

these mycelia are usually free of alien organisms they readily yield pure cultures when transferred to sterile agar slants. More than a dozen pure cultures, all originating from separate conidia, may often be obtained from a single Petri plate within 2 days after it has been covered with a detritus canopy.

In addition to *D. coronata* other members of the Entomophthoraceae capable of "saprophytic" growth develop in canopied plate cultures, though in lesser quantity. The genus *Conidiobolus* would seem only meagerly represented in the collection of cultures isolated from leaf mold taken up in different localities in Maryland and Virginia late in the autumn of 1951. A species of *Basidiobolus* has been obtained rather frequently from dark, soggy leaf mold taken from wet, wooded areas near Beltsville, Md. When it is grown on maize meal agar the species produces numerous zygospores with the curious paired beaklike protuberances long familiar in textbook illustrations of *B. ranarum* Eidam (8), though the thick wall surrounding the individual zygospore seems always completely colorless. Its asexual reproduction has so far not been observed directly, yet some production and forcible discharge of conidia must in each instance precede its appearance in a canopied agar plate culture. Moreover, when a sizable slab of maize meal agar occupied by its vegetative mycelium is affixed adhesively to the ceiling of a Petri dish containing sterile agar culture medium, the fungus will begin growing in the agar below quite as certainly, though not as promptly, as will *D. coronata* under similar conditions. By such affixture above a sterile agar plate entomophthoraceous mycelia that in a canopied culture have become contaminated with bacteria or been overgrown by alien fungi may often be easily purified.

At temperatures near 20° C mycelial strands ex-

tended downward here and there from a canopy of detritus, mainly by members of the Mucorales, will usually reach the agar floor in 2½ or 3 days after the culture was prepared. The culture thereupon becomes rather quickly overgrown by miscellaneous microorganisms and soon is greatly impaired in usefulness, if not utterly ruined. Success in isolating entomophthoraceous forms by the procedure here recommended must be achieved early. Newly collected moist detritus should, as a rule, provide most rapid development. However, material collected in an air-dry or nearly air-dry condition has given very satisfactory results for several months—far better results than moist or wet material that after being collected was kept in a tight container in a warm laboratory for 2 or 3 weeks before it was used. The pronounced deterioration of the material in the tight container evidently resulted from excessive development of species of *Trichoderma*, *Aspergillus*, and *Penicillium*, as well as of members of the Mucorales, during the brief period of storage. Where moist plant detritus cannot be used immediately the saprophytic entomophthoraceous forms and other components of its natural microflora, including many predaceous and parasitic fungi destructive to rhizopods and eelworms, can be preserved fairly well by allowing it to dry out slowly at relatively low temperatures.

#### References

1. COSTANTIN, J. *Bull. soc. mycol. France*, **13**, 38 (1897).
2. SACCARDO, P. A., and SYDOW, P. In P. A. Saccardo (Ed.), *Sylloge fungorum*, **14**, 457 (1899).
3. COUCH, J. N. *Am. J. Botany*, **26**, 119 (1939).
4. DRECHSLER, C. J. *Wash. Acad. Sci.*, **30**, 240 (1940).
5. ———. *Bull. Torrey Botan. Club*, **78**, 183 (1951).
6. *Ibid.*, **73**, 1 (1946).
7. DANGEARD, P. A. *Botaniste, Le*, **9**, 23 (1903).
8. EIDAM, E. *Beitr. Biol. Pflanz.*, **4**, 181 (1886).

Manuscript received December 31, 1951.

## Comments and Communications

### Antibiotics and Immunodesensitization in the Treatment of Human Brucellosis

THE new antibiotics—streptomycin, aureomycin, chloromycetin (Chloramphenicol), and terramycin—which have a strong inhibitory action against *Brucella*, have been used in the treatment of human brucellosis with satisfying and prompt, but not lasting results. The authors believe that an antibiotic's success in the treatment of any infectious disease depends upon an efficient and prompt immunological response of the body against the infection, in order to continue and consolidate the inhibitory action when the antibiotic is stopped. In brucellosis the natural immunological response to the infection is slow and late; for this reason, when the action of the antibiotic is suspended, the infection advances anew, regardless of the strength of the drug, and acute relapses occur or the disease takes a chronic course. For these reasons the authors

have considered it necessary to stimulate artificially the development of immunity simultaneously with the administration of the antibiotic (Chloramphenicol). In brucellosis there is a condition of allergy; hence it is not possible to give the antigen in doses as large and as frequent as would be desirable for a prompt immunological response, without causing violent hypersensitivity reactions. Thus it is necessary to give small, slowly absorbed, progressively increasing doses of a species-specific antigen, in order to desensitize and at the same time stimulate the development of immunity. The authors give the name of immunodesensitization to this method.

In 480 cases of brucellosis so treated, the allergy to *Brucella*, as shown by the intensity of the skin reaction to the intradermal injection of the antigen, decreased notably or eventually disappeared, as compared with an equal number of nontreated cases in which the allergy persisted or increased indefinitely.

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 Chloramphenicol 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 (Chloramphenicol) 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  $\frac{3}{8}" \times \frac{1}{2}"$  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

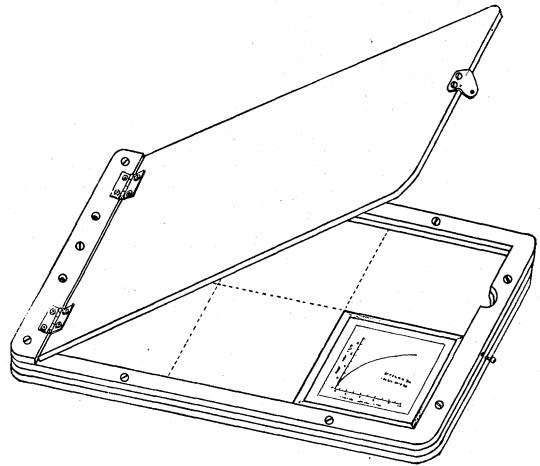


FIG. 1.

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<sup>1</sup>  
New Orleans, Louisiana*

<sup>1</sup> 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