

THE DANCE OF ENTANGLEMENT

BY MICHAEL MENDELSON

OK, you all knew that 2005 has been designated “The Year of Physics”, right? This year is the centenary of the year that Albert Einstein published many important papers, including his Theory of Special Relativity (remember $E=mc^2$). OK, did you know that Einstein was also a fiddler? Well, not exactly a *folk fiddler*, but he was actually a fairly accomplished amateur violinist who enjoyed playing chamber music with friends. So if you’re the editor of an international physics journal with a sense of humor and an interest in folk music, what do you do to help celebrate this important event? Commission an original fiddle tune of course!

Physics Today is an international journal of theoretical and applied physics. This is serious stuff most of the time, but there are exceptions. Last year Stephen Benka, editor-in-chief of the journal, decided to do something special for this special year. It seems that in addition to his editorial duties, Steve is also a musician and contradancer. So Steve solicited contributions from a number of physicist/mathematician/lyricists like Tom Lehrer (of *Vatican Rag* fame who contributed parodies of Gilbert & Sullivan songs with physics-related lyrics) and others to fill out the special section. He was familiar with my tune as well as the fact that I have a degree in physics. I guess it seemed like a natural combination to him to see if he could coerce a tune from me. He emailed me with a request for an original composition for the special edition of the journal. The final result of Steve’s work is five pages of fun and music amongst technical articles about quantum mechanics and biological physics in the July 2005 issue of *Physics Today*.

The tune of mine Steve chose to publish is a tango *El Baile de los Entrelazados* (*The Dance of Entanglement*). The title alludes to the concept of “quantum entanglement,” a hot topic in the field of physics these days. Steve suggested the title and actually consulted his colleagues in Argentina to make sure we were using the proper term in use by physicists down there. So far, so good.

Now I’m sure you’re asking yourself “What does quantum mechanics have to do with the tango?” Not much really, and the connection here is admittedly

pretty tenuous (we mainly went with the title because it sounds cool), but here goes. Briefly, quantum entanglement is a phenomenon wherein two particles (e.g. electrons) can be separated by an arbitrary distance, yet a change to one particle will instantly affect the other; they are “entangled” or entwined by their quantum mechanical properties. The tango on the other hand is often perceived

as a dance and music of intense emotional connection. Picture in your mind the smoldering intensity of a couple dancing the tango in a smoky, dimly-lit Buenos Aires night club. There are few dances where the dancers are more closely intertwined than this! The two dancers are in tight synchrony with each other. So, a couple of entangled particles and an entangled couple of people. Makes sense doesn’t it?

I suppose I should here offer a disclaimer and apology to any ethnomusicologists out there. I can’t really claim that *El Baile de los Entrelazados* is based on a formal knowledge of the tango form. Like many of my compositions, the melody just “appeared” one day and I wrote it out. But it certainly mirrors my impressions of the tango. It is a lot of fun to play with violin and accordion (bandoneón?), late in the evening with the lights turned down low. Put some emotion into it! Some intensity! It’s that kind of tune!

You can find *El Baile de los Entrelazados* along with many other original tunes, (jigs, reels, waltzes, rags, etc.) on my web site: www.SlidingScaleMusic.com. Just follow the links to the “Compositions” section and you’ll find lead sheets for the tunes. You can also hear tunes clips and/or midi-based performances of many of the tunes there. Have fun!

Michael Mendelson is a fiddler, guitarist and composer who lives in the Santa Barbara area. He currently plays in a number of contradance bands including Chopped Liver, The Fiddle Tunas and Key Ingredients, and the legendary old-time band The Gap Tooth Mountain Ramblers. He has recorded a CD of original tunes entitled A Fiddlers Notebook.

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She continues, “I saw the children accepting, perhaps for the first time in their lives, that they were worth something. They were important enough for this American to come all the way over to give them a harmonica and teach them how to play it. This proved as important as any other aid that would keep them alive. *Harmonikids* resuscitated their failing spirits. It was validated.”

Phillips recalls, “There was a session in a Refugee Camp in Aceh where the children inside were segregated from those playing in the streets. Allegretto insisted that no children be left out.” The leaders of the refugee camp did not want the children outside to participate. But “Gary insisted,” she said, “they begrudgingly invited the other children to join in music. When the children began to play ‘Shave and a Haircut,’ all differences and barriers separating them were instantly dissolved. Suddenly they were just a room full of happy children playing songs together. When we departed, we traveled down the road to the priceless sound of music and children’s laughter that had clearly been missing from the village since the Tsunami. *Harmonikids* gave them the vehicle to be children again. They had forgotten how.”

Phillips talks of a session with several teachers and principals from other areas in attendance. “Obviously there was a buzz going around about *Harmonikids* activities,” she says. “Allegretto got in amongst the children and interacted with human touch and emotion. His accessibility and commitment brought the kids together in song. The principals said that they had learned a new and unique way of teaching from him: rather than teach *at* the children – learn *with* them.”

Miracles were abundant. Phillips tells of another episode. “Forty orphans had been together in the recent devastating Nias Island earthquake that had

killed so many. Their orphanage had been leveled, three stories crumbled to the ground. Tentatively, we asked how many were lost. Miraculously, they replied, ‘None. You are teaching them all today’.”

Phillips offered this parting tale. “In a touching moment before we left, the children insisted on saying a prayer for our health and safety. I was moved to tears that in the aftermath of the unfathomable turmoil they had faced, they were concerned with *our* well being.”

Gary has additional perspective. “Often, giving to special-needs children brings gifts to your own life. The children I reached in North Sumatra reminded me to never take life for granted. In turn, I believe that we nurtured their spirits through the joyous gift of music. True, I had given them harmonicas, not food, shelter, or medical care. However, having received those necessities, they desperately needed to return to being children again. *Harmonikids* gave the children an opportunity to recover some of the childhood joy and dreams that had been swept away and lost under the endless rubble of the tsunami disaster.”

Larry Wines is a writer, songwriter, journalist and columnist, mountain climber, museum founder and former political pundit. He has restored steam locomotives and enjoys long train rides, good music festivals, moonlight on water, riverboats, Shakespeare and great songwriters. His work has appeared “in lots of obscure places” throughout America. He writes a column with weekly entertainment picks and concert and CD reviews, including lots of acoustic music offerings, available www.medianetworkgroup.com/index.html. You can e-mail him at larrywines@hotmail.com