Went on tomatoes (*4*) and those of Dorland and Went on chili peppers (*5*) as far as vegetative growth is concerned. Thus, the peppers showed greatest vegetative growth, while still small, at 27°-day: 30°-night. Young tomato plants also showed maximum stem elongation at the highest pair of temperatures tested (27°-day: 27°-night).

The gynophore of the peanut has no close parallel in tomatoes or peppers, being most conveniently considered a stage intercalated between flower development and fruit development. Correspondingly, the evidence concerning a temperature optimum for growth of the gynophore finds no parallel in published results on flower or fruit development in tomatoes and pepper.

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The Antimicrobial Principle of *Clematis Dioscoreifolia*

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In the course of a survey designed to test green plants of this region for antimicrobial activity, it was noted that freshly prepared aqueous extracts of *Clematis dioscoreifolia* showed unusually strong activity against gram-positive and gram-negative bacteria and thus resembled a number of other species of Ranunculaceae tested previously (*1*). The activity was maintained for more than two months of storage in a refrigerator but diminished quickly at room temperature. Extracts of plant material from dried leaves were inactive.

Extraction of the aqueous solution with a variety of organic solvents, of which ethyl acetate appeared to be the best, caused the activity to move into the organic layer. In an attempt to isolate the active principle, the aqueous solution resulting from the extraction of approximately 1 kg of freshly picked plant was extracted with ethyl acetate. Removal of the organic solvent at reduced pressure, followed by several recrystallizations of the residual gum from a mixture of ethyl acetate and ligroin, yielded 204 mg of shiny white plates (mp, 151° C), which were shown to be identical with anemonin (*2, 3*) by analysis, color reactions, and mixed melting point.[1]

The distribution of anemonin in a number of Ranunculaceae has been discussed recently (*4*). Since the solutions used in our work possessed the extremely irritating properties of protoanemonin commented upon by other workers (*2, 3*), there can be little doubt that protoanemonin is responsible for the antimicrobial activity of *Clematis dioscoreifolia*, but dimerized to the inactive anemonin under the conditions employed for its isolation.

[1] We wish to thank Beatrice C. Seegal and S. Raymond for an authentic sample of anemonin.

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The Chemical Kinetics of Procaine and Chloroprocaine Hydrolysis

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Kisch (*1*) in 1943 reported his studies on procaine esterase. Since that time a number of microanalytical methods have been recommended for the determination of procaine and *p*-aminobenzoic acid in biological fluids. A reliable and simple method was described by Ting *et al.* (*2*). The authors of this paper have shown that Ting's method is also applicable to 2-chloroprocaine[1] and 2-chloro-4-aminobenzoic acid (*3*). Ting's method was utilized in the study of the chemical kinetics of the alkaline and enzymatic hydrolysis of procaine and chloroprocaine reported in this paper.

Bullock (*4*) demonstrated the instability of alkaline-buffered procaine solutions and measured the rate of decomposition of procaine at various pH's and temperatures. Although no actual mention is made in his paper of the kinetics of the reaction, the data presented seem to indicate that the alkaline hydrolysis of procaine is a first or second order reaction.

To study the alkaline hydrolysis, solutions containing around 4×10^{-4} moles/l of procaine or chloroprocaine and 7×10^{-4} moles/l NaOH were incubated at

TABLE 1

THE RELATIONSHIP BETWEEN TIME AND THE QUANTITY OF PROCAINE AND CHLOROPROCAINE HYDROLYZED IN ALKALINE MEDIA

Time (min)	Quantity procaine hydrolyzed (moles/l × 10^5)			Quantity chloroprocaine hydrolyzed (moles/l × 10^5)		
	Exp 1	Exp 2	Exp 3	Exp 1	Exp 2	Exp 3
30	5.2	8.0	7.9	12.0	13.2	9.4
60	10.3	12.8	13.1	21.2	21.8	16.4
90	16.4	17.4	17.5	27.2	27.5	22.0
120	20.1	21.8	21.8	30.6	30.3	25.2
150	24.1	25.3	24.6	32.1	32.2	27.8
180	27.2	28.5	27.2	33.5	33.7	29.7
210	—	31.0	29.5	—	34.3	30.7
240	—	32.8	32.8	—	34.6	32.0

[1] The chloroprocaine and the 2-chloro-4-aminobenzoic acid were supplied through the courtesy of L. Reiner, of Wallace and Tiernan Products, Belleville, N. J.