electrocardiographic changes seen with this disease(9,10). Although more myocardial damage would be expected to occur with severe than with mild pericarditis, this is not invariable. The ECG is therefore not always reliable in estimating degree of pericardial injury. The data indicate that SGO transaminase levels may rise when acute pericarditis is experimentally produced. Normal SGO transaminase levels were found when the associated myocardial changes were mild, regardless of the severity of pericarditis. The peak levels showed progressive rises with increase in severity of the myocardial changes. The level of SGO transaminase appears to be determined by severity of the associated myocardial damage rather than by pericardial changes *per se*.

The SGO transaminase level, when elevated, does not help in distinguishing between acute pericarditis and myocardial infarction. When the SGO transaminase level remains normal, however, differentiation can be made between these two diseases, and the clinical and electrocardiographic diagnosis of pericarditis confirmed.

Conclusions. 1. Acute pericarditis was experimentally produced in dogs using sand, talc and cultures of alpha streptococci. 2. The peak levels of serum glutamic oxalacetic transaminase were found to be proportional to the severity of sub-epicardial myocardial damage rather than to the severity of pericardial injury. 3. The serum glutamic oxalacetic transaminase levels help to distinguish between acute pericarditis and acute myocardial infarction only when the levels remain normal.

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Occurrence of Bodies within Endoplasmic Reticulum of Ehrlich Ascites Tumor Cells. (22627)

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A previous communication reported the presence of spherical particles inside the endoplasmic reticulum of Ehrlich ascites tumor cells which had been inoculated with anopheles A virus(1,2). A belief that these particles represented the elementary bodies of anopheles A virus was based on the following circumstantial evidence: 1) Consistent size and structure; 2) high opacity in the electron beam after fixation with osmium tetroxide; 3) localized occurrence in large numbers within a certain time interval following inoculation with the virus; 4) absence of similar particles in uninoculated tumor cells or those

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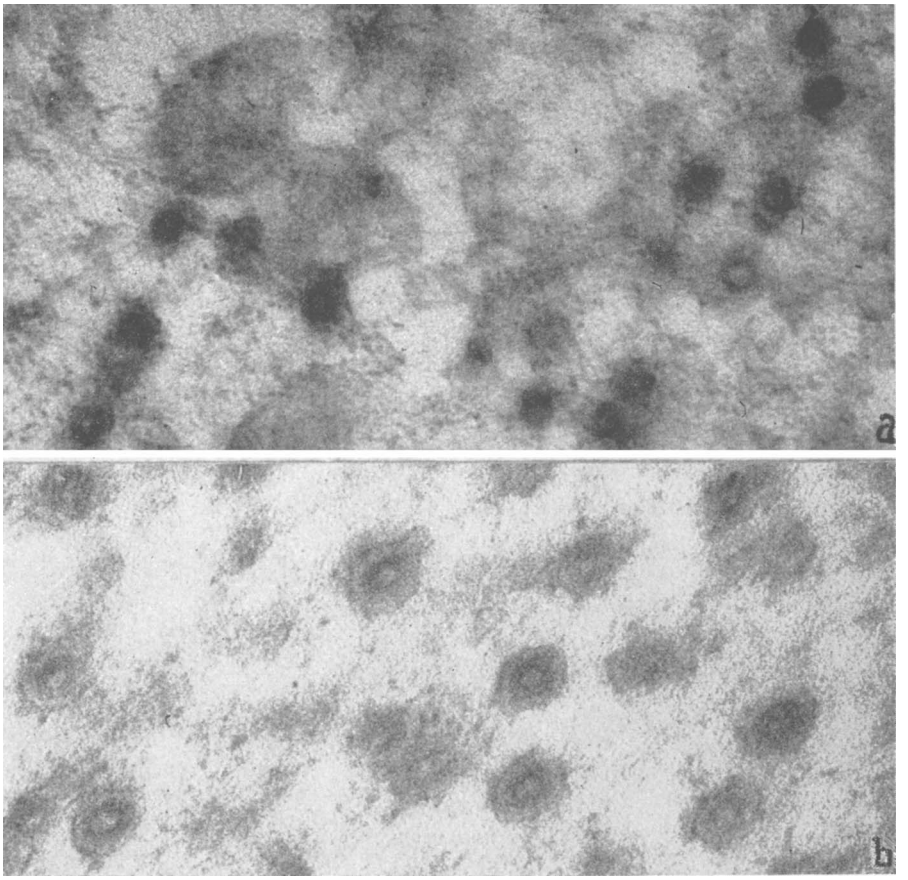

FIG. 1. (a) Thick section (~50 mμ) showing dense bodies in cytoplasm. ICR strain mice inoculated with anopheles A virus(1). × 78,000. (b) Thin section (~30 mμ) showing profiles of the shell structures surrounded by membranes(1). × 100,000.

infected with Mengo, Bunyamwera and Newcastle disease viruses; 5) appearance of such particles in infected chorioallantoic membrane; 6) preliminary results based on ionizing radiation with deuterons indicating a sensitive cross sectional area of the virus not inconsistent with the particles described from electron microscopy.

