traction procedure from a strain of oral *Veillonella*. Lipid-carbohydrate-protein products prepared by same procedure from viridans streptococci, or a solution of physiologic saline did not produce this reaction in either tissue. Lesions obtained in oral mucosa with each substance were grossly and histologically similar to lesions obtained with the same material in skin.

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Effect of Adrenalectomy and Cortisone on Eruption Rate of Incisors in Young Female Albino Rats.* (25915)

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Schour and Van Dyke(1) reported that rate of eruption of the continuously erupting rat incisor became progressively slower and finally ceased in hypophysectomized rats. Administration of growth hormone produced only a slight increase in rate of eruption of such animals but had no effect in intact rats. Baume *et al.*(2) observed that thyroidectomy in young rats produced a reduction in rate of eruption although not so severe as that produced by hypophysectomy. These authors (3) also reported that simultaneous administration of thyroxin and growth hormone in hypophysectomized rats brought about a restoration of the tissues of the incisor and an increase in rate of eruption. Schour and Rogoff(4) observed a disturbance in calcification of dentin in the rat incisor following adrenalectomy; however, due to the short survival period, rate of eruption was not measured. Leroy and Domm(5) reported that cortisone produced precocious eruption of incisors in young rats when administered to pregnant mothers, to the fetus *in utero*, or in newborn shortly after birth. Domm and Marzano(6) found that cortisone also accelerated rate of eruption of incisors when administered in sexually mature rats. Since adrenal function is depressed following hypophysectomy and since the rate of eruption of the rat incisor has been shown to be stimulated by adrenal cortical hormones we were interested in determining the effects of adrenalectomy and of cortisone and salt therapy on this rate in young female adrenalectomized rats.

Procedures. Twenty-four female rats, of the Sprague-Dawley strain, bilaterally adrenalectomized at 39 days of age, and 12 unoperated controls of the same age were studied. Twelve operated and 6 normals received daily subcutaneous injections of 1.5 mg of cortisone,‡ 6 days per week for 6 weeks. The remaining animals served as operated and intact controls. All controls received injections of physiological saline while adrenalectomized controls in addition received 1% NaCl in drinking water. At the end of the sixth week all treatment, daily injections and NaCl in drinking water was discontinued and observations continued for a second 6-week period.

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‡ Cortisone (Cortone Acetate) generously supplied by Merck, Sharp & Dohme, Division of Merck & Co., Philadelphia, Pa.

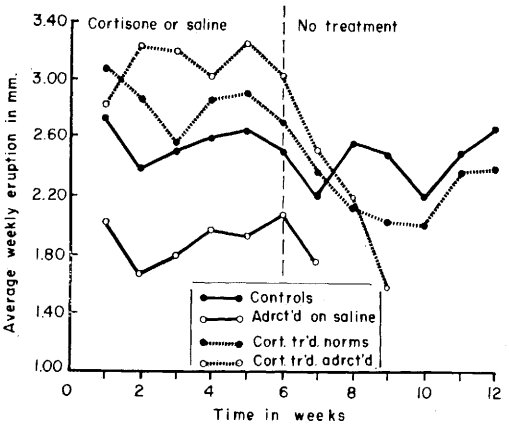

FIG. 1. Effect of adrenalectomy and cortisone on rate of eruption of maxillary incisors in young rats.

All animals were maintained on a diet of Purina Dog Chow pellets and water or water with NaCl *ad libitum*. Weekly eruption rates of upper incisors were determined by a modification of the method(2) previously described by Schour and Van Dyke(1). Eruption rates of adrenalectomized rats surviving throughout the 6-week period following cessation of maintenance treatment (3 cases) were eliminated from data and calculations. The t-test was employed to evaluate differences between the means of normal controls and each of the experimental groups, for each week, and for each of the 2 six-week periods. Differences were considered significant at the 5% level of probability.

