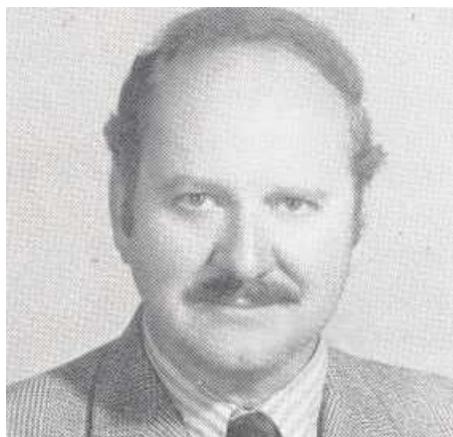
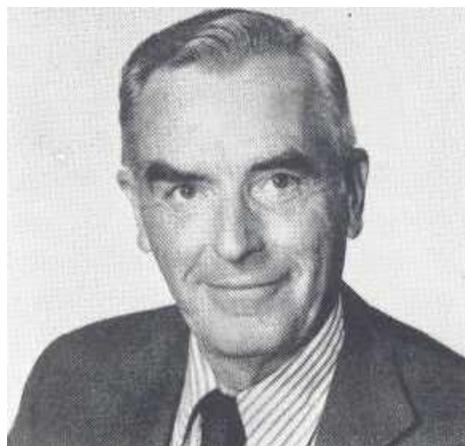


Persea Exploration in Middle America: An Interview and Discussion



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INTRODUCTION

Since 1971, Dr. Eugenio Schieber has been collecting avocados and avocado relatives in Mexico, Central, and South America on our project of searching for resistance to *Phytophthora cinnamomi*. This article provides recollections and photographs of some of these fascinating and valuable collections based on recent discussions between Schieber and George Zentmyer of the University of California, Riverside, who headed the rootstock resistance project from 1950 to 1981.

GAZ: As I recall, you began working on our *Persea* explorations in Latin America in 1971. This project since 1950 has involved a search for native rootstocks resistant to *Phytophthora cinnamomi* and has included many collections. Tell us the details of your involvement in this.

ES: I began explorations in the middle of 1971. I had returned from a trip to Brazil where I spent two months as a consultant in relation to coffee rust. Upon my return to Guatemala, I found a letter from you extending the invitation to join in the project that you started in the 1950's.

GAZ: When did you develop an interest in the field of botany?

ES: On my arrival at the University of Wisconsin in the summer of 1956, Prof. Glen Pound, then chairman of our Department of Plant Pathology, suggested that I take a first course in Plant Taxonomy under Prof. Hugh Illtis. The course included impressive field trips, especially in the area of Devil's Lake, so Prof. Illtis really inspired me very

much hi the study of plant taxonomy right in the Wisconsin mountains. I never dreamed that someday I would apply my minor in botany in the American neotropics.

GAZ: What were some of the highlights during your earlier explorations?

ES: (a) Detection of a population of *P. nubigena* in Nucá, Cuchumatanes.

During February 1972, traveling with an American friend (M.D. from Colorado), we went first to San Mateo Ixtatán far north west of the Province of Huehuetenango into the Cuchumatanes mountain range. We camped out the first day at San Mateo Ixtatán under very cold temperatures, since this town is located at 8,500 feet above sea level. The next morning, with the north wind of the crazy month of February, we drove to Nucá on the road to Barillas. By real accident, at a curve, I met a Mayan native who knew the region well (see photograph). He immediately told us to follow him around a curve of the very rough unpaved road, and here I saw for the first time a dense population of trees (young and old) of *Persea nubigena* (Fig. 1). Our Mayan guide disappeared into the forest, then came back with seedlings that he gathered underneath the trees. The typical oblate seed was immediately observed as well as the rough oak-like leaves that characterize this species. Our guide beamed when standing in front of my cameras.



Fig. 1. First detection of a dense stand (population) of trees of *Persea nubigena*, Nucá, Cuchumatanes (Feb. 72).

(b) Detection of *Persea steyermarkii* in La Lucha, San Marcos.

The same year (1972) in September, I drove alone to San Marcos, in far western Guatemala. Driving down from San Marcos, toward San Rafael al Pie de la Cuesta, I stopped in a rancho (native house) in a rain spreading over the region that afternoon. Roads were in very rough condition, since heavy rains are usual in September in

Guatemala. An older man told me, when the rains stop, my son can take you into the forest and show you what we call "Tepe-aguacate".

After the rains stopped, I went with his younger son into the forest in what is known as "La Lucha" in the Province of San Marcos bordering with Mexico. He showed me three trees of *P. steyermarkii*, one old one and two younger trees (Fig. 2).



Fig. 2. Eugenio Schieber with his native guide near the aldea "El Quetzal", Nucá-Barillas, Guatemala.

Comparing the leaves and fruit of this species and the collections made at Nucá earlier this year (1972), we could see definite differences (Fig. 3). On his next trip, Professor Zentmyer re-checked the identification; and it was also an experience to show the late Wilson Popenoe the leaves of this important species from the forest of Guatemala (Fig. 4).

(c) Detection of G-6 on the slopes of volcano Acatenango.

The detection of the original Matuloj tree (*Persea drymifolia*) that we recorded as G-6, on the slopes of the Acatenango volcano in Guatemala, was in 1971. It was almost accidental. We drove (Dr. Zentmyer, Ed Johnson, and I) with a coffee farmer, señor don Arturo Falla, who wanted to show us "Aguacatillo"—a tree (not in the genus *Persea*) on the slopes of the Acatenango volcano. While we were observing the "Aguacatillo" tree,

a native came close to me and in a low voice told me, "hay otro aguacate allá abajo"...pointing to a lower area in an open field. We all then went down to see that tree...we smelled the leaves with anise scent of *P. drymifolia*.



