ulated with filtrates passed through the coarser (L1) filters, we are not prepared to say that this fact suggests any relationship to the dimension of the hypothetical agent. Atypical reactions were frequently obtained with Fehling's solution but these are not included in the reactions referred to above. An attempt was made to follow the blood sugar in some of these animals, but the results were too vacillating to be of any value in these studies. We have, therefore, been unable to confirm Bergey's observations. "Cultured" filtrates of diabetic urines were not tried.

[1] Bergey, D. H., PROC. SOC. EXP. BIOL. AND MED., 1926, xxiv, 229.

## 3885

### Bacteriophages From Spontaneous Mouse Tumors.

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Bacteriophages active for *Eb. dysenteriae* were isolated from 4 out of 8 spontaneous tumors of mice. These were tumors of epithelial origin, which histologically resembled adeno-carcinomata. In size they ranged from 1 to 2 cc. in diameter and, with one exception, were covered with intact skin. They were removed aseptically, finely ground in a mortar under sterile conditions and emulsified in about 10 cc. of physiological saline. The emulsions were immediately filtered through sterile filter paper and then through a candle. These filtrates were tested in the customary manner for lytic action against strains of *Eb. dysenteriae. Eb. typhi, Es. coli* and of *S. aureus.* Several serial passages sufficed to elicit the presence of a bacteriophage active for *Eb. dysenteriae.* By the tenth passage a few drops of the filtrate was sufficient to lead to complete lysis of an actively growing broth culture of the organism. Typical plaques were produced on solid media. No detectable lysis was produced in the presence of the other bacterial species named. One strain of *S. aureus* was, however, strongly agglutinated by the active filtrates. The agglutinating principle was, moreover, transmitted in series by means of filtrates of the successively agglutinated cultures. That this was not a natural property of the organism was indicated by the appearance of the control cultures. While this "transmissible agglutinin" presumably represented a weak bacteriophage for the

organism, it is curious that no appreciable lysis could be detected in the broth cultures during the course of these serial passages. At the end of the 25th serial passage the picture was essentially the same as during the earlier passages.

With the exception of one tumor presenting surface ulcerations, from which a mixed bacterial flora was cultivated, cultures made from the freshly harvested tumor pulp failed to reveal the presence of bacteria in the tumor tissue. It would for this reason be difficult to explain the presence of the bacteriophage in these tumors were it not for the fact that a similar bacteriophage may also be isolated from the intestinal contents of such mice. It is entirely conceivable that it may find its way from there to various tissues of the body.

## 3886

## Reciprocal Innervation of Antagonistic Eye Muscles.*

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Reciprocal innervation of antagonistic eye muscles has been more or less generally accepted since the time of the experiments of Sherrington.[1] Recently, however, some controversy has arisen, due chiefly to the experiments of Tilney and Pike[2] and of Lorente de Nó.[3] These investigators have concluded that the law of reciprocal innervation is not valid in the case of antagonistic eye muscles. It therefore seemed to us desirable to further investigate this problem. The animals we used in our experiments were dogfish *(Mustelus californicus* and *Triakis semifasciatis).* In order to demonstrate the phenomenon of reciprocal innervation we have employed a slightly different method from any used heretofore. Instead of stimulating the cerebral hemisphere or rotating an animal around one of its principal body axes to evoke eye movements, we employed the method used by Maxwell.[4] Briefly, this method consists in exposing a semicircular canal and subsequently applying a mechanical stimulus to its ampulla.

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† The experiments were conducted at the Scripps Institution of Oceanography of the University of California, La Jolla.