Cultures of the blood on the thirteenth day (1 c.c. of blood in each of three flasks each containing 50 c.c. of broth and 25 c.c. of ascites fluid) remained permanently sterile.

Conclusions. — The results of these two experiments permit the conclusion that the virus of measles is present in the blood of patients with typical measles some time at least during the first thirty hours of the eruption; furthermore, that the virus retains its virulence for at least twenty-four hours when such blood is inoculated into ascites broth and kept at 37° C. This demonstration shows that it is not difficult to obtain the virus of measles unmixed with other microbes and in such form that it may be studied by various methods.

20 (66). **"The formation of the centrosome in enucleated egg-fragments": NAOHIDÉ YATSU.**

To test whether the centrosome is a permanent cell organ or not, Professor E. B. Wilson (1901) made an experiment on the sea urchin egg by treating, with a salt solution, enucleated egg fragments obtained by shaking. He observed that asters containing centriole and capable of division were produced in the enucleated fragments. He, therefore, came to the conclusion that at least some of the centrioles in the asters thus formed must have arisen *de novo*. Some writers criticized his results, saying that the formation of the centrioles in the enucleated fragments observed by him might have been due to the shaking-out of the nuclear fluid into the cytoplasm. Wilson, therefore, suggested that his experiment be carried out by the author in a somewhat different manner — instead of shaking, to cut eggs singly and to treat the nucleated and enucleated pieces separately. The author tried this experiment on the egg of *Cerebratulus* in the summers of 1903 and 1904. Strict precautions were taken to prevent accidental fertilization, everything used for the experiment being sterilized. Individual eggs were cut into nucleated fragments (*i. e.*, fragments containing the first maturation mitotic figure) and also enucleated fragments. The latter were kept for an hour in a solution of calcium chlorid. Then they were transferred to sterilized sea water. Asters were produced in almost all enucleated fragments thus treated. What is more striking, all the asters had centrioles which were identical with those found in the whole eggs subjected to the same treat-

ment. The nucleated half was stained and was shown to have had the mitotic figure intact. From these experiments no other conclusion can be drawn than that the centrosomes, with centrioles of the enucleated fragments, were formed *de novo*.

21 (67). **"Structure of vaccine bodies in isolated cells,"** with demonstrations: **JAMES EWING.**

One of the few points on which all observers of vaccine bodies are agreed is that these structures are extremely susceptible to artificial changes. The author has for some years endeavored to find a method of examination of these bodies by which artificial changes could be avoided; and this object seems to have been accomplished by the very simple procedure of making Klatsch preparations of corneal vaccine ulcers.

A glass slide is cleaned with soap and water, and thoroughly heated in a Bunsen flame. It is then found to be unusually adhesive. The cornea of an anesthetized rat or rabbit, presenting a vaccine ulcer at any stage, is exposed by holding back the eyelids and protruding the eyeball. The cooled slide is then lightly applied to the ulcer and quickly withdrawn without lateral motion. The slide carries away with it an impression of the ulcer in the form of isolated cells or groups of cells loosened by edema. In this way ten to twenty impressions may be taken in serial order and the minute ulcer may be completely excavated without sacrificing the animal. The isolated cells dry instantly and may be fixed by gentle heat, and afterward by methyl alcohol, and then stained by various methods, preferably by Nocht-Romanowsky for ten minutes. The vaccine bodies are then presented with a clearness equal to that of the malarial parasite in blood spreads.

In the Klatsch preparations stained by Nocht's method the following features of the vaccine bodies appear to be demonstrated. The vaccine body is a portion of the cytoreticulum, its reticular structure being continuous on the one hand with the cytoreticulum and on the other usually with the nuclear reticulum. The clear zone surrounding the vaccine body in sections of tissue is an artifact. The reticulum of the vaccine body takes the chromatin stain, indicating that it contains chromatin, and many of the bodies are so intimately connected with the nucleus, the meshes of one passing