hibited similar activity but the dipropionate was only about one-half as effective. Estrone was found to be much less effective than estradiol. The effective daily dose of 9 estrogens is given in Table I.

It will be noted that the estrogens differ greatly in their ability to stimulate duct growth. Whether or not the restricted feeding regime decreases the mammary gland response to estrogen cannot be determined in the growing male rat. Trentin and Turner(3) however, have shown that as the food intake decreases, the amount of estradiol benzoate required to produce a minimum duct growth response of the mammary glands of male albino mice is considerably and proportionately increased. Our results contrast markedly with those of Astwood *et al.*, who reported that the daily injection of 5 μg of estrone for 14 days into young rats on a restricted diet caused no duct extension whatsoever.

Summary. A method was developed whereby it is possible to use the immature male rat to compare estrogens for their ability to stimulate mammary duct growth. Nine estrogens were compared and, in increasing order of effectiveness, they were: dimethyl ether of diethylstilbestrol and dimethyl ether of hexestrol; estrone; monomethyl ether of diethylstilbestrol; estradiol dipropionate; estradiol benzoate and estradiol; and, diethylstilbestrol and hexestrol.

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4. Astwood, E. B., Geschickter, C. F., and Rausch, E. O., *Am. J. Anat.*, 1937, v61, 373.

Normal Discontinuity of Progression of Dental Caries.* (17656)

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When appraising the presumed efficacy of a specific agent to prevent tooth decay, it is common practice to note the length of time during which the subject remains free from caries advance, without regard for the possibility that non-advance may be encountered without the use of any imposed regimen. If tooth decay normally is an intermittent process, as determined through clinical or roentgenologic examination, then one may expect non-advance to be evident at times regardless of the agent being tested. It becomes important to set up bases for prediction as to the likelihood of such non-advance and its probable duration.

A previous publication has reported that intermittency of caries progression had been noted among children being seen recurrently as patients in a dental clinic(1). Because dental therapy in itself may be expected to modify the progression of tooth decay, it was desirable to determine the intermittency of caries advance among a population for whom dental therapy was not being provided. We have done this in a state-controlled custodial institution, using teen-aged children as sub-

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1. Boyd, J. D., and Cheyne, V. D., *J. Pediat.*, 1946, v29, 157.

TABLE I.

Characteristics of Incidence and of Advance of Dental Caries During a Two-year Period Among 212 Teen-aged Subjects Living Under Standard Conditions in a Custodial Institution.

			Duration of non-advance of tooth decay (months)									
			(a) Longest consecutive period					(b) Aggregate duration of non-advance				
	Initial caries incidence: No. of DMF surfaces*	Avg annual caries increment: new DMFTS* per annum (for %ile rating total increment)	All subjects	In terms of initial extent of caries:		In terms of annual caries increment rate:		All subjects	In terms of initial extent of caries:		In terms of annual caries increment rate:	
				Lowest quartile	Highest quartile	Lowest quartile	Highest quartile		Lowest quartile	Highest quartile	Lowest quartile	Highest quartile
Mean value	8.4	2.75	9.7	11	9	13.4	6.8	11.3	11.5	11.6	14.6	8.2
Decile and quartile distribution:												
10th	1	1	3	5	0	5	0	0	3	0	5	0
20th	3	2	5	6	5	6	5	6	6	5	6	5
25th	4	3	6	6	6	6	5	6	6	6	10	6
30th	4	4	6	6	6	7	6	6	6	6	11	6
40th	5	5	6	6	6	11	6	10	11	9	13	6
50th	7	6	7	11	6	12	6	11	11	11	17	7
60th	8	6	11	11	7	17	6	12	12	12	17	10
70th	9	7	12	12	12	18	7	15	14	14	18	11
75th	11	7	15	17	14	18	7	17	17	17	23	12
80th	11	8	17	18	17	23	11	17	18	17	23	12
90th	15	10	17	23	17	23	15	19	23	17	23	15
100th	52	26	24	23	24	24	18	24	23	24	24	18

* DMF implies decayed, missing or filled; TS implies tooth surfaces

jects. Minimum amounts of dental care had been supplied to these subjects in the past, and only emergency treatment was given during the course of this study. During the period of study relating to this report, no regimentation or alteration of standard conditions of institutional life was employed.

Two hundred twelve teen-aged children (102 boys, 110 girls) were given serial dental examinations from July, 1946 to July, 1948, with at least 23 months lapse between initial and final examination for each subject. Painstaking clinical examinations were recorded and supplemented with roentgenograms of the teeth. The data were tabulated to indicate the number of newly affected surfaces of teeth in each mouth for each interval between examinations, as well as the duration of periods of non-detectable advance of caries. The findings are summarized in Table I.

Advance of caries occurred among most of the subjects during the 2-year period of study: the mean annual increment of newly affected tooth surfaces was 2.75. In 90% of the subjects, periods of non-advance were interspersed among periods of advancing caries. One-third of the group had consecutive periods of at least one year during which caries did not advance in detectable degree; in more than 80% of the group there were consecutive periods of 6 months or longer without advance. In 60% of the group, no advance was noted for an aggregate of 8 months or longer during the 2-year observation period. When the experimental group was divided into quartiles in terms of the relative net rate of progression of tooth decay, it was found as one would predict, that the quartile with the least progression of caries had had the highest mean consecutive and aggregate duration of non-advance of caries. But among the quartile with the greatest advance of caries, the median aggregate duration of non-advance was 7 months; the middle one-half of values for that quartile ranged from 6 to 12 months. Comparison also has been made between the duration of non-advance and the number of tooth surfaces affected by tooth decay at the initial observation. No difference was discernible between the quartile with the least initial extent of decay and the quartile with the most; the median duration of non-advance was the same for the two contrasted quartiles: 11 months. Likewise the range of values for the middle one-half of the subjects from each quartile was the same: from 6 to 17 months.

Thus one would have been misled if he had attempted to correlate the incidence or duration of non-advance of tooth decay with any imposed regimen. It seems obvious that in any test study wherein conclusions are to be based on the duration of non-advance of caries, the degree of non-advance in a non-controlled population of like attributes should be determined for reference.

Conclusions. One may assume either that the progress of tooth decay is discontinuous, or that there are periods of latency prior to the time when a carious area becomes detectible either to clinical or to roentgenologic examination.

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Effect of Piperidylmethyl Benzodioxane on the Cold Pressor Response.* (17657)

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Wolf and Hardy(1) have shown that the afferent limb of the cold pressor response is mediated through nervous pathways. Reiser

* Part of thesis to be submitted by B. Berris to the faculty of the Graduate School of the University of Minnesota in partial fulfillment of the requirements for the degree of Master of Science in Medicine.

1. Wolf, S., and Hardy, J. O., *J. Clin. Invest.*, 1941, v20, 521.