Beerstecher JUN 19 1969

June 17, 1969

Herman W. Lewis, Head
Cellular Biology Section
National Science Foundation
Washington, D. C. 20550

Dear Dr. Lewis:

In correspondence with Dr. J. Lederberg you have become aware that I am also concerned, to some extent, over how we can contribute in preserving some of the materials of vanishing wildlife we process.

In studying comparative aspects of mammalian cytogenetics literally hundreds of different species pass through my hands. Next week we will for instance establish a tissue culture of the only Sumatran rhino in captivity (in Copenhagen, it is estimated that only 130 exist altogether). We have currently in culture gray whale, and many other unusual species. Many of these are doomed whether we like it or not. In fact, this is partly the reason why Dr. T. C. Hsu (Houston) and I endeavor to produce an annual addition to our 'Atlas of Mammalian Chromosomes'.

Once we have satisfied our immediate needs, we usually let the culture die, for we haven't the funds or interest to keep them going. Many of the samples are collected with a great deal of effort and some will never be obtained again.

As Dr. Lederberg indicates, although present methodology does not permit to reap all the data needed (DNA sequence, etc.) eventually, there will come a day when we will be asking how to get such materials. It would for instance be nice to know the chromosome structure of the mammoth, or in line with my interests, that of the glyptodon.

I believe that an attempt should be made to freeze these active cultures in liquid nitrogen and have them stored, centrally and professionally. Thus, years from now, important evolutionary answers may be answered or even nuclear transplants can be envisaged.

My purpose of writing this letter is to draw attention to this problem and also to the availability of such cultures from a number of sources. Investigators could easily be reached and collaboration achieved through Dr. Hsu's widely disseminated "Mammalian Chromosomes Newsletter'.

How can it be set up, who would finance it? I believe that the material must be collected, frozen and stored by an independent, highly qualified laboratory (e. g. NIH; Type tissue culture lab.) rather than in scattered places. Perhaps a museum should be funded for these purposes. Both T. C. Hsu and I are freezing a few lines for our own purposes (e. g. some hybrids, or animals possessing specific chromosome characteristics)

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but to freeze all would be unmanageable for us, fund-wise, space-wise, and also I don't think it would be proper. For, if I died, my successor might chuck the whole collections. Hence, some central laboratory should take charge of it and I think we must direct our attention to the problem now! Soon it will be too late and currently there are at least enough cytogeneticists establishing such lines to enable relatively easy access to the primary cultures.

Between T. C. Hsu and my laboratory we must process at least 200 different mammalian cultures annually, thus in a span of ten years one could have stored the major segments of mammals and perhaps endeavor to concentrate most on the threatened species. Estimates of costs could probably be obtained from the NIH labs, considering that the initial culture would be supplied without charge.

Finally, I believe that such an effort would "turn on" many zoos. Some are very anxious to make a meaningful contribution to Science and are likely to make skin biopsies available for such purposes.

I take the liberty, in closing, to send three reprints which give some scope of part of the materials collected in one year. Perhaps these will be useful in your further deliberations. I hope that something will come of this and would be grateful for suggestions as to how to proceed.

Sincerely yours,

Kurt Benirschke, M.D.
Professor and Chairman

KB:ghd

Enclosure
CC: Drs. Lederberg (Stanford)
Hsu (Houston)
Hasler (Madison)