In 97 treated cases the opsonic index increased to proportions of immunity from 1 to 6 months after treatment, whereas in 113 nontreated cases this index stayed low or moderate (index of infection) during all the time of illness, even in those patients who had been ill for several months or years. In 101 treated cases the titers of the complement fixation test to *Brucella melitensis* increased significantly, as compared with those of 159 nontreated cases. In 79 cases treated with Cloramphenicol and immunodesensitization, the fever disappeared in an average of 3 days, and the other symptoms in some weeks. There were only 6.3% relapses in an average observation period of 11.4 months, as compared with 12–66% relapses reported by workers who have used the same antibiotic but without the immunodesensitization, in an observation period of 3 months. From the results obtained, it has been concluded that (1) allergy decreases and resistance increases to *Brucella* in cases of brucellosis treated by the immunodesensitization method of the authors; (2) results are significantly better in cases of brucellosis treated simultaneously with some antibiotic (Cloramphenicol) active against *Brucella* and with the immunodesensitization, than if the antibiotics are used alone.

ALBERTO P. LEÓN
C. CANO
M. E. VERGARA
Institute of Public Health and Tropical Diseases
Mexico, D. F.

A Flat, Adjustable Lantern Slide Carrier

THE usual case for carrying lantern slides is awkward to handle or pack in luggage. The slide carrier pictured here is convenient for carrying up to 18 slides in a brief case. It is approximately $9\frac{1}{4}'' \times 11\frac{3}{4}'' \times \frac{3}{4}''$ and, without slides, weighs about $1\frac{1}{4}$ pounds. The case is made from $\frac{1}{8}''$ pressed board and consists of a flat bottom and a hinged cover enclosing one, two, or three frames.

Fig. 1 indicates the construction. The bottom is a single piece of pressed board. Each frame is made from four strips of the pressed board cut $\frac{3}{8}''$–$\frac{1}{2}''$ wide so as to leave an interior space sufficient to accommodate 6 slides. For the usual $4'' \times 3\frac{1}{4}''$ slide this space will be $8\frac{1}{8}'' \times 9\frac{7}{8}''$, but slides vary slightly in size according to their binding, and the space to be allowed will depend on the particular type of slide used. A finger hole, cut in the frame, as indicated, facilitates removal of the slides. The first frame may be glued to the bottom or attached to it by screws. The second and third frames, to be removable, should be screwed into place, with the screws staggered from the set below. The single-frame carrier will hold 6 slides. With two and three frames the device will hold 12 and 18 slides, respectively. The cover is attached to a $\frac{5}{8}''$ strip, by hinges, held with machine screws, which are countersunk on the underside. A fabric hinge could be used to replace the metal hinges, thus eliminating the projecting metal parts, A clasp is formed from a small piece of aluminum, and a nail

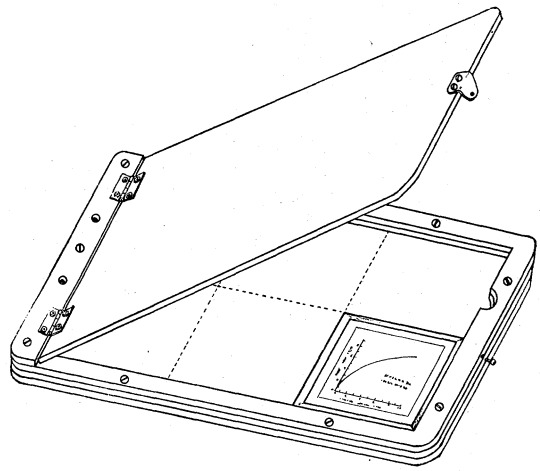

FIG. 1.

slides through it to hold the cover shut. When 2 or 3 layers of slides are carried, a thin piece of cloth may be placed between each layer, although the slide binding serves fairly well to hold the slides apart. When an odd number of slides is to be carried, a few pieces of pressed board cut to the size of the slides may be used to fill in.

Although the device and design are fairly obvious, we have not seen any similar slide carrier. It has attracted much favorable comment and has been very handy both for carrying and for mailing slides.

J. DAVID REID
JULIUS R. JUNG, JR.
Southern Regional Research Laboratory[1]
New Orleans, Louisiana

[1] One of the laboratories of the Bureau of Agricultural and Industrial Chemistry, ARA, USDA.

Japanese Illusion

JEAN BOULWARE'S modification of the Japanese illusion (SCIENCE, 114, 584 [1951]) would probably be fun at a mixed party, but for ordinary purposes the age-old children's method of performing it, in which two persons place their (contralateral) hands together palm to palm, is a great deal simpler and works just as well. Indeed, it permits several interesting variations to be performed more easily than the suggested method does.

HARRY L. ARNOLD, JR.
The Clinic, Honolulu

Homing Not Hindered by Wing Magnets

H. L. YEAGLEY (*1*) proposed a theory and reported experiments from which he concluded that homing pigeons are able to orient themselves and find their way over unknown territory by being able to perceive the effects of the earth's magnetic field and the Coriolis force. Both theory and experiments have been criticized on various grounds (*2, 3*). This note reports a repetition of Yeagley's magnetic wing experiment.

