## **Ghosts and Ion Counters**

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n a recent Friday night on the Travel Channel, the ghost hunters on the show Most Haunted were seeking specters in a creepy Welsh mansion. Though the hunters were finding no ghosts with their cameras, their ion counter was registering a marked change in positive and negative ions—apparently produced by a ghost in the room. The ion counter, it seems, has become (along with the electromagnetic field/EMF detector) the tool of choice for the sophisticated ghost hunter. Unfortunately, even if ghosts exist, we could not know that the ion counter is registering their existence. To see why, let's examine the fish-finder.

Fish-finders are useful devices allowing one to see a picture of the underwater environment, thereby giving the angler the advantage of wasting no time blindly tossing line into fishless water. How do we know that fish-finders are reliable for finding fish? I'm assuming that something like the following is the answer: at the fish-finder factory there is a large tank filled with water. In this tank we find various immersed itemslogs, beer cans, rocks, bicycles, etc.and, of course, we need some actual fish in there too. To test the fish-finder, the technician turns the fish-finder on and allows it to scan the tank. If the fishfinder finds the fish, it will distinguish them from all nonfish objects in the

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tank. It usually does so by representing all of this on a small digital screen. And what is essential here is that the technicians can independently verify that the fish-finder is finding fish, which is easy to do since those who set up the experiment already *know* how many fish are in the tank, where they are, and where all the nonfish are. (You don't want the fish-finder to misrepresent nonfish as fish. That's why we need to already know the location of all the nonfish.)

The fish-finder offers a paradigm for locating objects not readily seen by the naked eye. If so, then why in the world

would we think that the ion counter is able to locate ghosts? To be minimally confident that the ion counter is reliable at locating ghosts, wouldn't we at least have to already know that ghosts exist, where they are located, and how much ionic change they can achieve? How could one go about testing the reliability of the ion counter as a ghost detector? If the fish-finder analogy is apt, something like the following would have to be the case: we'd have several large rooms, each filled either with ghosts or nonghosts (some actual people, some mannequins, a sofa, a coat tree, etc.) and then we'd turn the ion counter on and let it read each room. We'd know that the ion counter is a reliable ghost detector if we see that it accurately represents a marked change in ions where the ghosts are but not where

But doesn't this mean that we need independent and overwhelming evidence—visual or auditory—for ghosts? I assume that if one did find overwhelming evidence, it would be sufficient to refute the skeptics. Why haven't we seen all this evidence? Surely this evidence exists if all these ghost hunters are confident that their ion counters are reliable ghost detectors. Since we haven't seen this evidence, we must conclude that there is no reason to suspect that ion counters are reliable ghost detectors.

the nonghosts are—in the same way

that the fish-finder displays fish on the

screen only when fish are present.