STANFORD UNIVERSITY
STANFORD, CALIFORNIA

DEPARTMENT OF BIOLOGICAL SCIENCES

May 14, 1953

Dr. Viktor Hamburger
Department of Zoology
Washington University
Saint Louis, Mo.

Dear Viktor:

Although I knew you were sure to be elected, I wasn't able to attend the meetings of the Academy, and it was only a few days ago that I heard indirectly of the actual results. If it is not presumptuous to do so, as I feel it is, please let me congratulate you. It will now be a better Academy!

It was good to see Yamada when he stopped here on his way home, and I enjoyed very much meeting his wife and daughter. I understand they lived with you for a time, and they are such pleasant people that I imagine you miss them now that they have gone. They told me of the operation your wife had undergone, and I am anxious to hear that the results were good. I know I don't have to tell you how sorry I am that you have had such a difficult time.

I assume that you are attending the Growth Symposium, and I wish very much I could see you there, but I am afraid the trip is more than I can manage. How did you feel about the program as it finally materialized?

Niu and I - and particularly Niu - have gotten some rather interesting results on "induction". I believe I told you that because of the success we had had in handling isolated propigment cells singly or in small numbers, I hoped to use the same methods in trying to study inductive relationships in small cell populations. Since preliminary results with dissociated gastrula ectoderm and chordamesoderm cells were not too encouraging because of technical difficulties, we shifted to the use of extremely tiny pieces of gastrula ectoderm and chordamesoderm, isolating them together. With further modification of the procedure, Niu finally introduced very small pieces of gastrula ectoderm into drops of physiological salt solution in which larger pieces of chordamesoderm had been cultivated for a period of a week or so. To our surprise, or at least to mine, the ectoderm pieces showed remarkable differentiation. In the better cases, even when the ectoderm piece lies at the opposite side of the drop from the chordamesoderm explant, it delivers a large outgrowth of pigment cells and nerve fibers, that is literally indistinguishable from a neural crest outgrowth. Other tissues, such as endoderm, are completely without effect on the ectodermal explants. The physical presence of the chordamesoderm explant isn't necessary, since if "conditioned" medium is drawn off from a chordamesoderm culture and a piece of ectoderm placed in it we often get the same results. In some cases the ectoderm pieces also give rise to myoblasts, but this has been observed

only when quite old conditioned medium is used, that is from quite old cultures of chordamesoderm, or in medium that has been conditioned by explants of somites from tailbud stages.

For the past three months I have been spending almost all my weekends on another project that has been a lot of fun. The owner of a large ranch in Sonoma County, north of here, has given me the use of a very nice cabin for use as headquarters for some studies on artificial hybridization of Triturus rivularis and **Triturus** torosus. I have selected a half-mile stretch of rivularis stream, and am trying to replace the native population with rivularis-torosus hybrids. We have about 25,000 hybrids developing in the cabin, and as they hatch we are introducing them into this length of stream after first removing all of the rivularis eggs deposited there. It has turned out to involve quite a bit of work, but after repeating this for two or three years it will be interesting to follow the consequences. One ulterior reason for undertaking this project and choosing this particular site is that it takes me into what I consider almost the most beautiful part of California during the spring months, and I might also point out in passing that the streams there contain their share of trout.

My apologies for running on at such length.

With very best wishes and regards,

Sincerely,

Vic

Victor Twitty

VCT:gz