To date 126 patients have been studied. Of these, 15 showed the anticomplementary activity described above. In 19, complement activity was not entirely lacking but was found to be less than that observed in their blood sera. In 6, the complement level of the sternal fluid was definitely higher than that of the corresponding blood serum.

Of interest is the case of a man, 24 years of age, hospitalized because of a thrombosis of the splenic vein. The day before splenectomy was performed it was found that his sternal marrow fluid exhibited no complement activity while his blood serum gave a normal titer of 33. Immediately after the operation his serum complement level was 25. On the day following the operation his sternal marrow fluid complement rose from 0 to 32, and was of almost the same magnitude (35) as that of the blood serum drawn at that time. One month, postoperatively, the values were 58 and 51, respectively. (Fig. 1). A leucopenia and thrombocytopenia observed prior to operation disappeared after the splenectomy. Correlating this observation with the condition of the spleen in 126 patients it was discovered that they can be divided into two groups: (1) includes patients in whose sternal fluids complement levels are less than 20% of their corresponding blood sera values, and (2) comprises those cases in whom the sternal complement values do not deviate more than 20% from those obtained from their corresponding blood sera.

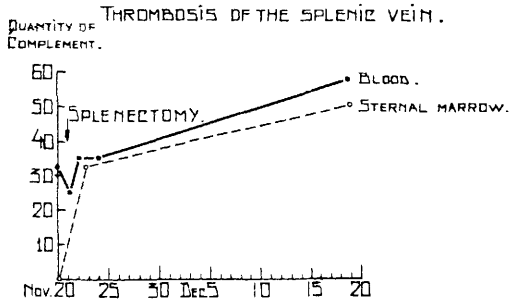

FIG. 1.

In Group I (34 patients), 21 showed an enlargement of the spleen. In Group II (86 patients), 17 exhibited an enlargement of the spleen. It can therefore be stated that in this series of cases, 60% of the patients showing anticomplementary activity of their sternal marrow fluids possessed an enlarged spleen, while in the second group splenic enlargement occurred in only 20% of the cases.

In 6 cases the complement values of the sternal marrow fluids were found to be 20% higher than those of their blood sera. In 4 of these 6 cases an enlargement of the spleen was observed.

Though the number of patients examined is relatively small statistically, it may be stated that Group I was composed of cases suffering of malignant granuloma, cirrhosis of the liver, Werlhof's disease, myeloid leukemia, thrombosis of the splenic vein, hemolytic icterus, and Besmer-Boeck-Schaumann disease. It is therefore likely that the peculiar behavior of the sternal marrow fluid is not a characteristic of a given disease, but shows some relationship to disorders of the spleen.

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Milk Agent and Natural Antisheep Agglutinins in Mice of Inbred Strains.* (17906)

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Higher incidence and higher titers of natural antisheep agglutinins have been found in C57 Black mice than in mice of other inbred strains. The same strain manifested also a better response to immunization with sheep

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TABLE I.
Antisheep Agglutinins and Milk Agent.

Strain		Total No.	Titer 0	1	2	4	8	16	32	Incidence of agglutinins, %
Z(C3H)	with milk agent	52	48	1	2	0	1	0	1	7.7
Zb	without milk agent	71	64	4	2	1	0	0	0	9.9
A	with milk agent	32	27	5	0	0	0	0	0	15.6
Ax	without milk agent	107	78	14	10	1	2	0	2	27.1
D_2	with milk agent	66	57	6	2	0	1	0	0	13.6
D_2	without milk agent	49	41	4	3	0	1	0	0	16.3
I	without milk agent	81	67	9	4	1	0	0	0	17.3

and human erythrocytes(1,2). Several factors have been examined as to their possible relationship to the difference in hemoantibodies(3). It was deemed advisable to investigate whether the presence or absence of the milk agent in the same strain is accompanied by a different incidence of natural antisheep agglutinins.

The animals were all bred in the Division of Cancer Biology, University of Minnesota Medical School, Minneapolis, with the exception of a small number of strain A mice, which were purchased from the Jackson Memorial Laboratory. All animals were at least 3 months old; the oldest were 16 months old. The technic of bleeding and of agglutination tests was the same as reported in previous work(1,2).

Table I lists 3 strains in which natural antisheep agglutinins were determined parallel in series of animals with and without the milk agent. Of these strains animals with the milk agent of strain C3H (Z) had been examined previously(1,2). The results obtained in mice of strain C3H (Z) showed significantly lower incidence of sheep agglutinins than the older material(2); possibly sublines of the same strain may differ in the occurrence of the antibodies(3). Neither in strain C3H (Z) nor in strains A and D_2 was there any significant difference in the incidence of sheep agglutinins between those groups which carried the milk agent and those free of the agent. The table shows also the results obtained on mice of strain I, which does not carry the milk agent. A low incidence of agglutinins was found in this strain.

Of the three new strains (A, D_2, I) examined in the course of this work, spontaneous mammary cancer occurs with considerable frequency in strains A and D_2. Mammary cancer incidence as well as incidence of other malignant tumors is low in strain I. Hence no relationship was demonstrated between the inherited susceptibility to mammary cancer and the frequency and titers of natural antisheep agglutinins.

Conclusion. The results of this study, as well as earlier findings(2) of a low incidence of antisheep agglutinins in animals of strains B alb C and Akm, which do not carry the agent, show that there is no relationship between presence or absence of the milk agent in mice and the incidence of natural antisheep agglutinins.

1. Davidsohn, I., and Stern, K., PROC. SOC. EXP. BIOL. AND MED., 1949, v70, 142.

2. Davidsohn, I., and Stern, K., *Cancer Research,* 1949, v9, 426.

3. Davidsohn, I., and Stern, K., *Cancer Research,* in press.

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