Do Plants Have Feelings?

by Ursula Schwebs
Eighth Grade

The November 1972 article “Love Among the Cabbages” by Peter Tompkins and Christopher Bird started my fourteen-year-old daughter Ursula on a Stratford Junior High School science project. She fully believed your authors and wanted to repeat the Backster experiments for the Science Fair demonstration.

Blessed with the curiosity of youth and not inhibited by famous names and titles, she ended up proving that Backster’s experiments could not stand the scrutiny of a very junior scientist. She also found the conclusion drawn in your article not valid, being based on an erroneous interpretation of limited results.

Her Science Fair judge, a famous botanist, gave her an “outstanding” award and suggested that a magazine of such high intellectual standards as Harper’s may want to print her report, so as to correct in its readers’ minds the erroneous impressions created by the Tompkins/Bird article. I hope you agree.

The experience of the last few months has made me feel good about Ursula’s generation, still willing and able to challenge our generation and to prove us wrong.

Dr. Dieter H. Schwebs

Do plants have feelings? I though this was a very interesting question. I talked to many people about it and found that people also have strong feelings on this subject. Some firmly believe in the “green thumb” and even talk to their plants. Others say that it is all nonsense. I found a number of other articles on this subject, including “Do Plants Have Feelings, Too?” by James Collier, who says, “Many scientists do not believe Backster.” They insist that his polygraph results can be explained in other, more mundane ways. Personally, Collier says, “I’m not sure.” There is also “Can Plants See and Hear?” by Ira Cross, who says, “I regret that I cannot go along with Mr. Backster’s startling conclusion that plants see, think and hear.” There is also “Do Plants Think?” by Brett Bolton. He says, “Apparently there’s more to plant growing than knowing how to plant or pot and water.”

All of these articles go back to the experiments made by Cleve Backster of New York City. Harper’s reports, “To date, more than 7,000 scientists have asked for reprints of Backster’s original research. Between twenty and thirty universities are said to be replicating his principal experiments.”

I cannot hope to compete with all these (unnamed) universities, but I got really interested in the subject and decided to try to repeat Backster’s principal experiments and do some of my own. I hoped to prove or disprove that electrical measurements show that plants have feelings as Backster claims.

Backster used a lie detector. I could not get one, but since a lie detector measures the resistance of the skin of a human subject, I figured that I could also use a resistance meter. Fortunately for me, my father has a sensitive ohmmeter and my mother has many plants. So I wired a large poinsettia to the instrument and found that the meter showed both resistance and voltage. It also reacted strongly to what was going on in the room around the plant. Was Backster right?

Materials

In my project I used for my experiments the following things:

• Electronic volt-ohmmeter Model 850
• Contacts, so as not to harm the plants’ leaves. They are made of paper clips, spring clips, and office blind material.
• Vaporizer, plastic bags.
• Different plants: poinsettia, African violets, and philodendrons.

Cost

African violet, replacement for one I destroyed during experiments: $ 1.25. Philodendron for experiments and display: $5.98. Everything else was available around the house at no cost. Total: $ 7.23

Time

• Reading and research: 62 hours
• Running all experiments: 45 hours
• Writing report: 55 hours
• Making posters and setting up display: 10 hours
Total: 172 hours
My first series of experiments was designed to find what I was really measuring when I connected a plant to the instrument. It was easy to understand that a plant would have resistance, just as the lie detector measures the resistance of the human body. But why did the meter wiggle when I walked around the plant or touched it? Also, why did the meter show a small DC voltage and no AC voltage? Where did the voltage come from? Why did the meter change when I came close to the plant without touching it, just as Backster had reported?

First, I found that I could measure my own body resistance, and I also generated some voltage when I took the wires in my hands. I tried this out on a number of persons and found that everybody generated some voltage, but in different amounts on different days. I figured that static electricity must have something to do with it, since I remembered that I get sparks only on dry, cool days at home, in school, and in cars.

From other experiments I learned that we all walk around with an electric charge that must come from the electricity in the air. I also found that the charge is higher and our resistance is lower when the humidity in the air is lower. Leather soles discharge to the ground better than rubber soles and reduce the charge and the resistance. Plants live in the same air as we do, so they also show an electrical charge. I found that I could influence the charge a plant has just by approaching it without touching.

This was particularly important, since I could now understand how Backster got reactions on his lie detector connected to the plant without actually touching the plant. I felt that I was now ready to repeat Backster’s three principal experiments: watering the plant, boiling water and killing living cells, and burning a leaf. I used the volt-ohmmeter to measure my results. The instrument is very sensitive.

