Comment. It is fully realized that hardly any of the *Mycoplasma* species hitherto described do in fact strictly meet the requirements that are formulated in paragraph 6, *a*. It is appreciated, moreover, that self-evident though these requirements are in principle, it will prove difficult or even impossible for any single worker or group of workers to satisfy the demands. However, it is hoped that the gradual creation of a network of reference laboratories may help to ameliorate the situation in this respect and steps are being taken toward this end.

At any rate, rather than compromising too much with the above requirements, it would be wise policy to restrain one's taxonomic efforts and to publish any new isolates merely under their catalog designations, thus providing a useful and necessary means of reference until it is possible to provide a reasonably adequate description.

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13 March 1967

Sexual Reproduction in Histoplasma capsulatum

Recent successes (*1*) in stimulating sexual reproduction among the dermatophytes and related fungi inspired a search for the perfect state of fungi that cause systemic disease in man. One of the organisms under study was *Histoplasma capsulatum*, the etiologic agent of histoplasmosis, a pulmonary disease of global importance. Twenty-nine isolates of this mold, recovered from soil, bats, or humans, were grown singly or in combination on small pieces of sterilized chicken feathers or horse hairs placed on plates of moistened, sterilized soil.

Cleistothecia filled with asci and ascospores were formed by two of the isolates. With the aid of a micromanipulator, single ascospore cultures were obtained, and the organism was found to be homothallic.

The two cultures that developed the cleistothecia (H-2 and H-8) had been isolated from soil collected under a starling (*Sturnus vulgaris*) roost in Illinois (H-2) and from a case of histoplasmosis (H-8) in Puerto Rico.

The morphological characteristics of the cleistothecia and their asci were typical of the genus *Gymnoascus* of the family Gymnoascaceae. The perfect state of *Histoplasma capsulatum* is being studied.

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Medial Superior Olive and Sound Localization

Harrison and Irving (*1*) show that some animals which are capable of localizing a sound source do not possess a medial superior olive. On this basis, the authors rule out the idea that the medial superior olive is essential for sound localization. However, the electrophysiological data which they cite (*2*), together with some recent behavioral data not available to them (*3*), suggest an alternative interpretation of the presence or absence of the medial superior olive in specific mammals.

In order to understand the contribution of the medial superior olive to sound localization, it is necessary to distinguish between the two potential cues in the stimulation reaching the ears, both of which vary with the azimuth of the source of a brief sound (*4*). The first of these potential cues is the difference in the time of arrival of the wave front at the two ears. This time difference, Δt, depends directly on the distance between the ears and inversely with the speed of sound in the conducting medium. Animals with small heads and aquatic animals with even moderately large heads are virtually deprived of this potential cue since the interaural distance is small or the speed of sound is too great.

The second potential cue for the localization of the source of a brief sound is the differences in the frequency spectrum of the stimulation reaching the two ears (*5*). The spectrum difference, $\Delta(fi)$, depends on the effectiveness of the sound shadow produced by the head and pinna. No animal is completely deprived of this potential cue, but since the effectiveness of the sound shadow decreases with a decrease in the proportion of high frequencies in the stimulation, animals (such as man) which are relatively insensitive to high frequencies are not exposed to a wide range in $\Delta(fi)$. Thus Δt is the more dramatic cue for azimuth in animals with wide-set ears while $\Delta(fi)$ is the more dramatic cue in animals with close-set ears, an aquatic habitat, or sensitivity to high frequencies.

The analysis of the Δt cue and the analysis of the $\Delta(fi)$ cue are accomplished by different structures in the auditory system. We have isolated Δt and $\Delta(fi)$ by delivering clicks through headphones worn by experimental ani-