TABLE III.
Cases of Acute Encephalitis Admitted to Central Hospital, Peiping (1942-1945).

	June, July, August, September				Other 8 months			
Year	No. admitted	No. diagnosis ?	No. died	Ages of patients yr	No. admitted	No. diagnosis ?	No. died	Ages of patients yr
1942	6	0	2	20, 18, 17, 26, 16, 19	4	1	2	?, 19, 10, 17
1943	6	1	3	42, 29, 23, 13, 21, 11	5	1	3	10, 36, 16, 29, 36
1944	12	3	5	16, 45, 65, 24, 8, 9, 25, 37, 47, 4, 22, 15	6	3	3	1, 40, 5, 3, 40, 2
1945	6	1	2	13, 50, 48, 14, 24, 15	2	1	0	13, 19

Data supplied by Dr. William H. L. Chung, Medical Director of Central Hospital.

parent infection even in Japan, where severe epidemics have occurred, the question is raised whether the unknown factors, which predispose to clinically apparent infection, may be found less frequently among the Chinese than among the Japanese.

15904

Electrophoretic Studies on the Leukocytosis-Promoting Factor of Exudates.*

M. L. DILLON, G. R. COOPER, AND VALY MENKIN.†

From the Department of Surgery and the Department of Pathology, Duke University School of Medicine, Durham, N.C.

The studies of one of us (V.M.) have demonstrated the presence of a factor in inflammatory exudates of dogs capable of inducing both a growth in the bone marrow and a discharge into the circulation of polymorphonuclear leukocytes.[1] This canine material is active in human beings, suggesting its possible clinical application.[2] Salting out studies have indicated its close association with the pseudoglobulin fraction of exudates.[3] Recent studies at Temple University by one of us (V.M.) indicate that the active component of the leukocytosis-promoting factor (abbreviated as the LPF) appears to be a polypeptide. This has been shown by aging the LPF. The material splits as an active soluble polypeptide component from the rest of the molecule.[4] The present studies represent work performed in the past at Duke University by means of the Tiselius electrophoretic apparatus which indicates that the leukocytosis-promoting factor of exudates seems to be associated with the α_1 and α_2 globulins of exudates.

Materials and methods. The leukocytosis-promoting factor was obtained from exudate of dogs essentially as described by one of us.[2] Electrophoresis was carried out as previously described at 1°C in barbital buffer at pH 8.6 and 0.1 M ionic strength.[5,6] The patterns representing the migrating boundaries were recorded by the method of crossed slits described by Svensson.[7]

The serum was prepared for electrophoresis

* This paper is No. 39 of a series entitled "Studies on Inflammation."

† Present address of Valy Menkin: Temple University School of Medicine, Philadelphia, Penn.

1 Menkin, Valy, *Am. J. Path.*, 1940, **16**, 13; *Am. J. Path.*, 1943, **19**, 1021.

2 Menkin, Valy, *Arch. Path.*, 1946, **41**, 376.

3 Menkin, Valy, *Arch. Path.*, 1940, **30**, 363.

4 Menkin, Valy, in press, 1947.

5 Cooper, G. R., Craig, H. W., and Beard, J. W., *Am. J. Syph., Gonor., and Ven. Dis.*, 1946, **30**, 555.

6 Sharp, D. G., Taylor, A. R., Beard, D., and Beard, J. W., *J. Biol. Chem.*, 1942, **142**, 193.

7 Svensson, H., *Kolloid Z.*, 1940, **90**, 141.

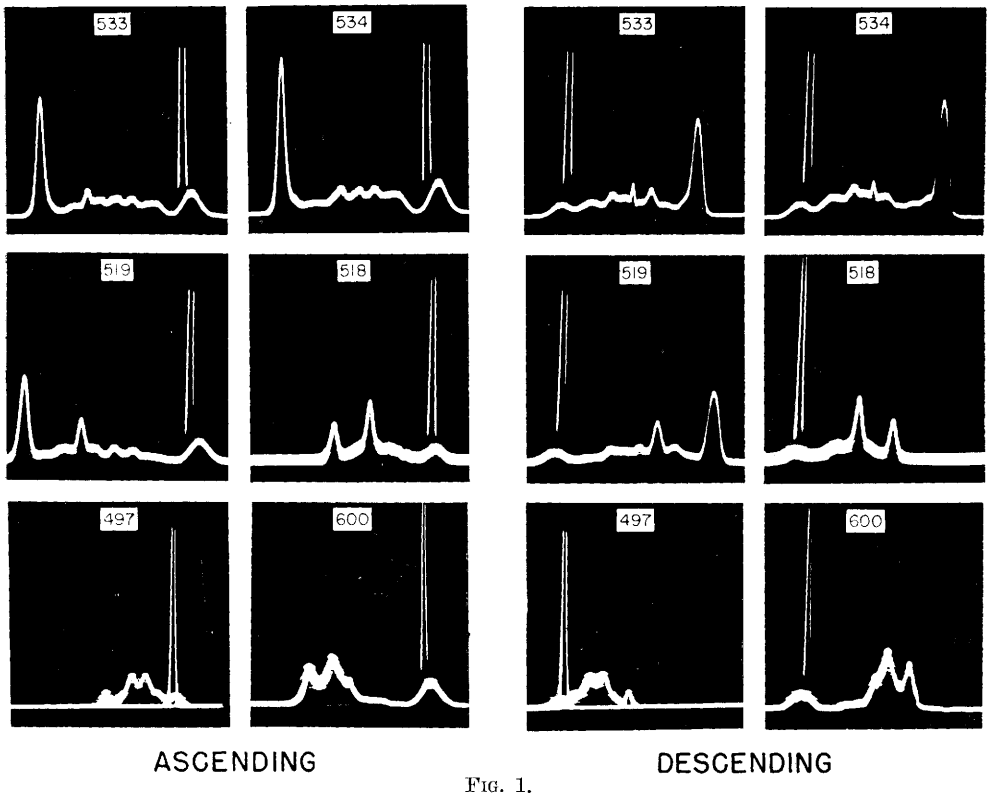

FIG. 1.

