of heat and light, an effect just the opposite of that which the same factors produce in the normal skin.

Finally it may be mentioned that when all stimuli are removed the resulting condition of the pigment cells does not differ greatly in normal and albinous larvæ. A study of animals which have recently died in the aquaria, or have been purposely killed, shows that the pigment cells in both normal and albinous individuals come to approximately the same condition, which is one of partial expansion of the xantholeucophores and an expansion of the epidermal melanophores greater than can be produced by the action of light or heat or other experimental means in living animals. The reaction of the xantholeucophores in albinous and normal larvæ is also identical when subjected to all the anesthetics tried by the writer (paraldehyd, chloretone, and ethylurethan). In both they are greatly contracted.

45 (1420)

Upon the experimental exchange of skin transplants between normal and albinous larvæ.

By **P. E. SMITH** (by invitation).

[*From the Anatomical Laboratory, University of California.*]

If sufficient speed is exercised, an exchange of the middorsal area of skin can be successfully accomplished between two frog larvæ, a normal one and its albinous mate. Since there are striking and constant differences between two such larvæ as concerns both classes of superficial pigment cells, a highly interesting opportunity to test the influence on such cells of a new host was presented. Four such successful skin exchanges were accomplished and in all instances definite and constant changes in the condition of the xantholeucophores were produced as a result of the exchange. The changes, which are well under way in an hour after such an experiment and which have yielded harmonious results, would appear to be of great value in the interpretation of the change in the physiological state of these cells which albinism produces. It will be recalled that the corial xantholeucophores

in hypophysis-free albinos present a greatly expanded condition and that this expanded condition is not amenable to most experimental influences (temperature and light) although anesthetics affect it. An exactly opposite physiological state of these cells, *i. e.*, a contracted condition, usually occurs in the normal larvæ. *Successful skin exchanges altered the state of the xantholeucophores to correspond to that characterizing the new host.* The change is usually observable within fifteen minutes and is invariably complete within four hours. Inasmuch as the change is much more pronounced than that exhibited by animals of weakened vitality or immediately after death, it can hardly be referable to merely a transient condition of weakened vitality. More especially is this the case, since the changes taking place terminate only when the state of the transplanted xantholeucophores fully corresponds to that characterizing the new host.

The rapidity with which these changes take place would appear to establish the fact that the expanded physiological state of these cells in albinos is produced by the direct action of a hormonal substance and not by influences mediated through the nervous system inasmuch as nervous connections are completely severed, and it would be difficult to conceive of their reëstablishment by the time these changes are manifested.

46 (1421)

On the effects of ablation of the epithelial hypophysis on the other endocrine glands.

By **P. E. SMITH** (by invitation).

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When the epithelial hypophysis is ablated in early embryonic stages in the frog, the resulting larvæ suffer in a characterisic way from defects in their pigment system. An equally definite set of alterations is produced in the other glands of internal secretion. Both Allen and the writer have reported the underdevelopment of the thyroid gland to which may in turn be attributed the failure of metamorphosis in these larvæ. The posterior lobe of the hypo-