and Australia was noted. The name of Dr. Kodama, from Japan, was proposed for membership. Subcommittee members were aware of no active workers in the field of Streptococcus or Diplococcus in South Africa, South America, or Australia. The names of Dr. Deibel (USA) and Dr. J. Szita (Hungary) were proposed for membership. A copy of current membership is listed in Appendix 6.

6. Future meetings

The next meeting will be held in Mexico City in 1970.

7. Adjournment

The Subcommittee adjourned at 5:00 p. m.

Max D. Moody, Secretary

APPENDIX I

Agglutination patterns in types 14 and 49

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Since the Red Lake glomerulonephritis epidemic in 1955, type 49 has not been reported from any similar incident. Anti-M sera for this type seem generally to be poor, and this may account for the apparent rarity of the type.

Feasby (1944), de Moor (1960) and Šramék (1964) have all reported outbreaks of glomerulonephritis associated with strains which agglutinate only with sera for type 14. We have examined the Dutch and Czech strains, and have also found a large number of similar cultures in two studies of streptococcal skin infection in areas where there was a high incidence of glomerulonephritis. A collection of cultures isolated from skin infections in Baltimore (see Markowitz *et al.* 1965) also included some more.

Köhler in 1963 showed that types 14, 35, 49 and 51 all had a common agglutinating antigen, and we confirmed this. We made sera with the type strains of types 14 and 49, and also

with one of the American "T/14" cultures. All three sera agglutinated the type strains of 14, 35, 49 and 51. The type 49 serum was absorbed with the type strain of type 14 and then agglutinated only the "T/14" strains. Absorption of type 14 serum with the type strain of type 49 left only an agglutination with "true" (mainly M-positive) type 14 strains. We could thus distinguish between type 14 and type 49 strains by slide agglutination.

We collected 271 cultures which were agglutinated by our routine type 14 T-serum. Most of them gave no precipitin reaction, but a few were 14-M positive. They included a few stock strains and routine isolations from Britain, Portugal and Israel, representative cultures from the Dutch and Czech glomerulonephritis outbreaks, and large collections from skin lesions (some from patients with glomerulonephritis) in the U.S.A. and Trinidad. The results of agglutination and precipitation tests are summarised as follows:

		Total No.	Precipitation by M/14 serum	
			+	-
Agglutination by absorbed sera	(14+ : 49-	19	16	3
	(14- : 49+	252	0	252
Total		271	16	255

Our attempts to demonstrate an M-antigen in type 49 strains were inconclusive. The serum made with the American "T/14" strain (R1127) gave unsatisfactory bactericidal tests, perhaps because the strains grew so poorly in human blood. None was sufficiently virulent for passive protection tests to be performed in the mouse.

In gel-diffusion tests with R1127 serum, there was a line of identity between Lancefield extracts of the type strains of type 35, type 49, and several of the "T/14" skin strains. Using "T-extracts," this serum gave a single line against type 14 and type 51, and a double line against the "T/14" strains. When the serum had been absorbed with the type strain of type 14, it reacted only with "T-extracts" of the skin strains.

Long-chaining tests with R1127 and with the unabsorbed type 49 serum showed an increase in chain-length in two Czech, two American and two stock "T/14" strains.

We believe types 35 and 49 to be the same, and we also think that our "T/14" strains belong to type 49. There is evidence that they may be nephritogenic, like the original type 39 strains (Maxted et al. 1967).

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APPENDIX 2

The Investigation of Some Extracellular Products of Streptococci Group A

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The antigenic components revealed in the preparation of erythrogenic toxin of different stages of purity and in the preparation of crystalline proteinase, obtained by Elliot's method (1950), were investigated.

For this purpose the following methods were used: analytical immunoelectrophoresis in the agar gel, analytical and preparative high volt electrophoresis, and Uriel's method (1960). The activity of the toxin was estimated by titration on the rabbit's skin, the activity of proteinase—with the Kunitz method (1947).

In the preparations of Toxin A with the lower stage of purity (4 ml of skin doses/1 mg of protein) by the reaction with the antitoxic sera, four antigenic components were revealed. The first antigen was identified as erythrogenic toxin, the second as proteinase. The third antigen was attributed to the extracellular components, since the antibodies to it failed to be removed by the absorption with the