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## Watch 'Mr. Wizard' - Israeli style

By YOCHAVED MIRIAM RUSSO

The stage was set for magic. Flasks, beakers, bottles of all shapes and sizes covered the table. Some bore labels indicating common substances such as water, salt and sugar. Other items were a little more odd - a cut-up newspaper, balloons, small bags of cotton balls, a few grapes.

The Wizard entered - the Wizard in this case being Beersheba's Mordechai "Macky" Goldman. He pulled a single green grape off a bunch and offered it to the audience, asking them to verify that it was an ordinary grape. Then he passed around another green grape, this one peeled with the discarded skin lying on the table.



That's when the magic started. He poured carbonated soda water into a medium-sized glass, then dropped the peeled grape into the soda. The grape sank. Within moments, it rested motionless on the bottom.

Next, he dropped the unpeeled grape into the soda and brought forth the first of the afternoon's "Gee whiz!" moments. The grape danced!

Covered with fizzing bubbles, the unpeeled grape twisted and turned, moving continuously, from the bottom of the glass to the top, flipping and spinning. It didn't pause for a moment, and it surely didn't sink.

How can that be? The peeled grape sank but the one with the peel danced on and on?

Israel's "Mr. Wizard" offers few scientific explanations. Instead, he uses it to illustrate a basic piece of Jewish wisdom.

"In the 19th century," he says, "there were those who thought that the way to move ahead in society was to take off their cloaks and streimels so they could move with the times and become modern. Others disagreed. They said that shedding their garments wasn't the best way to live. Here's what the grapes show: The one who kept his cloak on is the one who's alive, jumping and dancing. The one who lost his cloak lies stagnant and motionless at the bottom of the glass."

The audience applauded, loving the analogy. No one will forget the lesson.

The original American "Mr. Wizard" - Don Herbert, creator of the popular, internationally syndicated National Educational Television program of the 1950s - would no doubt applaud his Israeli counterpart, too.

Although Goldman, who grew up in Canada, says he never saw the original TV program that inspired a generation of kids to enter the field of science, the two wizards share a common goal: To provoke questions and tickle kids' curiosity. To make them say, "How did you do that?" and then look deeper to ferret out the solid science behind the "magic."

The Wizard moves on to his next magic trick, again one with a distinctly Jewish twist.

A tall glass beaker filled with bright yellow water bears the label "Water of the Nile." As he prepares the materials, the Wizard gives the background story: "When the Jews were slaves in Egypt, Pharaoh tried to convince everyone that he was a god, pretending he never had to use the bathroom. What he did instead was sneak out in the early morning and relieve himself in the Nile. That was where Moses had found him when he first went to plead for the release of the Jews."

The Wizard picks up another beaker, pours into it a combination of other liquids, then holds it over a small gas burner. When the liquid boils, he caps it with a cork that has a long glass straw sticking through it. He inverts the second beaker over the Water of the Nile so that the straw runs down from the smaller beaker into the yellow water.

Instantly, the yellow Nile water starts to bubble up, moving up into the inverted beaker of clear liquid. And when it does, the clear liquid turns deep red. Blood! The Water of the Nile now runs red with "blood" - just as it happened during the first plague.

Goldman's inspiration for the Chemical Magic Show came from Dr. Tik Liem, a world-famous teacher's teacher whom Goldman had met in 1991. Liem advocated the use of discrepant events to grab students' attention.

"A discrepant event," Goldman explains, "is something that's counterintuitive - not what you'd expect. You'd expect that both grapes would either sink or float. You don't expect clear liquid to suddenly start boiling red. By using 'magic' tricks like this, you get the students' full attention. Plus, they're having fun, and you have opened their eyes to the fascinating world of materials. After that, you can teach them anything," he says.

Goldman and his wife, Barbara, made aliya in 1975 from Toronto and moved to Beersheba in 1983. With their own seven children, and now "more than two minyanim" of grandchildren, Goldman almost always has an enthusiastic audience at home for his magic tricks.

In addition to being a chemist for the Negev chemical company Brom, Goldman began teaching chemistry and math.

"I started working with kids through an after-school science program. When that program ended, I began teaching chemistry once a week to gifted children."

Goldman also performs as an on-call wizard, putting on his Chemical Magic Show in high schools or other institutions that want a dose of practical magic combined with a bit of Jewish wisdom.

"I can put on several different programs. There have been mornings when I've done three or four sessions in a row, so to keep from getting bored myself I've developed a repertoire of chemical magic tricks of all kinds. Some are tricks I worked out myself, others I learned during my own apprenticeship with one of my mentors," Goldman says.

The Wizard sets up his next trick, something other wizards have called the "iodine clock," but he has renamed it the "Zionist Clock."

He takes three water glasses and adds varying amounts of water - none in the first glass; a quarter in the next glass; and half in the third. Then he begins pouring varying amounts of other liquids into each glass.

He stops and asks everyone to look at a clock so they can time the action. "I won't pour until you're ready to time it," he says.

"Now!" someone says, and the Wizard pours a liquid into the first glass. The seconds tick by, but at five seconds the liquid turns dark purple.

Then the audience is told to start timing the second glass. The Wizard pours; this time it takes 10 seconds. Although the process is more gradual, the water turns dark blue. The water in the third glass takes 20 seconds and gradually turns royal blue.

The trio of glasses in front of him, the Wizard comments: "It's pretty obvious that the concentration in each glass was different. Each of the glasses had different amounts of water, but the reaction is so definite you can time it almost exactly. That's why it's called the Zionist Clock."

Why "Zionist"?

"When the solution is less concentrated, it takes longer. So compare that to aliya and Israel. The fewer Jews who are here, the longer it's going to take. But as the concentration of Jews in Israel gets stronger, it'll take less time."

The Israeli Wizard has dozens more tricks up his sleeve, all of them fascinating and each tied to a bit of Jewish lore.

"Learning basic chemistry isn't an end in itself," he says. "But among the sciences, chemistry is the only field in which we can actually create something, share in the creation of the world. When Adam and Eve were in the Garden of Eden, God told them to be fruitful and multiply, to fill the whole world and conquer it. What 'conquer' means is that we're supposed to take the raw world as we got it and do something with it. That makes chemistry a kind of divine imperative - not just something we do for fun," he says.

"I'm always looking for the hidden message," adds Goldman. "I'm looking for the connection, the thing that ties the world of spirit to the world of materials. If it takes a little practical magic to get the kids' attention, that's just fine with me."