I attached the meter to an African violet and got the reading of 5.3 million ohms before I poured water. When I poured water in, there was a movement of the needle, likely because I moved toward the plant. After I poured the water and moved away, the meter showed no change of resistance. After about ten minutes, the needle climbed to 6.3 million ohms, indicating that the resistance of the plant increased by about 10 percent. I also measured the voltage and found about the same increase.

My experiment confirmed what Backster had reported. The resistance of the plant (and its charge) increased. However, Backster came up with a conclusion I cannot confirm. He stated that the plant “was experiencing an emotional stimulation.” I do not know if my plant was stimulated or not. The short wiggle was the same if I poured the water or not. The long reaction to watering could be explained by the plant and the water together taking on a larger charge than before.

My next experiment was on the use of boiling water to kill something. Backster had concluded that the dying cells had transmitted a message to the plant, giving a reaction on the meter. I did this same experiment except that I started without anything in the water. I added a plastic bag over the plant to keep the humidity confined within a small area. I found that the resistance of the plant went down from six million ohms to two million ohms over a period of twenty minutes. I found that my plant also got a “message,” but not from the death of cells. It simply reacted to the increase in humidity in the air around the plant caused by the boiling water, with or without the killing of cells. This explains why Backster’s plant reacted the same way to the death of any form of life. Backster “also noted that the repeated killing of shrimp in the immediate neighborhood of the plants eventually brought less and less reaction, indicating a form of adaptive logic or even memory in plants.” My experiments gave me a much simpler explanation: the air around the plant got saturated with humidity.

My next test repeated the experiment with fire and a plant leaf. I took a candle, lit it, and connected a pointsetia plant to my meter. As I approached the plant with the heat, the meter showed a little quiver. Even as I put the flame under a leaf there was not much reaction. Backster says in his article that when he even thought about burning the leaf the needle jumped off the scale. I do not know if my plant was afraid of the candle or fire. It did curl a leaf when I came too close with the candle, but, like Backster, I got a much stronger reaction when I only moved my chair or came close to the plant with a match; lit or not lit made no difference. The meter simply reacted to my charge, particularly when I was moving on a plastic chair, even without approaching the plant.

I wanted to check out another one of Backster’s claims, but not enough information about his experiment is reported. “Backster found that when plants are threatened with overwhelming danger or damage, they react...as...a human being reacts — they ‘pass out’...” This he discovered when a woman physiologist, visiting from Canada,
asked to be shown the reactions of Backster's plants...the plants...failed to react.”

I could not get a woman physiologist from Canada, so I had to do it myself. I repeated my experiment with different shoes and soles and found that the plant and meter just about ignored me when I was wearing thick rubber-soled shoes, particularly on a humid day. When I changed to leather shoes, the meter reacted strongly. Wet soles reduced the reaction to almost zero.

Backster did not report what shoes the lady was wearing, if they were wet, or what the humidity was on this day, but I question his “discovery” that the plants went into a deep faint because the lady roasted plants as part of her job. At least, I was able to show the same lack of reaction, and I do not roast plants for a living.

Backster and others also are working on the idea of ESP working with plants. I believe they were unable to understand some of their experiments, so they used the idea of ESP to explain them. They have concluded that ESP or telepathic transmission from human to plant is likely. Though, for lack of information, I was unable to repeat their experiments, I believe that a natural cause or one of my proven effects would explain them without having to use ESP as the reason.

Ursula Schwebs
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Date: Mon, 1 Jul 2002 00:22:24 EDT
From: KIRCHNERS@aol.com
To: rsmichae@indiana.edu
Subject: Ursula Schwebs: Harper’s Magazine article in your course says hi

Dear Dr. Michael,

The article in Harpers Magazine was about my experiments on plants and feelings. Thank you for using my experiment as an example of empirical research. I am now 44 years old. What you might want to know about me is that my project was expanded and developed into discovering a simple nervous system inside plants. I went on to win top 40 in the then Westinghouse Talent Search, (now Intel) and graduated from Duke University in 1980 with a BS in psychology. I became a marketing analyst for Texas Instruments, got married had three wonderful children who I stayed home with (the oldest who also participates in Science Fairs winning first in state in 10th grade!!)

Recently, I earned a Masters degree in Education and now teach Biology and Chemistry to High School students. I am also working on a second Masters degree in Environmental Studies. Life in the sciences has never stopped for me. I thought you might want to share this information with your students. Tell them also from me, that teaching, next to being a parent, is the greatest gift you can give mankind. When they get down about their students who are not listening and could not care less, tell them to try to remember that it takes just one to inspire and change the course of a students life.

Best wishes,
Ursula Schwebs Kirchner
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