

February 14, 1972

Dear Beets,

It was good to get your letter written from Davis with all the news and views of you and Muriel. Yess indeed, I have heard of your return to maize and, it seems, just where you left off. Of course, you never really turned-off the corn plant. It was always lurking somewhere--in the backyard, on the front lawn, or on any other piece of soil that was handy! I am delighted, too, with the direction of your renewed studies. There is good evidence now that your efforts to correct Mangelsdorf's tripartite hypothesis is having an effect. Unfortunately for so many of us, Paul Mangelsdorf lived in a dream world and with total conviction of its reality. I mean this quite literally, and can document it with several experiences I had with him. One of these is responsible for my involvement in tracing the origins of races of maize and for considering the different genomes that have contributed to them (undoubtedly, various teosintes). This involvement commenced with me being in "high dudgeon" but ended with me being in a state of excitement over newly discovered relationships and opportunities for finding new ones. I do wish, however, that your corrective influence had set in earlier. Anthropological textbooks and articles recite Mangelsdorf's tripartite dream, rote for rote. It has been a powerful dream!

From your letter I assume that you may not be aware of the studies of Kato, Almiro Blumenschein and myself aimed at revealing origins, migrations, introgressions, introductions, etc. of maize that has been distributed over the Americas. The data consider chromosome constitutions of individual plants: the location of knobs, their sizes (small, medium, large or very large), the homozygous or heterozygous state at any one location, and any additional information such as presence or absence of B-type chromosomes, Abnormal-10, altered chromosomes, differences in the nucleolus organizers, etc. Kato examined maize from all parts of Mexico and also maize whose seed was obtained from Bill Brown that originated in the U.S., from Indian tribes in the Southwest, Central, and Northern U.S. and from his collections made in the South East. Blumenschein examined maize collected from Northern, Central, and Eastern South America. Initially, I had examined maize from Western South America and some maize from Mexico and Central America plus the Islands. This was followed by extensive examinations of maize derived from Central America and the Caribbean Islands by Longley and Kato. Their mode of collecting data was less useful for our purposes than the more detailed mode later used by Blumenschein and Kato. Some teosintes also were included in these studies. Thousands of plants have been examined and the results are amazingly satisfying. They are now complete enough to be published. I was in Mexico City in January

to arrange with Kato and Blumenschein for their publication. Although Wellhausen has sponsored these studies, he has only recently understood their significance. He is now attempting to arrange with CIMMYT for the publications. The study is worth a review article in some journal having a general distribution. It is unique and the results and conclusions would interest the anthropologist.

Now, about Kato. He told me that he had not discussed his work with you while you were together this past November. He did not wish to talk about this work and his conclusions until he knew of my response to his first draft for publication. It was good. Kato is an exceptionally fine observer of maize and teosinte chromosomes. He is fast and accurate. In drawing conclusions from his maize studies, he became aware of the necessity for obtaining more information on the chromosomes of teosintes derived from various geographic locations. He has a number of sporocyte collections in the deep-freeze waiting to be examined. Also, he needs a Ph.D. and soon. This will be required to obtain a secure job, either with CIMMYT or at the Agr. School. Both Wellhausen and I have contacted Galinat to inquire if it would be possible for Kato to obtain a Ph.D. at the University of Mass. with Galinat as the adviser. Galinat's location is not good for this purpose but they do share a special interest in this one topic. This is important for Kato's future. Galinat's knowledge of chromosomes is distressingly limited but Kato could supply the needed levers at this juncture.

I do not know how to answer your question on long term relationships between maize and teosinte without indicating the degrees of relationships that may be exhibited. There is no Yes or No answer for any one area. Certainly, teosinte and maize in the Central Mesa, in parts of Guerrero and Oaxaca share many parts of their genomes but not all of them. In contrast, the maize from Guatemala does not share its genome with the teosinte from Guatemala. These strange relationships that Kato has found are responsible for his present interest in the teosintes.

It would be like old times to sit and talk about our maize studies. I wish we might do this as now we have much information of mutual interest to exchange.

Very best regards to you and Muriel.

Sincerely,