Fig. 3. Detection of first tree of *Persea steyermarkii* in La Lucha, San Marcos, Guatemala.



Fig. 4. *Leaves and fruit of Persea steyermarkii*, September 1972, (La Lucha).

First, we did not pay much attention to this tree, which was typical of other trees during our explorations. This can be detected in a letter I sent to Ed Johnson on August 14, 1971:

"Just to inform you that this morning I went to the slopes of the Acatenango volcano again. I took some photographs of the two different avocado trees (Fig. 5). The tree below with larger fruit unfortunately had no ripe ones, only green fruit and some flowers starting to come out. It seems that the fruit does not ripen evenly and that small farmers there pick them as soon as they get ripe..."

At that time, we had no notion of the importance of this earlier collection. Of course, inoculation tests made at the Riverside greenhouse lead us to make several trips to the Acatenango volcano to collect fruit and budwood.

GAZ: What about hardships during your explorations?

ES: There were many; among them, these: Running into landslides, especially at the end of our rainy season in Central America and Chiapas during September and October. Spending cold nights at 8,000 to 9,000 feet above sea level. Of course, the open fire made by my Mayan assistant helped very much...with the always present hot, fresh-brewed coffee. I remember one night at Todos Santos Cuchumatanes (a place

that you also visited), Martin and Martincito and I had to drink a whole bottle of local rum to keep warm.



Fig. 5. First detection of important tree, G-6, on slopes of volcano Acatenango (original tree of G-6).

During our trips with Martin Grande or Martincito, we used to camp out and cook our meals out in the open (Fig. 6). On a trip to Tactic in northern Guatemala, it rained all the day; and we returned to the village of Tactic to camp for the night. Martincito could not start any fire because of the rain, so that evening we just had some cold sandwiches, not even having coffee or soup...we just felt miserable. The next morning, under the constant rain, Martincito invaded a native home to prepare there some coffee.

Another hardship, I experienced while collecting on the slopes of volcano Orizaba in Mexico. The night before collecting *P. nubigena* on the slopes of the volcano, while I was camping out in a small Mexican village, two men tried to open my camper at midnight. I was fortunate to have with me one of those big flashlights to scare these two men from the truck.



Fig. 6. *Our Mayan guide preparing lunch near Cenantla, Huehuetenango.*

GAZ: Did you have any sad experiences during your recent years of collecting?

ES: I had two sad experiences, one in Chiapas, Mexico, and one in the central Highlands of Guatemala.

In Mexico, I had a native woman (in her fifties or sixties) as a guide to search and find *P. nubigena* in a mountain range near San Cristobal de las Casas. All the way up to the "Montaña de la Ventana," she told me the story of how her nephew Luis, had recently died. Luis, a young and strong Mexican Indian, was the helper of very good American friends I have in San Cristobal, owners of a fine hotel. That year they had big floods in Chiapas, and while Luis was crossing some water with his "canoa," it turned; and he could not swim to the shore of the flooded valley down there where we were collecting. I knew Luis from previous trips, so could not understand how such a young man could die this way. The aunt of Luis had such a sad expression in her eyes while telling me that painful story going up the mountain (Fig. 7).

The other very sad experience was the loss of our helper Martin Grande in the Fall of 1981. He was kidnapped while getting his lunch before returning home by bus to his beloved lake Atitlán. Three days later we found him dead. He was a remarkable young man as you may remember, since he accompanied you, too, in several field trips. He was very intelligent; and on top of other fine traits, very faithful. We owe him so much for the work done during our explorations for "wild avocados," especially during the seven years he was my senior assistant (Fig. 8).



Fig. 7. The aunt of Luis, Doña Josefa in Chiapas, Mexico.



Fig. 8. Mayor of Sta. Catarina Paiopó, Ramos Lopez, with plaque honoring Martin Grande.

GAZ: What has impressed you most during your *Persea* explorations in Latin America?

ES: First, certainly one of the lasting impressions was of the many discussions you held with the late Wilson Popenoe at his famous house in Antigua (Fig. 9). These not only impressed me much, but also stimulated my field work.

Second, my Mayan helpers, like Martin, Martincito, Sixto, Daniel, and others...gave me a lasting impression. Their knowledge of different trees in our cloud forest, their endurance in climbing volcanoes and mountains, then their real contact with Nature, that I think we have lost as modern man.

Third, the taxonomic monograph of Lucille Kopp; in my opinion it is superb, considering that she never was in our middle American cloud forests. Her work is very basic in the study of the genus *Persea*.

And last, it has impressed me for all of my life, the real contact I experienced with Nature during these twelve years cooperating as a field botanist in your collecting project in Latin America. It has been a rewarding and great experience (Fig. 10).



Fig. 9. At Wilson Popenoe's house in Antigua, Guatemala; George Zentmyer and Dr. Popenoe having discussions on *Persea* explorations.

GAZ: Your collections have done a great deal to aid our rootstock resistance program with collections such as G-6 and some of the new ones including G-755, G-1008, G-1038, and G-1077. This new material is certainly aiding the program for controlling *Phytophthora* root rot in California. With these rootstocks and other rootstock materials from other sources, control of avocado root rot looks much more feasible.



Fig. 10. Cloud forest in Guatemala; species of *Persea* related to the avocado are found in these cloud forests.