Results. The results are shown graphically in Fig. 1. Eruption rates of adrenalectomized, saline-maintained, rats showed a significant decrease (−26%) by the end of the first week and a maximum decrease during the second (−30%) and third (−32%) weeks when compared with controls. During the fourth to sixth weeks there was a slight increase though the rates were still significantly below normal. Average weekly eruption rate for the first 6 weeks was 1.84 ± 0.34§ mm (56 observations; P = .001), which was 28% below the average of controls, 2.56 ± 0.24 mm (36 observations) and highly significant. Following cessation of treatment eruption rates declined to the level observed during the first 3 weeks after operation. Average survival time following cessation of saline maintenance in adrenalectomized animals was 6.4 ± 3.2 days, with only one animal surviving the remainder of the second period in apparent good health. Body weights of adrenalectomized rats showed weekly increases equal to those of normal controls up to the third week but thereafter weekly increases were less pronounced so that by the end of the sixth week of treatment body weights were 11% below those of normal intact rats. Following cessation of treatment this difference increased to 20% as the animals succumbed of adrenal insufficiency.

Cortisone produced an increase in rate of eruption of adrenalectomized rats which was statistically significant by the second week and continued so for the remainder of the 6-week period. Average rate of eruption for the period of cortisone treatment was 3.08 ± 0.38 mm (60 observations; P = .001) which was 21% greater than that of untreated controls and highly significant. Cessation of treatment was followed by a sharp decline in rate of eruption. Average survival time following cortisone withdrawal was 22.1 ± 5.3 days with 2 rats surviving the remainder of the second 6-week period. Cortisone administration produced a severe reduction in body weight so that by the end of the first 6-week period adrenalectomized rats were 40% below the average for untreated intact controls and 29% below the average of untreated adrenalectomized controls.

Cortisone produced a slight increase in rate of eruption of intact rats which proved to be statistically significant only during the second week (+20%). Average eruption rate for the period of treatment was 2.82 ± 0.30 mm (36 observations; P = <.2) which was 10% greater than that of untreated controls but not significant. Following cessation of treatment eruption rates declined below those of normal controls and continued at a slightly reduced rate for the remainder of the second 6-week period. This reduction was found to be statistically significant during the 8th, 9th and 12th weeks. However, average rate for the second 6-week period did not differ significantly from the average for controls; 2.21

§ Standard deviation.

± 0.32 mm (36 observations; P = >.1) compared with 2.46 ± 0.27 mm (36 observations) for controls. Cortisone administration resulted in a reduction of body weight to 14% below that of untreated controls by the end of 6 weeks which was quickly regained following cessation of treatment. There was no significant difference at autopsy, 6 weeks following cessation of treatment, between weights of the adrenals of treated and control rats.

Discussion. It has been reported(1,3) that hypophysectomy in the rat produces a severe retardation in rate of eruption of the incisors and that growth hormone is ineffective in restoring the normal rate. The reduction in rate of eruption observed following thyroidectomy in the rat is not so severe as that reported for hypophysectomy(3). This would indicate that factors other than absence of thyroid hormone may be involved. The depression observed in eruption rate following adrenalectomy and the stimulation in rate noted following cortisone administration indicates that the adrenal must be considered in any theory involving a hormonal control of incisor eruption rate. Whether the cortisone-induced acceleration in eruption is due to a direct stimulation of the incisor, as has been reported for thyroxin(3), or whether it is due to some other factor or factors remains to be determined.

Summary. Adrenalectomy in young female rats resulted in a significant reduction in rate of eruption of incisors which averaged 28% below that of unoperated controls during 6 weeks of measurement. Daily administration of cortisone produced a significant acceleration in rates of adrenalectomized rats to levels above that of nontreated intact controls. It is suggested that the severe reduction in rate of eruption of the continuously erupting incisor observed by others following hypophysectomy is due to loss of effect of both thyroid and adrenal hormones.

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Specificity of Allergic Reactions. II. Azoproteins in the Anamnestic Response. (25916)

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Delayed and Arthus hypersensitivities differ in their immunologic specificity(1,2). Guinea pigs sensitized with 5-15 μg of a conjugate of picryl-hen egg albumin in Freund's adjuvant (without mycobacteria) develop delayed hypersensitivity and ultimately circulating antibody to the whole conjugate or the protein moiety, but only circulating antibody to the hapten. Delayed hypersensitivity can differentiate widely different antigens, such as hen egg albumin from bovine gamma globulin, but cannot readily distinguish a conjugated protein from the same unconjugated protein. Antibodies can differentiate between minor chemical differences in antigens(3). For example, an antigen composed of a protein diazotized to one acid radical, when injected into animals, formed antibodies which did not cross-react with the same protein diazotized to a different acid radical. An immune serum to para-aminobenzoic acid-horse serum formed precipitates with the homologous antigen, but not with horse serum conjugated to the heterologous haptens such as