SOUND-RESISTANT HOUSING FOR EXPERIMENTAL CHAMBERS

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An important control in behavioral studies is the auditory isolation of the experimental organism. In most operant-conditioning experiments, ventilated picnic iceboxes, which attenuate extraneous sounds, are used to house experimental chambers. However, these iceboxes will not mask critical apparatus noises (such as relay clicks) or many other disrupting sounds.

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Figure 1 is a diagram of a portable housing that effectively masks the distracting sounds in this laboratory. A 1-in. Fiberglass sheet separates the outer shell of 0.75-in. plywood and the inner shell of 0.125-in. perforated masonite. Air enters the housing through a baffle box, which also permits the passage of electrical cables. Air is exhausted from the housing by a 60-cfm blower located at the top. Rubber molding such as that on refrigerators assures a tight door fit. A heavy lever-type latch prevents jarring when the door is closed. The diagram also shows a separate rack that holds three picnic iceboxes inside the housing. The iceboxes, which contain experimental chambers, are modified with observation windows and with 15-cfm blowers.

In preliminary tests, we connected the output of a microphone located inside the housing to a cathode ray oscilloscope. When the door of the housing was closed, the sound of the exhaust blower (approximately 70 db) produced a consistent pattern on the screen of the oscilloscope; various loud sounds, covering a wide frequency range, did not disrupt this pattern. An accurate decibel attenuation could not be obtained because of the masking effect of the exhaust blowers. Over the past 2 years, we have seen no indication that sounds from programming equipment, electric drills, electric saws, or pneumatic hammers disrupt the behavior of animals (pigeons and squirrel monkeys) in these housings.

With this arrangement, it is desirable to replace animals for the next experimental session at the same time to prevent disruptions in performance. Even slight jarring may result in temporary disruption.

Fig. 1. Scale diagram of sound-resistant housing for experimental chambers.