## Essential Oils of Egypt

Forty persons from the United States and Japan took a most interesting and educational tour of Egypt in October of 1980; a tour composed in almost equal parts of Egyptian culture and history and of information on the rapidly expanding essential oil industry in Egypt. The tour was arranged by Camilli, Albert & Laloue.

After arrival in Cairo on October 8, the group left for a late-morning tour to the pyramids and the Sphinx at Giza. Although these monuments are wellknown, there is a special thrill for the person who actually sees them. Anyone viewing them is amazed by such evidence of great accomplishment in religion, social organization, and science over four thousand years ago.

After lunch in a country restaurant, the group visited other ancient monuments in the area. That evening, they returned to the pyramids, for the sound and light show that tells the legends and history of Egypt. Next morning was devoted to a trip into the delta, to Khotour, to visit a government collecting and processing station for jasmine. From there, it was on to Mehalla to the CAL/Machaly plantations and facilities.

Seventy acres at this plantation are devoted to essential oils. Fifty acres are used for the cultivation of jasmine. Extensive solvent extraction facilities process the flowers grown here, well as those from many acres in the neighborhood. Ten acres are used in the production of geranium, and another ten acres for basic research and development of new crops for essential oil production. Successful tests have been completed with nasturtium and marigold for their perfume oils.

Cultivation of geranium in the Nile Delta Area is only a small percentage of the total Egyptian production. Machaly has agreements with geranium producers of Beni-Souef, an oasis about 100 kilometers southwest of Cairo. In this area, geranium oil is produced on many small farms with distillation units in villages which, although very primitive, produce an excellent geranium oil. This oasis area also produces basil and blue chamomile. "Grand vert" basil seeds are imported by CAL from France each year to avoid any mutation or degeneration. CAL/Machaly wants to produce exclusively "pistou-basil" at a high linalol percentage.

The volatile solvent extraction building for jasmine at Mehalla is surprisingly sophisticated and is equipped to provide the finest quality of extract. Rectification units are here for the purification of the hexane solvent before use. Eight 2,500 liter stainless steel extractors are interconnected with evaporators, condensors, and holding tanks through piping and explosion-proof pumps. Some distance away from the extraction building is a steam distillation unit for the processing of geranium and basil.

Altogether, this is a very impressive installation that shows the great benefits of combining the agricultural advantages of developing countries with the advanced technology and marketing experience of such a firm as Camille, Albert & Laloue.

About half of the tour group were up early on Friday morning for a four-hour tour to Beni-Souef to see the geranium fields and extraction units. They then went on to the Fayoum Oasis a unique opportunity to see some of the small villages of rural Egypt. Early on Saturday morning, the group left for the airport for the flight to Nice, looking forward to the Essential Oil Congress.

Above, Ed Heinz, Monique Remy and Roger Kiley inspect jasmine concrete; below, basil is ready for processing at the Machaly distillery. our group (above): (standing) IIa Porter, Stan Aliured, Carlos Benaim, Guy Casarini, Rick Francis, Tony Galante, Bob Gaudelli, Monique Remy, Albert Wolkowiski, Ted Barba, Bernard Meyer-Warnod, Moufid Machaly, Solange Meyer-Warnod, Roger Kiley, John Porter, Dave Katzman, Ed Schuster, Ed Heinz, El-Sayed Machaly, (seated) Naomi White, Rayda Vega, Rhet Heinz, Vi Marcello, Anita Wolkowiski, Barbara Casarini, Jan Gaudelli, Mary Galante, Sue Katzman, (in front) Heba El Saoblik, Marguerite Wytenhove, Miss Machaly, and Betty Barba. Other tour group members not pictured are Joyce Kiley, Vinnie Marsello, Cheryl Matteson, George and Gladys Meer, Hugo Peter, Rita Schuster, Jennie Sorese, and Bob Wahlgren. Right, center, jasmine flowers are received and weighed at an Egyptian government processing plant. Bottom right, El-Sayed Machaly describes the solvent extraction process and equipment at the Mehalla plant.

In the jasmine fields (below) Rayda Vega, Carlos Benaim, and Marguerite Wytenhove; (left center) Moufid Machały, Jennie Sorese, and Albert Wolkowiski; and (far left) children picking jasmine.