21–25% estimated by Simkiss (1974) and Prinzinger et al. (1979).

In conclusion, the technique of refilling the air cell with water followed by weighing to obtain the initial or fresh egg mass is both a simple and a relatively accurate tool. Changes in mass due to embryonic metabolism (respiration) are small and can be ignored in most instances.

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HUMMINGBIRDS FEEDING ON AN EXCRETION PRODUCED BY SCALE INSECTS

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Reichholf and Reichholf (Bonn. Zool. Beitr. 24:7–14, 1973) reported that hummingbirds in the Bracaatinga (*Mimosa bracaatinga*) woodlands of the Serra do Mar in the state of Santa Catarina in southern Brazil, fed on the dilute sugar solution produced by coccids (some species of which are commonly called scale insects) living under the bark of the trees. Köster and Stoewesand (Bonn. Zool. Beitr. 24:15–23, 1973) reported similar observations of hummingbirds associated with the coccids of coffee-shade trees of the genus *Inga* (family Mimosaceae) in the Cordillera Oriental of Colombia, in the Department of Meta between Bogotá and Villavicencio. These authors also gave detailed descriptions and diagrams of the microscopic structure of the tube through which the "honeydew" of the coccids was excreted. Salas and Jirón (Brenesia 7:57–64, 1977) reported that hummingbirds fed on the excretions of "tailed coccoids" growing on trees of the genera *Quercus, Ficus,* and *Pithecolobium.*

On 4 June 1975, a field party based at Rancho del Cielo, Texas Southmost College's biological field station in southern Tamaulipas, Mexico, visited Agua Linda, an uninhabited locality in the highlands about 5 km west of Rancho del Cielo. The nearest major settlement is Gómez Farías, about 12 km SE of Agua Linda. At about 1,830 m elevation, Agua Linda is situated in pine-oak woodland in a humid valley near the summit of the Sierra de Guatemala range, in a zone of transition between the very wet eastern slope and the relatively dry western slope.

Holly Hobart and I observed the Bumblebee Hummingbird (*Atthis heloisa*) feeding on a sweet liquid produced by insects that were beneath the bark of many of the oak trees (*Quercus* sp.); most of these trees were about one foot in diameter and approximately 12 to 15 m tall.

We first noted that the hummingbirds hovered close to the tree trunks, apparently obtaining food from an unseen (by us) source. Close examination revealed many very slender, colorless filaments about 2 to 3 cm long projecting from the bark, reminding me of the hyphae of bread mold. Most of these filaments bore a tiny droplet of colorless, sweet-tasting liquid at the outer end. Cutting into the bark at the base of a filament disclosed a small living creature. A study of the papers by Reichholf and Reichholf (1973) and Köster and Stoewesand (1973) convinced me that this was a scale insect, excreting through the slender filament a "honeydew" similar to the sugary material excreted by some aphids.

After we were certain that the Bumblebee Hummingbird was actually feeding on this excretion, I recalled that I had earlier observed the Amethyst-throated Hummingbird (*Lampornis amethystinus*) behaving similarly as it hovered close to the bark of an oak tree. We did not see any other hummingbirds using the scale-insect excretions, nor notice any aggressive behavior between any hummingbirds at the infested trees. Neither did we note any insects using the sweet material during the approximately one hour of our observations. Reichholf and Reichholf (1973), in contrast, observed that various kinds of insects fed on the excretions, while the hummingbirds defended trees or groups of trees against other individual hummingbirds and against large insects. Köster and Stoewesand (1973) also noted that the hummingbirds in the vicinity of infested trees defended the trees against each other and against large wasps. Salas and Jirón (1977) observed that bees, wasps, flies, and other insects, as well as hummingbirds, fed on the excretions.

I recommend a closer study of other similar woodlands, in the southwestern U.S.A., for example, to determine whether this food source may be available and utilized by hummingbirds there.

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