mation and discussion of all previous theories and experiments, and of the reports and events of balloon ascensions and mountain journeys in all parts of the world. It represents a prodigious amount of perseverant bibliographic collation and analysis, and stands out as a fine example not only of the lengths to which a scholarly investigator will go to familiarize himself with the contributions of his predecessors, but also of an exceptional example of medical historical writing.

The second part contains the experimental protocols. Over 660 experiments were performed, in which plants, animals, ferments, poisons, viruses and even Bert himself were subjected to changes in barometric pressure. The experiments are beautiful in their simplicity and directness, and with the final résumé section, are remarkable examples of precise, logical scientific investigation and reporting. They include solutions of myriad problems as well as numerous signposts pointing the way towards future studies.

This work, one of the most important in the physiological archives, deserves to be read by many who have neglected it in the past, especially in these unfortunate days during which the ideas with which it is concerned have become of such vital importance in aviation medicine.

ROBERT GRENELL

SOCIETIES AND ACADEMIES

THE KANSAS ACADEMY OF SCIENCE

THE seventy-sixth annual meeting of the Kansas Academy of Science was held at Topeka, Kansas, on April 15, with Dr. Harvey A. Zinszer, Fort Hays Kansas State College, Hays, Kansas, presiding. The affiliated society, the Kansas Entomological Society, met with the academy. Other state societies which met with the academy were the Kansas Association of Teachers of Mathematics and the Kansas chapter of the Mathematical Association of America.

The meetings were at Washburn Municipal University of Topeka, where the society was organized on September 1, 1868. The societies were welcomed by President Bryan S. Stoffer, of Washburn University.

The meeting was shortened to the one day, as was the diamond jubilee meeting last year. The interest shown justified the decision of the academy council to hold short stimulating meetings annually during the war emergency. Cancellation of national and sectional meetings makes that of the state organization more important as a common meeting ground for scientists of the state.

During the day section meetings were held for Botany (interpreted broadly to include Bacteriology and Agronomy), Chemistry, Geology, Physics, Psychology and Zoology. No attempt was made to hold a section of the Junior Academy because of the transportational difficulties, but local chapters had been encouraged to hold meetings at which the outstanding demonstrations, papers and exhibits were selected. In certain instances local civic clubs provided prize money for the winners. The academy council voted that high-school science clubs which are members of Science Clubs of America may become members of our Junior Academy of Science without payment of our membership fees.

The annual banquet was held in the evening with the newly installed president, Dr. Leland D. Bushnell, presiding as toastmaster. I. D. Graham, of Topeka, who became a member of the academy in 1879, was present. Dr. Harvey A. Zinszer as retiring president gave the address, entitled "Famous Early American Observatories." The banquet was followed by the annual public meeting. The program for this meeting consisted of an invitational address by Dr. Joel Stebbins, director of the observatory, University of Wisconsin, and research associate, Mount Wilson Observatory. His subject was "The Heavenly Spaces." This technical subject was presented in an interesting manner.

TABLE 1

Name of section	Chairman for 1944	Number of papers on program	Number attending	Chairman for 1945
Botany	Stuart M. Pady	12	40	Elva L. Norris
Chemistry	Worth A. Fletcher	9	30	Harry H. Sisler
Geology	W. H. Schoewe	8	10	J. R. Chelikowsky
Kansas Entomological Society	Elmer T. Jones	10	20	W. T. Emery
Kansas Chapter of Mathematical Societies of America	Paul G. Eberhart	7	60	Edison Greer
Kansas Association of Teachers of Mathematics	Herbert H. Bishop	7	60	Sara Belle Wasser
Physics	Ernest K. Chapin	7	18	P. S. Albright
Psychology	Maurice C. Moggie	11	21	Homer B. Reed

The total attendance was 210. The reports of the section chairmen are presented herewith in Table 1. The next annual meeting of the academy will be held at Kansas State College, Manhattan, Kansas.

