New York University
Villa La Pietra

Anoxic Bubbles

The ubiquitous holes in old wood caused by what are familiarly known as woodworms are commonplace in Tuscan furniture in private homes as well as museum collections. In fact, some Italians even report being able to hear their heirlooms being devoured from inside as the wood-eating creatures munch away in their hidden tunnels. When the larva is well-fed, it changes into a flying insect, chews its way up to the surface and departs to find a mate, usually in late spring. What it leaves behind is a round hole and a tell-tale pile of wood dust called frass. Light-colored frass in a neat pile by a hole is a sure sign that somebody just left, though loose dust continues to shake out of a formerly infested object for years to come. The Acton Collection is no stranger to these creatures. The wood-boring beetles that threaten the wooden sculpture, furniture, decorative arts, and even paintings and frames in Villa La Pietra mostly belong to the *Anobid* family of insects.

Good housekeeping and a stable environment of 50% relative humidity and 18-20◦C act to discourage these museum pests though, of course, some of these historic objects have been in damp or uncontrolled environments for 500 years and in some cases structural damage has already occurred. In the past, various insecticides have been used to control insect infestations in art collections including some containing highly toxic substances like arsenic and cyanide. Nowadays, the use of chemical insecticides is avoided for environmental and safety reasons and also because there is an excellent alternative. NYU has chosen confront the *anobid* problem with a system by which the insects are suffocated by a lack of oxygen. The treatment involves building plastic enclosures around objects at risk, flushing them with nitrogen, and thereby suffocating not only any active insects, but killing their eggs as well. The nitrogen fills custom-made bags enclosing the objects. When the concentration of oxygen arrives to a very low point, less than 0.2%, the bags or “bubbles” are sealed and after three weeks, any insect life can be considered extinguished. Over the last few years, several sessions have taken place, treating dozens of objects. Controlling insect pests in a collection such as the Acton Collection is an ongoing battle, but we are pleased that this non-toxic approach provides us with a strategy for mitigating the problem and is safe for the artworks, humans, and the environment.

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