Further studies have revealed similar particles in the same location of cells not inoculated with anopheles A virus.

Material and methods. The Ehrlich ascites tumor cells were from the same source as those used initially(1,2) *i.e.*, from Dr. T. Hauschka of the Roswell Park Memorial Hospital, Buffalo, N. Y. and were maintained in the ICR (Institute for Cancer Research, Philadelphia) strain of Swiss albino mice at Lederle Laboratories. The same tumor has recently been transferred to the Swiss-Banks strain of mice and specimens from these have also been examined.

Fixing and embedding. Suspensions of the tumor cells were drawn from the abdominal cavity and immediately mixed with 9 volumes of a 1% buffered osmium tetroxide solution (3) brought up to 0.34 osmolar with sucrose. After being fixed for 10 minutes the cells were washed, dehydrated, embedded in N-butyl methacrylate, sectioned with a Porter-Blum (4) microtome and examined in an RCA, model EMU-2B electron microscope.

Observations. Morphology of body. Electron micrograms of particles originally found only in cells inoculated with anopheles A virus are shown in Fig. 1. The particles do not

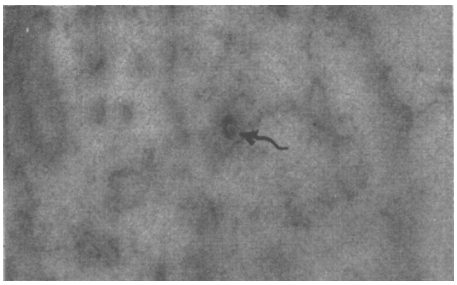

FIG. 2. A single body found in cell 48 hr after inoculation with neurotropic influenza. ICR strain mice. × 43,000.

usually appear as perfect spheres since sectioning causes appreciable distortion and in some cases natural deviations from a true sphere are evident. Occasional profiles appear horseshoeshaped with the open ends continuous with the wall of the endoplasmic reticulum (Fig. 3). For practical purposes, however, they may be considered as spheres. The thin sections show profiles having a center of low electron density 25 to 30 mμ in diameter surrounded by a complex dense shell 12 to 17 mμ thick, giving an overall diameter of 55 to 65 mμ. Very thin sections at higher magnification indicate that the shell is composed of dense though "hollow" globules 12-14 mμ in diameter.

Occurrence of bodies. Along with every preparation of cells which had been inoculated with virus, control, uninoculated cells were prepared. Twelve such preparations together with 5 in which the ascites cells were

