coccus III to contain 1000 organisms per ml. Each tube also received enough sulfapyridine to make its concentration 5 mg % and all were incubated over night at 37°C. The table shows that sulfonamide inhibiting action was removed from serum by the soil bacillus.

Conclusion. It may be inferred from these experiments that soil bacillus (Mirick) interferes with the activity of the substance in serum which inhibits sulfapyridine.

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Experimental Transmission of *Lymphogranuloma venereum* Virus Through the Placenta.

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In view of the recent emphasis by Goodpasture[1] on transmission of viral infections to the fetus, and because of the possibility of applying experimental study to human cases with eventually a clearer understanding of virus pathogenesis, an investigation dealing with the experimental transmission of the lymphogranuloma virus through the placenta of mice was undertaken. This animal host was selected because of its well-known susceptibility by intracerebral route to the agent under investigation. Two lines of study were followed: (1) injection of pregnant mice by non-infecting routes and (2) infection of the host by the usual experimental portal of entry, the brain. In both types of experiments a fixed mouse strain of lymphogranuloma virus was injected in dilutions of 1:10 into pregnant mice. These animals were sacrificed 24, 48, 72 and 96 hr after the injections, or after they had gone to term and kindled. At these periods, emulsions from the brains of both mother and fetus were injected into other mice. Part of the material so injected was made up into antigens in the usual manner (heating 3 hr at 58°). The antigens were then injected intradermally into human beings and compared with human antigen or Lygranum.[1] As has been recommended,[2,3] a skin test was considered positive if a papule with a diameter of 5 mm appeared within 48 hr. Normal mouse brains (maternal and fetal) treated similarly to the antigens were used as controls. Fifty-three human cases were tested. The presence or absence of virus in fetal tissue was also studied by intracerebral injections of tissue emulsions into normal mice.

Human and mouse antigens in 37 cases with positive Frei tests (human antigen) gave the following results (Table I). In 30, fetal brain antigens produced positive skin reactions. In 12 negative cases, the same type of antigen yielded 10 negative skin tests. The table shows also strong reactions to antigens prepared from the brains of infected mothers (11 positive and 9 indefinite). Again, in agreement with previous investigators,[4] the limitations of the use of mouse brain antigens are apparent by the number of non-specific reactions attendant upon injection of such animal tissue into the human skin.

In one experiment 96 hr after subcutaneous injection of virus, the mother was sacrificed and fetal brain emulsion was inoculated intracerebrally into 4 normal mice. Seven days post-inoculation all were sick but the illness did not progress and the ani-

1 Goodpasture, Ernest W., *Science*, 1942, **95**, 391.

2 Ormsby, Oliver S., *A Practical Treatise on Diseases of the Skin*, Lea and Febiger, Philadelphia, 1937, 978.

3 Harvard School of Public Health Symposium, *Virus and Rickettsial Diseases*, Harvard Univ. Press, Cambridge, Mass., 1940, **372**, 371.

4 Reider, Reuben Frank, and Cañizares, Orlando, *Arch. Dermat. and Syph.*, 1938, **38**, 930.

TABLE I.
Comparison of Human and Mouse Antigens in Humans.

Frei test with human antigen	Mouse brain antigens					
	Positive		Indefinite		Negative	
	Maternal	Fetal	Maternal	Fetal	Maternal	Fetal
37 +	11	30	9	4	9	3
4 ?	—	1	3	1	1	2
12 —	—	—	4	2	4	10

mals recovered. In a second subcutaneous experiment, mother and fetal brain emulsions were similarly injected into 34 mice. Of the group receiving maternal brain emulsions, 8 showed symptoms, with death occurring in 5 animals. In the case of the mice injected with fetal brain emulsions, 6 showed symptoms and deaths occurred in 3 of the animals. To determine the ease with which the agent could be transmitted in this fashion, one of the mice showing symptoms after injection with fetal brain emulsion was sacrificed. Its brain further transmitted to 4 mice produced characteristic symptoms and death in all animals. On routine examination no bacterial contaminations were observed.

To further determine the specificity of the agent transmitted from fetus brains to adult mice, emulsions of fetal tissue were made into antigens and tested in known human cases of lymphogranuloma. When compared with human antigen there seemed no reason to doubt that the virus of *Lymphogranuloma venereum* had been present in the brains of these animals (Table II).

Results similar to those recorded in Table II were obtained when pregnant mice were injected intracerebrally instead of subcutaneously.

TABLE II.
Comparison of Human and Mouse Antigens in Humans.

Frei test with human antigen	Fetal antigen	Mouse brain antigens. Antigen from adult which received fetal brain emulsion
+	+	+
+	+	+
+	+ (weak)	+
+	—	+
+ (weak)	—	+
+	not done	+

Furthermore, in touch preparations from the brains of various fetuses after maternal injection with *Lymphogranuloma venereum* virus, bodies morphologically similar to elementary bodies of lymphogranuloma have been noted, after staining with Giemsa.

On the basis of the investigations herewith reported, the conclusion appears justified that the lymphogranuloma virus is transmitted in pregnant *mice* via placenta into the fetus.

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