



LETTERS

to the EDITOR

Sir:

... we published—probably the first in this country—a complete story on electrets in connection with microphones in our November, 1945, issue. . . .

HUGO GERNSBACH, Editor
Radio-Electronics

New York, N. Y.

Both Dr. Ernst and the article in Radio-Electronics refer ultimately to Gemant's work in 1935; the operational characteristics of electret microphones were not described. Dr. Gemant states that he has a British patent on electret microphones which dates from 1935.

They Do Exist

Sir:

Dr. Gemant in his article Electrets in the March issue has given a very vivid picture of the electret and its many oddities, but his statement that "the electret . . . theoretically isn't supposed to exist" doesn't seem to be quite fair to theory and theorists. Certainly Heaviside did not feel so when he wrote his remarkable pages on Electrification. What can be ruled out on theoretical grounds is the existence of permanent *space* charges in any material. But the electret is characterized by the existence of *surface* charges, and there is nothing in the theory that speaks against the existence of "closed" systems with equal and opposite charges existing on adjacent surfaces. Electrochemical and contact potentials are examples. Another example would be, and probably is, a dielectric in a shortened capacitor carrying surface charges in consequence of the alignment of dipole systems. Provided the contact between the plates and the dielectric is intimate, these charges do not set up a field within the dielectric and, therefore, do not raise conduction currents to whisk them away. Thus these charges just cannot help stay on unless the dipole orientation responsible for them has decayed (and when the orientation has been 'frozen in,' this takes an astonishing long time) or until somebody wants to measure them and to this purpose opens the capacitor, lifts the plates, and

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