equal intensity, and the spot of blue dye appeared somewhat more rapidly in animals challenged with the soluble antigen. When guinea pigs were sensitized with 0.03 μg AbN, positive reactions were not obtained following challenge with specific precipitate.

The supernate recoverable from recentrifuged suspensions of specific precipitate did not contain sufficient antigen to cause reaction at skin sites. Skin sites injected with 1/10 dilutions of normal rabbit serum did not show dye localization when animals were challenged with specific precipitate and dye, nor did injection of dye and uncombined antibody result in dye localization at test or control sites.

Discussion. Our data demonstrate that the constituents of specific precipitate, antigen and antibody, retain their ability to cause specific biologic reactions. Reactivity of antibody in antigen-antibody complexes has recently been demonstrated for passive anaphylaxis locally(3) and is now established for systemic anaphylaxis as well. It is noteworthy that the same specific precipitate, containing minute amounts of antigen, was able to elicit local anaphylaxis in passively sensitized animals.

Ability of constituents of specific precipitate to react like either antigen or antibody alone may be accounted for, in part by studies which indicate that at equivalence the available combining sites on both antigen and antibody are not fully saturated(4,5). In addition, some dissociation of antigen-antibody complex may occur. Two factors may be related to the apparent quantitative differences between previous(3) and present studies. In this report rabbit antibody was used for local sensitization. Sensitization of guinea pig skin with complexes of rabbit antibody prepared in extreme antigen excess had not been demonstrated in contrast to results with guinea pig antibody complexes. Furthermore, the intravenously injected precipitates may fail to reach sites accesible to soluble antibody to elicit specific manifestations of anaphylaxis in the guinea pig.

Summary. The capacity of washed specific precipitate to sensitize guinea pigs so that a subsequent injection of antigen elicits systemic anaphylaxis is demonstrated. Capacity of specific precipitate to act as an antigenic challenge and elicit passive cutaneous anaphylaxis is also shown. Quantitative relationships of the amounts of antigen and antibody involved are noted.

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Influence of Archaic Reproduction Cycle on Sensitivity Response of Rat Dorsolateral Prostate to Sex Hormones.* (24732)

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Previous studies have shown that Zn^{65} uptake by the rat dorsolateral prostate (DLP) reflects high natural zinc content of the gland (1). It was also demonstrated that amount of Zn^{65} taken up by DLP is under hormonal control(2), and represents a functional state of the gland(3). Recent publication conducted throughout the years 1955, '56 and '57 revealed distinct seasonal variations in capacity of DLP to concentrate Zn^{65}. This seasonal pattern was characterized by 2 periods of high Zn^{65} uptake, namely, during February-March

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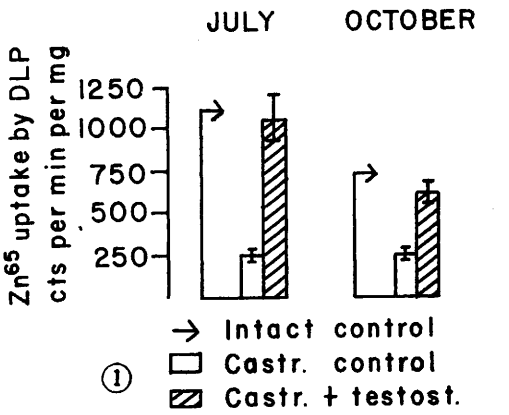
and June-July. Since these periods of peak glandular activity coincided with known breeding seasons of many wild rodents, it was postulated that seasonal pattern of Zn^{65} uptake represented an archaic reproductive cycle inherent in the male laboratory rat(4). The present study was undertaken to ascertain the influence of this archaic breeding cycle on sensitivity response of DLP to administered sex hormones.

Methods. Studies of sensitivity response of DLP to sex hormones were undertaken during 2 periods of the archaic reproductive cycle, namely, during period of high glandular activity (July) and during a phase of low glandular activity (October). Using 16- to 20-week old male Wistar rats sensitivity response was studied in castrates administered 100 μg of testosterone propionate† and in hypophysectomized rats administered 2 units of chorionic gonadotrophin‡ or 200 μg of testosterone propionate. In castrates administration of hormones was begun on day of surgery and continued daily for 6 days. In hypophysectomized rats injection of hormones was begun on 3rd day post-surgery and continued daily for 6 days as outlined previously(3). On 6th day of hormone treatment Zn^{65} was administered by intracardiac injection of 0.04 μc g. Twenty-four hours later Zn^{65} uptake by DLP was determined by technics described earlier (4). Zn^{65} uptake studies were conducted simultaneously in intact, castrated and hypophysectomized controls. From 6 to 8 animals were used for each experimental group. Identical laboratory conditions were maintained during July and October experiments.

