a far larger sample than San Lorenzello) and referred them on to photogrammetry experts, archaeologists, historians and engineers, in the hope that subsequent investigation would yield the answer.

