of means was 2.97 with a.d. = .23 (all expressed in $10^5.\mu^3$). These values serve as a rough check on those previously given, but would be useless for this purpose were it not for the approximate stability of $M_{(v)}$ in the 6 sampled regions of each organ. However, a basis of strict comparability of the 2 methods of estimation may be had by estimating for each sample the total glomerular tissue contained (I_s), once as already mentioned, and again by the expected value of $I_s = Z_s.M_{(v)}/M_{(\eta)}$, where Z_s is the number of glomerular *particles* in the sampled region; summing each set of estimates for a given organ and obtaining the ratio of these sums. These ratios for the 4 kidneys were 1.063, 0.995, 0.980 and 1.006, respectively; and for 2 others (experimental and control) 1.032 and 0.995, respectively. This we feel indicates a far greater precision and reliability than has been obtained previously in work of this character. Neglect of the effect of focusing upon the greatest cross section of each particle in the transparent section instead of the first presented surface would have introduced an error of about 13%.

Estimates of the total number of glomeruli in the rat kidney have been made by various workers, notably by Moore,[4] whose findings agree closely with our own. However, we feel that the methods suggested above have some advantage in precision over those used previously, and in addition permit a simultaneous estimation of various volume relations.

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Antistreptolysin Content of Sera from Cases of Recurrent Tropical Lymphangitis.

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Todd[1] has shown that there are in the sera of patients suffering from diseases caused by hemolytic streptococci, antibodies that neutralize *in vitro* streptococcal hemolysin. Todd[1] and Coburn[2] have demonstrated that these antibodies are found in abnormally

4 Moore, R. A., *J. Exp. Med.*, 1929, **50**, 709.

1 Todd, E. W., *Brit. J. Exp. Path.*, 1932, **13**, 248.

2 Coburn, A. F., and Pauli, R. H., *J. Exp. Med.*, 1932, **56**, 651.

high concentration in the sera of patients suffering from rheumatic fever and in individuals recovering from hemolytic streptococcus infections. Furthermore Coburn[2] has observed that these antibodies (antistreptolysins) are not abnormally increased in the sera of subjects with bacterial infection other than hemolytic streptococcus and he concludes that abnormally high antistreptolysin titer is strong evidence of recent infection by hemolytic streptococcus and that this relationship is apparently specific.

While studying the probable relationship of *Streptococcus hemolyticus* to recurrent tropical lymphangitis we have made antistreptolysin determinations in a group of persons suffering from this condition and in a group of apparently normal individuals. We have employed the method and culture media recommended by Hodge and Swift[3] in which the combining capacity of the streptolysin is used as an apparently more reliable index than its hemolytic power. In order to render our results comparable with those of others we are reporting them using the same system of units employed by Todd. This was made possible through the kindness of Dr. David Seegal of New York who made antistreptolysin determinations in 8 of our sera and recorded his results in units as recommended by Todd. By calculation we have been able to change our figures accordingly.

Table I shows the antistreptolysin content of the sera of 41 pa-

TABLE I.

Antistreptolysin content in forty-one cases of recurrent tropical lymphangitis.

Case	Antistreptolysin units	Case	Antistreptolysin units
F. M.	83	J. N. C.	406
C. F.	1041	S. R.	133
J. C.	252	F. C.	117
M. F.	219	C. M.	208
A. L. P.	83	Z. C.	606
M. E. R.	170	A. I.	76
F. S.	333	D. C.	138
L. C.	166	P. A.	151
M. L.	83	C. V.	238
P. G. S.	269	F. O.	151
F. A.	444	M. F.	208
E. O.	104	P. M.	151
J. M.	231	M. I.	138
A. A.	231	M. T.	277
P. L.	277	N. R.	138
P. J.	256	E. H.	538
E. A.	83	D. M.	79
D. A.	333	G. R.	98
G. O.	98	N. C.	1111
D. R.	208	P. M.	437
C. J.	92		

[3] Hodge, B. E., and Swift, H. F., *J. Exp. Med.*, 1933, **58**, 277.

tients suffering from attacks of recurrent tropical lymphangitis. In these cases, sera were obtained during the attack, few days after the attack and in some instances several weeks after the acute attack, but no classification in this respect will be attempted at this time.

TABLE II.
Antistreptolysin content of the sera of normal subjects.

Case	Antistreptolysin units	Case	Antistreptolysin units
P. M. O.	138	S. F.	62
C. L.	46	L. H.	64
N. R.	151	A. R.	52
J. F.	22	J. M.	28
A. P.	25	R. M.	21
J. A. P.	52	C. F.	62
E. R.	66	A. G.	62
M. O.	64	L. G.	111
A. L.	18	E. S.	46
A. C.	46	E. C.	151

Table II shows the results obtained with the sera from 20 apparently normal individuals.

In 2 cases studied during and after the acute attack we find the following: In a case having attacks of acute lymphangitis at monthly intervals for the last 2 years, the antistreptolysin titer 5 days after the attack was 606 units. Thirty-five days after the attack 538 units and 60 days after the attack 333 units. A chronic case of 15 years' duration had attacks spaced at long intervals and has had no attacks for the last 20 months. During an acute attack the antistreptolysin titer was 100 units during the attack, 71 units 11 days after the attack and 47 units 35 days after.

Summary. The antistreptolysin values of the sera of 41 cases suffering from recurrent tropical lymphangitis and 20 normal cases are here reported. Apparently the antistreptolysin titer is increased in cases of lymphangitis if compared with normal subjects. The serum of cases suffering from acute lymphangitis varies in antistreptolysin titer according to whether the serum is studied before, during or after the attack.