

fluence on the determination of the cranio-caudal axis of the wing for rotations of 180°; (2) in the present experiments, the normal qualitative and quantitative relationships between apical crest and the underlying mesenchyme remain unchanged after 180° rotation of the distal part of the wing anlage; (3) when the distal part of the anlage rotated 180° round the proximo-distal axis of the bud is grafted to the somite region, supernumerary segments do not develop; the normally structured wing which forms from the graft shows merely an inversion of its ventrodorsal axis.

In conclusion, the organogenetic changes which take place in the distal part of the wing anlage in consequence of its 180° rotation *in situ* seem to depend on influences spreading from the proximal materials of the wing bud; in other words, the development of the still undetermined (or incompletely determined) distal mesenchymal territories would be governed by the already well determined proximal territories. This assumption is further supported by the following observation: supernumerary segments develop from the 180° rotated distal part of the wing anlage when the latter is grafted over the *lateral* surface of the base of the wing bud freed of its epidermal covering, viz. over the territories of the shoulder and the proximal part of the arm.

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Résumé

Les résultats de diverses séries d'expériences, exécutées sur l'ébauche de l'aile d'embryon de poulet aux stades 19-24 suivant HAMBURGER-HAMILTON, permettent d'envisager l'existence d'influences organogénétiques provenant des territoires proximaux du mésenchyme du bourgeon qui régent le développement des territoires distaux.

A Transplantable Fibroma of the Skin in the Newt *Triturus taeniatus*

Whereas in fishes several cases of fibroma have been described¹, we know only two in amphibians, viz. a fibroma of the mouth in the frog *Rana esculenta*² and a subcutaneous fibroma in the Japanese giant salamander *Megalobatrachus maximus*³. Concerning the development of these tumours, no data are given in the pertaining papers. We have personally observed a multiple fibroma of the skin in six adult individuals of the newt, *Triturus taeniatus*, viz. in four males and two females from the same litter⁴. As in all cases some small or very small nodules were present in the vicinity of the tumour, which invariably consisted of one or more circumscribed tumours, the first developmental stages could be studied.

When the sections of these small and very small nodules were stained with PAP's ammoniacal silver method, as modified by MITCHELL and WISLOCKI⁵ (counterstain

¹ H. G. SCHLUMBERGER and B. LUCKÉ, *Cancer Research* 8, 657 (1948).

² L. VAILLANT and A. PETTIT, *Bull. Mus. Hist. nat. Paris* 8, 301 (1902).

³ E. SCHWARZ, *Z. Krebsforsch.* 20, 353 (1923).

⁴ A. STOLK, *Proc. Akad. Sci. Amst.* (in press).

⁵ A. J. MITCHELL and G. B. WISLOCKI, *Anat. Rec.* 90, 261 (1944).

paracarmine), particular structures of the basal membrane were visible in the form of nodular swellings. A preliminary investigation showed that these swellings in the tumour region were strongly enlarged and would for this reason probably play a certain role in the development of this tumour.

The small nodular swellings of the basal membrane corresponded satisfactorily with the similar structures described in the newt, *Triturus viridescens*, in which an adepidermal reticular network had been observed⁶. Also in *Triturus taeniatus*, an adepidermal reticular network appeared to be present, which had a structure identical to that of the corresponding network in the skin of *Triturus viridescens*. It is composed of nodules from which radiate fine fibrillae, which are arranged tangentially to the epidermis. These nodules are probably formed from the cytoplasm of the basal cells of the epidermis and in their turn give rise to the formation of fibrils. The fibrils of the nodular swellings are closely connected with the reticulum of the dermis and with the basal cells of the epidermis.

In the development of this fibroma four stages could be distinguished, viz.:

- (1) Enlargement of the nodular swellings of the adepidermal reticular network.
- (2) Continued enlargement of the nodular swellings and concentration of fibroblasts in the vicinity of the swellings.
- (3) Formation of new fibrils from the enlarged nodular swellings, a densely structured network thus being formed round the fibroblasts.
- (4) Fusion of the concentrated masses of fibroblasts. The impression is gained that the enlarged nodular swellings must be considered as an induction centre, which, with the aid of chemical substances, cause a local concentration of the fibroblasts.

Following this investigation transplantation experiments were performed with skin fibromas of 19 tumour-bearing newts, obtained by breeding the normal animals of the first litter. In these experiments, small pieces of tissue, from the vicinity of the small tumours in which an enlargement of the nodular swellings of the adepidermal reticular network could already be expected, were transplanted in a tumour-free region of the same animal. In 13 of the 19 cases, a distinct tumour at the location of the transplantation developed after about 3 weeks, the same developmental stages being observed. The histological examination of the six negative cases revealed that the transplanted material had been almost completely resorbed.

On the strength of the rather high frequency of this fibroma of the skin in *Triturus taeniatus*, the tumour must probably be considered as a species-specific tumour according to SCHLUMBERGER⁷.

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Zusammenfassung

Beschreibung eines transplantierbaren Fibroms der Haut im Streifen- oder Teichmolch *Triturus taeniatus*, bei dessen Entstehung das adepidermale retikuläre Geflecht eine bedeutende Rolle spielt.

⁶ M. SINGER and J. S. ANDREWS, *Anat. Rec.* 109, 346 (1951); *Acta anat.* 28, 313 (1956).

⁷ H. G. SCHLUMBERGER, *Cancer Research* 17, 823 (1957).