In his experiment Yeagley used 20 young pigeons

that had been trained to home to the loft at Paoli, Pa., from release points west, northwest, and north up to 100 miles. The birds were divided into two groups. To the wings of 10, copper plates 1″ × .218″ × .025″ and weighing approximately 0.8 g were attached, and to the wings of the other 10, similar magnet plates. The theory held that, if the birds were able to perceive the effect of the earth's magnetic field and depended on this in homing over unknown territory, then those with nonmagnetic plates should be able to home in the normal way, whereas those with magnets would tend to be confused by the weak magnetic fields created by their wings in motion, and hence would not be able to find their way as well as the controls.

The birds were released 65 miles southeast of Paoli, one by one, with the following results: 8 out of 10 bearing the copper plates homed in the first two days; 6 of 10 with the magnets homed—one the first day, and five the fourth. It was concluded that these results upheld the theory that the birds were sensitive to the earth's magnetic field and made use of it in homing. It was a fact, however, that 5 of 6 of the birds carrying magnets returned with one or both missing, and this seemed to us to point to a flaw that invalidated the whole experiment. It is obvious that the method of attaching the plates must be one that is perfectly secure yet does not inconvenience or harm the birds, and it is equally important that the method of attachment must be identical for both sets of plates. The method actually employed was to tie the plates to the wings with silk strands threaded through the flesh between the third and fourth metacarpel bones. The results seemed to indicate that (1) the method was not dependable and that (2) it differed in some essential way for the two sets of plates.

D. A. Gordon (*2*) repeated the experiment with 60 homing pigeons between 3 and 6 months of age, which had been raised and "trained on several preliminary flights" at the Pigeon Breeding Center of the U. S. Army at Fort Monmouth, N. J. The birds were divided into three groups—24 carrying wing magnets, 24 with unmagnetized plates, and 12 with no plates. They were released from three points in unfamiliar territory, 36, 50, and 58 miles distant from the home loft. Every bird used in the experiment returned by nightfall of the day of release, and the birds with magnets returned as quickly as the others. The method of attaching the plates was to glue them with Duco cement to the underside of the manus portion of the wings. None of the plates fell off during the experiment.

The birds used in the foregoing experiment had a minimum of basic training and flying experience, and the points of release were not very distant from the home lofts. It seemed to us, therefore, that it might be interesting to repeat the experiment with racing pigeons of proved ability and with a great deal of experience in training and racing flights along a straight course in one direction; and, in the experimental flight, to take them far enough into unfamiliar territory to make the homing test a severe one.

Clarence Morris, 1951 champion flyer of the Denver Homing Pigeon Club, supplied 12 birds from his young-bird race team. The birds were 7 to 8 months of age; their training had started in July, and all had flown the intermediate stations up to 100 miles several times; 100 miles, 4 times; 200 miles, once; and 3 of them had flown 320 miles. In addition we had 4 birds from the Van Riper loft—3 yearlings that had had approximately the same experience as the Morris young birds in two successive years up to 320 miles, and one 1947 hen that had homed from 500 miles twice. The course over which these birds had been flown extends to Denver from points in northern Colorado, Wyoming, and southern Montana. It should be borne in mind that always in training and racing these birds had been released early in the morning with the sun in the east and the Rockies visible in the west.

On November 8, 1951, we placed control plates on all the birds, and they were exercised daily. The plates were attached with fine copper wire to the inside of quills of the seventh or eighth primaries (as numbered by pigeon fanciers, who count the primaries in the order of the molt, the reverse of ornithological practice). Some experimenting had shown this to be a dependable method which did not bother the birds. On November 16 magnets were substituted for brass plates on 8 of the birds, and the following morning they were released at 5-min intervals from the State Game Farm northeast of Colorado Springs and about 70 miles *south* of Denver. The weather was fair and remained so for the following two weeks. It did not surprise us that, on release, every bird (with one exception) flew south toward Colorado Springs—sun in the east, mountain range to the west, and a city in sight, since their exercise flights had always been over a city.

No birds homed the first day, indicating that all were thoroughly lost. Morris received 5 the second day—2 with magnets and 3 with control plates—and 2 the third day, both with magnets. Van Riper received 1 the fourth day and 1 the fifth, the first with control plates and the second with magnets. No birds were received thereafter up to December 1. One Morris bird and 1 Van Riper bird returned with a control plate missing; all others were intact.

In this experiment 4 of 8 controls and 5 of 8 with magnets homed; hence no difference in homing ability between the two lots is indicated. Three of the Morris birds and 2 of the Van Riper birds had shown marked superiority in racing. These all returned. Two bore magnets and 3 control plates.

WALKER VAN RIPER

Denver Museum of Natural History
Fish and Wildlife Service

E. R. KALMBACH

Denver, Colorado

References

1. YEAGLEY, H. L. *J. Appl. Phys.*, **18**, 1035 (1947).
2. GORDON, D. A. *Science*, **108**, 710 (1948).
3. ODUM, H. T. *Auk*, **65**, 585 (1948).