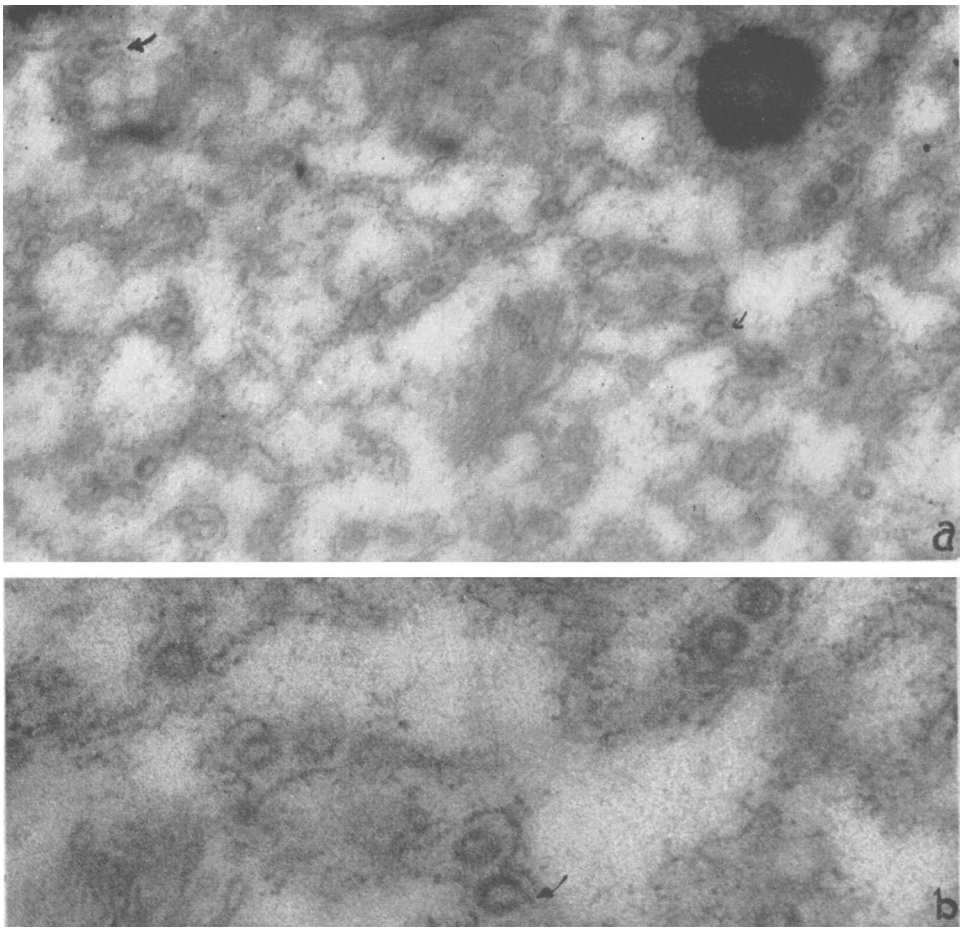

FIG. 3. (a) Numerous bodies inside endoplasmic reticulum of uninoculated control cells. × 43,000. (b) Further enlargement of a portion of (a). Note horseshoe structures (arrows), Swiss-Banks strain mice. × 85,000.

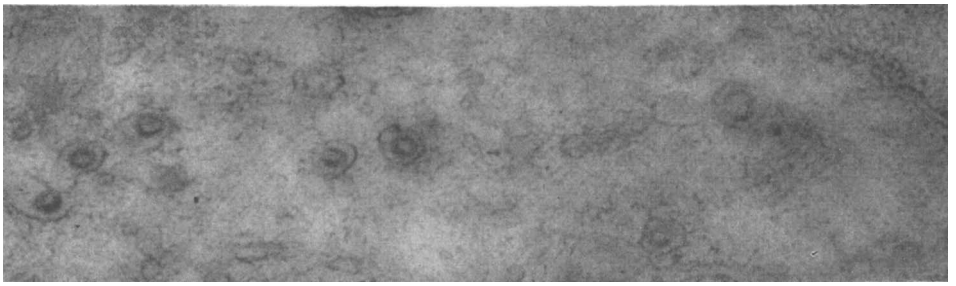

FIG. 4. Appearance of bodies in uninoculated cells carefully assayed for virus. ICR strain mice. × 55,000.

inoculated with viruses other than anopheles A were examined in the electron microscope. The fact that the above-described bodies were not found in these controls does not mean that they were nonexistent, because electron microscopy cannot be used as an assay procedure for, in general, it records only forms that are present in great abundance. The volume of any cell examined in a single section is about 0.1% of the total volume of a cell. However, besides the work in this laboratory there existed the extensive examination of Ehrlich ascites tumor cells at the Sloan-Kettering Institute(5,6) in which none of the above-described bodies were ever seen.

In cells not inoculated with anopheles A virus 2 or 3 of the bodies were first seen in the fall of 1955 in cells inoculated with neurotropic flu virus (Fig. 2). At that time the senior author transferred to Sloan Kettering Institute and started propagating the Ehrlich tumor by transplanting cells from the Lederle-ICR mice at Pearl River to the Swiss-Banks mice at the Sloan Kettering Institute. After 26 passages in the latter mice cells were found to contain large numbers of the same type of structures located within the endoplasmic reticulum as were initially found only in cells inoculated with anopheles A virus (Fig. 3). A recent preparation of control cells directly from Lederle Laboratories also now contains the bodies in every section examined (Fig. 4). These latter cells have been exhaustively tested by the Viral and Rickettsial Division of Lederle for the presence of virus with only negative results.

These bodies have also been identified in ascites tumor cells in other laboratories(7, 8).

Summary. Dense, spherical, shell-structured bodies, measuring about 60 mμ in diameter, which were originally associated only with anopheles A virus have now been found in uninoculated Ehrlich ascites tumor cells. These bodies are found in the cytoplasm within the lumin of the endoplasmic reticulum and in some instances they seem to be attached to or to be formed from the wall of the endoplasmic reticulum tubule.

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