The following officers were elected for the next year and meeting: *President,* Dr. Leland D. Bushnell,

Kansas State College; *President-elect,* Dr. John W. Breukelman, Kansas State Teachers College, Emporia; *Vice-president,* Dr. Claude W. Hibbard, University of Kansas; *Secretary,* Dr. Donald J. Ameel, Kansas State College; *Treasurer,* Dr. F. W. Albertson, Fort Hays Kansas State College; additional executive council members, Dr. Harvey A. Zinszer, Fort Hays Kansas State College; Miss Edith D Beach, Lawrence High School; Dr. Paul G. Murphy, Kansas State Teachers College, Pittsburg; and Dr. Philip S. Riggs, Washburn Municipal University. Dr. Robert Taft, of the University of Kansas, was reelected editor of the *Transactions* for a period of three years. Dr. Stuart M. Pady, of Ottawa University, was elected associate editor for a term of three years. Dr. John C. Frazier, of Kansas State College, was elected for a three-year term as representative to the American Association for the Advancement of Science. Dr. M. J. Harbaugh, Kansas State College, was elected academy librarian.

JOHN C. FRAZIER

KANSAS STATE COLLEGE

SPECIAL ARTICLES

INTERFERENCE BETWEEN ST. LOUIS ENCEPHALITIS VIRUS AND EQUINE ENCEPHALOMYELITIS VIRUS (WESTERN TYPE) IN THE CHICK EMBRYO

CERTAIN viruses, when injected into experimental animals, have been shown to influence the course of disease produced by a virus subsequently injected.[1] It has recently been found that this so-called "interference phenomenon" may occur even when the viruses are injected simultaneously.[2] This interference has usually been observed only when closely related viruses were being studied. Data obtained from the experiments reported here indicate that the "interference tween such unrelated viruses as St. Louis encephalitis and equine encephalomyelitis.

EXPERIMENTAL

Ten-day old chick embryos were inoculated with 0.2 cc of a 10 per cent. suspension of either: (1) mouse brain infected with St. Louis encephalitis virus; (2) mouse brain infected with St. Louis encephalitis virus which had been heated at 56° C for 30 minutes, or (3) normal mouse brain. Normal rabbit serum which had been inactivated at 56° C for 30 minutes was used in preparing the above suspensions. The embryos were incubated at 36 to 37° C for 48 hours and then inoculated with 0.2 cc of a 1 to 1,000 suspension of chick embryo infected with equine encephalomyelitis virus (Western type). All injections were made with a ¾-inch 23-gauge needle through the air-space

TABLE 1

TITER OF VIRUS IN ALLANTOIC FLUIDS AND EMBRYO SUSPENSIONS

First inoculum	Second inoculum	Material titrated	Dilutions tested 10^{-1}	10^{-3}	10^{-5}	10^{-7}	10^{-9}	LD 50 titer log of dilution
N. M. B. 5/24/43	W. E. E. 5/26/43	Allantoic fluid	4/4	N. T.	4/4	2/4	0/4*	7.0
		Embryo Suspensions	3/3	3/3	3/3	3/3	0/3	8.0
S. L. E. 5/24/43	W. E. E. 5/26/43	Allantoic fluid	4/4	N. T.	0/4	0/4	0/4	$>1.0<5.0$
		Embryo Suspensions	3/3	3/3	0/3	0/3	0/3	4.0
N. M. B. 6/5/43	W. E. E. 6/7/43	Allantoic fluid	3/3	3/3	1/3	2/3	0/3	6.0
		Embryo Suspensions	3/3	3/3	3/3	3/3	0/3	8.0
S. L. E. (Heated) 6/5/43	W. E. E. 6/7/43	Allantoic fluid	3/3	3/3	3/3	0/3	1/3	6.4
		Embryo Suspensions	3/3	3/3	3/3	3/3	1/3	8.4
S. L. E. 6/5/43	W. E. E. 6/7/43	Allantoic fluid	3/3	1/3	0/3	0/3	0/3	2.4
		Embryo Suspensions	3/3	3/3	0/3	0/3	0/3	4.0

* Numerator = number of deaths; denominator = number of mice tested.
N. M. B. = normal mouse brain.
S. L. E. = St. Louis encephalitis virus (Strain No. 3).
W. E. E. = Equine encephalomyelitis virus (Western type).
N. T. = Not tested.

phenomenon" is not limited to those viruses which are closely related, but that interference may occur be-

[1] M. Hoskins, *Amer. Jour. Trop. Med.,* 15: 675, 1935; G. M. Findlay and F. O. MacCallum, *Brit. Jour. Exp. Path.,* 44: 405, 1937.

[2] W. Henle and G. Henle, SCIENCE, 98: 87, 1943.