TABLE I.

This Table Gives the Mobilities and Percentage Composition of the Sera and Fractions Studied Electrophoretically. The Values Given for Normal Dog Serum Were Obtained from a Previous Study by Dr. G. R. Cooper.

		Mobilities of Components × 10-5 cm/sec/volt								
		A	α'_1	α_1	α'_2	α_2	β'	β	γ'	γ
Normal dog serum	T533	6.90	6.23	5.36	4.65	4.08	3.64	3.16	2.63	1.61
" " "	T534	6.81	6.15	5.38		4.10	3.52	3.11	2.64	1.68
Inflammatory exudate used for 14D fraction of 2-5-45	T519	6.89	5.97	5.24	4.54	3.87		3.18	2.53	1.67
LPF fraction of 14D of 2-5-45	T518	6.89	5.99	5.30	4.48			3.07	2.53	1.60
LPF run 6-4-45	T497	6.90		5.45	4.35			3.00		1.65
LPF 760 No. 12646 5-20-46	T600	6.85		5.45	4.50			3.01		

	% Composition. Avg of Ascending and Descending Sides.								
	A	α'_1	α_1	α'_2	α_2		β	γ'	γ
T533	42.0		10.3		15.0		11.8	9.6	11.3
T534	41.3		11.4		11.9		11.4	10.9	13.1
T519	41.7	3.7	9.4	19.4	7.6		6.8	7.8	3.6
T518	23.1	3.2	8.7	42.6			12.7	5.4	4.3
T497	9.2		7.6	40.6			31.1		11.6
T600	29.6		50.7	14.7			5.1		

by dilution with barbital buffer to approximately 2% protein concentration, and dialyzed against frequently changed buffer at 2° to 8°C. Protein concentrations were de-

termined by falling-drop procedures[8] standardized by Kjeldahl analysis. Time and voltage are given in Fig. 1.

Component analyses were made in measurements in photographic enlargements of the electrophoretic diagrams in which the components were separated by vertical lines to the base at the minima between peaks.[9] The base line has been removed from the starting boundary by lowering the third blade of the angle slit, in those plates which show no base line. In the latter cases the base line is constructed by drawing lines connecting the portions of the base line remaining at the extremities of the patterns. The respective areas are bounded by the mid-line of the curve above, and the mid-line of the base below. The mobilities of the various components were calculated from the distances measured from the starting point of migration to the maximum ordinates of the respective peaks.[10] Calculations were made for both the ascending and the descending sides, and the values given in Table I are the average of the 2 sets of data.

Conclusions. The leukocytosis-promoting factor (LPF) of inflammatory exudates when studied electrophoretically in a Tiselius apparatus appears to be distributed primarily between the α_1 and α_2 globulins of exudates.

[8] Barbour, H. G., and Hamilton, W. F., *J. Biol. Chem.*, 1926, **69**, 625.

[9] Tiselius, A., and Kabat, E. A., *J. Exp. Med.*, 1939, **69**, 119.

[10] Longsworth, L. G., *Chem. Rev.*, 1942, **30**, 323.

15905

Effect of Feeding Potassium Acid Saccharate in the Diet of Rats for Successive Generations.*

C. JELLEFF CARR.

From the Department of Pharmacology, School of Medicine, University of Maryland.

In former studies with various carbohydrates and their derivatives, calcium arabonate was fed to rats for long periods of time.[1,2] These compounds failed to affect deleteriously the rate of growth in 3 successive generations of rats. Recently potassium acid saccharate has been made available for experimental purposes and certain dietary uses. It was deemed advisable to conduct similar long-term feeding experiments with rats in which this compound was incorporated in their diet. A search of the literature failed to reveal any information on the fate of saccharic acid in the animal body.

Material and Methods. Potassium acid saccharate is a white crystalline powder having a pleasant acid taste. It is only slightly soluble in cold water but soluble in hot water. The compound employed in this investigation assayed not less than 99.5% purity and conformed to the heavy metals limit of 10 parts per million established by the United States Pharmacopoeia XII, p. 371, for potassium bitartrate. The compound was free of oxalic acid and gave a negative test for the nitrate ion. Various samples had neutralization equivalents ranging from 248.5 to 273.

The compound was added to a balanced diet of Purina Fox Chow in a concentration of 5%. The powder was mixed intimately with the food and fed to the animals. Special care was observed to insure the complete consumption of all the food. The rats were

* The expense of this investigation was defrayed in part by a grant from the Sugar Research Foundation, Inc., of New York.

[1] Ellis, F. W., Carr, C. J., Wiegand, E. J., and Krantz, J. C., Jr., PROC. SOC. EXP. BIOL. AND MED., 1943, **52**, 260.

[2] Carr, C. J., and Krantz, J. C., Jr., PROC. SOC. EXP. BIOL. AND MED., 1945, **59**, 54.