Results. Fig 1 shows that when Zn^{65} uptake by DLP of the intact control rat was high (July), the castrated rat administered testosterone, responded with high Zn^{65} uptake. This is in contrast to low Zn^{65} uptake response in the castrate administered androgen when Zn^{65} uptake of intact control animal



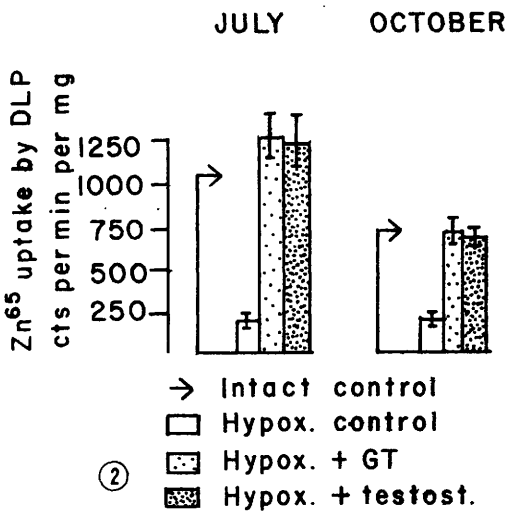


FIG. 1. Seasonal variations in Zn^{65} uptake by DLP of castrated rats administered 100 μg of testosterone propionate. S.E. of mean are shown.

FIG. 2. Seasonal variations in Zn^{65} uptake by DLP of hypophysectomized rats administered 2 units of chorionic gonadotrophin and 200 μg of testosterone propionate. S.E. of mean are shown.

was low (October). The difference in response between July and October was statistically significant ($P < 0.01$). Fig. 2 illustrates that the hypophysectomized rat administered chorionic gonadotrophin or testosterone responded with high Zn^{65} uptake in July and low Zn^{65} uptake in October. The difference in response between July and October was statistically significant ($P < 0.01$ for gonadotrophin study and $P < 0.05$ for testosterone study).

Discussion. The many variables confronting the wild rodent, such as extremes of cli-

† Testosterone propionate was generously furnished by Schering Corp. Each daily dose was administered 0.2 ml subcutaneously in sesame oil.

‡ Chorionic gonadotrophin was generously furnished by Parke Davis & Co. Each daily dose was administered subcutaneously 0.2 ml in physiological saline.

mate, availability of food and presence of predatory animals, have been instrumental in producing cyclic habits of reproduction(5). In animals with restricted breeding seasons it is known that there is a seasonal variation in sensitivity response of the reproductive organs to sex hormones(6). In the domesticated laboratory rat, however, which is protected from many variables besetting the wild rodent and is thus able to breed year-round, it would be anticipated that sensitivity response of sex accessory glands to hormones would be relatively uniform throughout the year. On the contrary, our experiments using Zn^{65} uptake of DLP, as indicator of glandular function, have revealed variations in sensitivity response of the gland to sex hormones at different times of year, correlating with the pattern of the archaic reproductive cycle(4). Furthermore, our data demonstrated that these variations in sensitivity response of DLP are inherent in the gland itself, since the same seasonal variations were noted even in the absence of pituitary. In use of hormones experimentally and therapeutically, it appears that cognizance of seasonal variations in sensitivity response would do much to reduce variability of results.

Summary. Studies using Zn^{65} uptake by DLP as indicator of glandular function have demonstrated seasonal variations in sensitivity response of castrated and hypophysectomized rats to administered sex hormones. These variations in sensitivity response coincide with the pattern of the archaic reproductive cycle found in intact non-breeding male laboratory rat.

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Role of Vi Antigen in *Salmonella paratyphi* C Infections. (24733)

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The dominant role of Vi antigen in determining virulence of *Salmonella typhosa* for mice has been demonstrated by Felix and Pitt(1). This antigen is also highly effective in affording mice active and passive protection against *S. typhosa*(1-3). However, whether Vi antigen of *Salmonella paratyphi* C bears the same relationship to infection by and protection against *S. paratyphi* C in mice has not been fully determined. Kaufmann(4) has shown that an antiserum produced against living Vi-containing *S. paratyphi* C passively protected mice against the mouse-virulent Ty2 strain of *S. typhosa,* thus indicating the close immunological identity of the Vi antigen of *S. typhosa* and *S. paratyphi* C. In addition, Kaufmann(4) assumed that Vi antigen was of no importance in determining virulence of *S. paratyphi C,* since *S. paratyphi* C and *Salmonella hirschfeldi,* which differ antigenically only in absence of the Vi antigen in the latter organism, were of equal virulence. This assumption, nevertheless, did not take into account the fact that *S. hirschfeldi* and *S. paratyphi* C studied by Kaufmann, were obtained from different sources. A more critical evaluation of the role of Vi antigen as virulence factor in *S. paratyphi* C infections of mice is best accomplished by comparison of a Vi negative variant with its Vi containing parent strain. It is our purpose to determine relationship of the Vi antigen of *S. paratyphi* C