Scanner-based Tree-Ring Measurement System

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A traditional system needs a microscope for sample viewing and a manual/motorized crank handle for cross-section movement on the measuring platform. A drawback with this type of systems is their poor measurement validation and documentation abilities - i.e. there is no way to go back to a measurement series and check or adjust any of the measurements.
1. Scanner Epson 10000 XL scans with maximum resolution of 4800 x 2400 pixels

2. Silverfast AI Studio scanning software

3. User assisted semiautomatic measuring and dating using the Swedish CDendro and CooRecorder software.

Fig. 2. The new Scanning & Cybis Dendrochronology System is overwhelming compared to the traditional microscope-based tree-ring measuring systems. Regarding this kind of hardware-software combination, there is one in Finland (Metla/Rovaniemi) and a few in Europe at the moment. Very inspiring from our point of view is also close interaction with the Swedish CDendro and CooRecorder software Project. This system fits also well to Metla’s computing environment and should be adopted to all Finnish dendrochronological research.
Fig 3. A more detailed view of the measurement process carried out with the CDendro and CooRecorder software. User can manually, using a mouse, easily adjust the exact positions of the ring boundaries created automatically by the software. But in most cases, there is no need for adjustments. One of the great advantages of this system is taking a new measurement on some other sector of a disk just in a few moments. The benefit of replications is gaining year-exact results even in cases, where some rings would frequently disappear.