reinforcement (variable-ratio schedules) and/or motor close-down are made contingent upon level (horizontal, 0-deg tilt) adjustments of the cage when using only two levers. The motor is activated for as long as a lever, right or left, is depressed. A recording stylus made either from a 2.5-cc ink-filled syringe or a felt-tip pen is firmly attached to the base of the test cage at midline and used to track the lateral movements of the cage. In any experimental session, an adjustable close-down motor switch is set by the E to regulate the animals' control over the cage; in this way, the angle of maximum lateral tilt of the cage up to 90 deg left or right of the horizontal position may be determined. In the training phases for our rats in the tilting cage, low-level grid shocks (30-40 V on a LVE Model 1643) were used successfully to orient the animals toward the manipulanda. The lateral-to-horizontal tracking behavior of the rat, obtained through the use of a cumulative recorder with the tilting cage, has enabled us to observe and record behavior which is similar methodologically to that described by Blough (1958, 1966) for visual processes of the pigeon and to that described by Wright and Meyer (1969) for temperature regulation of the rat. Difference thresholds of 5 deg of lateral tilt have been found for our animals with our reversible motor.

Figure 2 shows the circuit specifications for the tilting cage control box and motor in which small animals may be trained to control the lateral angle of their test cage.

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NOTES

1. Now at Mesa College, Mesa, Arizona 85201.
2. Now at Bell Telephone, Phoenix, Arizona 85000.

The Paradome: An outdoor laboratory for testing children¹

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Finding an available and appropriate room is a common problem facing Es who wish to test children individually in a school setting. Typically, the kind of room that is needed is one that is private, relatively quiet, free of interruptions, and maximally available for the intended research. In recent years, the acquisition of a mobile trailer laboratory has been one solution employed to solve this space problem. The cost of such a trailer, however, precludes this solution for many researchers. The problem is compounded when several space facilities are necessary and when their presence is simultaneously needed at different locations. The present note, therefore, describes a structure which can serve as a relatively inexpensive solution to the space problem.

The structure is a commercially available portable one called a Paradome.² The Paradome is a near-circular structure with a dome-shaped vinyl roof which sits atop an aluminum frame. The walls are constructed of framed screening, and a hinged spring-loaded door is provided. The interior of the structure is therefore protected from penetration by insects. No floor is provided; the structure is simply erected over the ground or some paved surface. Snap-in side panels made of fiberglass fabric are available as an accessory item, and we recommend their use in order to assure more privacy and protection from the elements. The Paradome is mostly preassembled, requiring no special tools for its erection. The manufacturer claims it can be set up in 30 min by just two people. We have found the number of personnel recommended to be adequate but, depending on their cognitive and motor skills, at least initially, erection time is apt to be somewhat longer. To dismantle the structure takes about as much time as its assembly. Fully erected, the Paradome somewhat resembles a colorful gazebo, upon which it is probably modeled. A major feature of the Paradome is the ability to dismantle it rapidly into a compact package which is then easily transportable to another location. A station wagon is the easiest means of transportation, but, if necessary, the dismantled Paradome can be tied to the roof of a car. The compact size to which the Paradome can be reduced is also an advantage when storage space is limited. Several models are available, ranging from

9 to 13 ft in diam, from 87 to 130 sq ft in floor area, and weighing from 78 to 127 lbs. The ceiling heights are all 7-8 ft, and the wall height is 6 ft. Any of the models is large enough to accommodate a few children simultaneously when such a procedure is desirable.

There are also some other advantages we have found in using the Paradome as an experimental room. Since the structure is placed outside the school building, all of the usual noises occurring within the building can be circumvented. Judicious placement may also minimize noises originating from playground activities. The colorful and novel appearance of the structure seems to appeal to children and increase their interest in participating in our research projects. Such interest can be further enhanced by decorating the structure with flags or streamers, introducing it as a circus tent, etc. The structure also seems to arouse the interest of the school staff and parents and thereby promote their cooperation.

There are also some precautions that should be considered in using the structure. (1) It is not appropriate for generally harsh climates or cold winters, since there is no practical inexpensive way to keep the interior uniformly heated. (2) We have typically left the Paradome in place for the entire duration of a project at a particular school. However, this may not be an advisable procedure in neighborhoods where vandalism is very prevalent. On the other hand, it is not very practical to dismantle and reassemble the structure each day in order to store it safely overnight. Whatever the school location, we do not recommend leaving equipment overnight in the Paradome. Even with a lock on the door, the structure can be penetrated by a diligent intruder. (3) We have found that after several assembly and dismantling operations, the spokes supporting the roof may become bent and nonfunctional. Fortunately, these, as well as all other parts of the Paradome, are replaceable by ordering them from the manufacturer.

We have been successfully using the Paradome for several years now with young children at a variety of schools. It provides a relatively inexpensive, portable structure, admirably providing those attributes typically desired in an experimental room for testing children at school. Its use is, of course, not limited to a school setting, and it may also fulfill a variety of space needs in other research circumstances.

NOTES

1. This report was supported by a grant from the University of Hawaii Research Council.
2. Available from Avid Products, 2970

Industrial Row, Troy, Michigan 48084, Telephone (313) 576-1200. The various models range in direct factory purchase prices from \$180 to \$260, excluding transportation costs and accessory side panels. A brochure is also available from the manufacturer.

A system for presenting visual indication of heart rate

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The display used in this system gives a visual indication and is similar in concept to a normal mercury thermometer. That is to say, as the S's heart rate increases, more lamps will become lit. If a digital printout

of heart rate is also required, a method has been described in a previous note.¹

The system described in this note was constructed with standard off-the-shelf modules and interconnected with programming leads which require no soldering.² Its operation is as follows:

The output of a cardiometer is applied to the six adjustable Schmitt triggers. A level converter may be required if the output of the cardiometer does not fall within one of the two ranges of the adjustable Schmitt triggers, specifically -1 to -11 V or -10 to -110 V. Each of these Schmitt triggers is set to activate a specific heart rate. The output of the Schmitt trigger is then applied to a power driver to light a lamp.

An example is shown in Fig. 1. Here the

S's heart rate is assumed to be 87 bpm. The Schmitt triggers (\$69 each) have been set to activate in increments of 5 bpm and within a range of 70 to 95 bpm. Two indicator panels are used, one for the S and one for the E, who is assumed to be at some remote location, such as at a polygraph. This same approach may be used with smaller or larger increments, or more levels may be used by including additional adjustable Schmitt triggers and indicator lamps.

NOTES

1. Zurn, K. R. An automatic system for measuring average R-R interval. *Behavior Methods & Instrumentation*, 1970, 2, 92-93.

2. Manufactured by Lehigh Valley Electronics, Box 125, Fogelsville, Pennsylvania 18051.

Fig. 1. System wiring diagram.