
Milan, Spring 2008

MathKnow 2008, May 20 - June 08

Ralph Abraham
Dispatch from Milan



Hotel Palazzo delle Stelline, Milan Center

(Across the street from Leonardo's Last Supper)

For several years, Italy has hosted conferences on *Math and Art*, *Math and Culture*, and so on. This year's event was *MathKnow08: Mathematics, Applied Sciences, and Real Life*. I was invited to give a plenary talk and anticipated a general audience. Round trip travel and four days hotel and meals was included in the invitation, and I accepted with the expectation of traveling around to some of my favorite places after the event. For some unknown reason, after annual trips to Europe for many years, I had set foot there only once in the past six years. My NSF grant (joint with Dan Friedman, professor of economics at UCSC) provided a 15-day Eurail Pass to enable me to give lectures at other universities after the conference.

MILAN

The flight on Air France, the three-star Hotel Palazzo delle Stelline, and the logistics and venue of the conference were all first-rate. The conference hall was at the Politecnico of Milan, the largest technical university in Italy with about 40,000 students. The conference audience turned out to be mostly math professors and graduate students. On the program was somewhat busy: 28 talks of various lengths, 20 to 60 minutes, including nine plenaries, in a span of two and a half days.

My talk was the first on the program. Several professors in the audience introduced themselves as fans of my books, especially, the *Foundations of Mechanics* of 1978, which made me feel like a grandfather. Although I have been lecturing lately on the power of agent based modeling to uplift the sciences with a new class of math models, I have recently been influenced by a book, *Useless Arithmetic*, on the fallacies and dangers of poor modeling. In my talk, I extolled the faults and limitations of modeling with complex dynamical systems, and some of the tragedies that have followed from the misapplication of math modeling, e.g., the collapse of the North Atlantic cod fisheries and the hysteria over global climate warming. Even my most ardent fans in the audience thought I was too negative, but then, they are professional modelers.

Following my talk I listened to most of the other talks, despite major jet lag. All the talks except mine extolled the magic of mathematics in modeling different domains, such as urban planning, the internet, economics, engineering materials, medical science and imaging, cell biology, novel writing, climate change, sculpture, architecture, archeoastronomy, and food science.

VIENNA

Immediately following the conference I boarded a Eurostar express train for Vienna to see my friends Linda and Raoul Kneucker. Linda works at the International Institute for Applied Systems Analysis (IIASA) which had awarded me the Tjalling Koopmans Distinguished Lecture in 2005, and Raoul works in the Austrian government and the European Union. In Milan, in conversations with all the colleagues, I had been proclaiming my theory that while the USA has spiraled down for eight years, Europe has been rising and will save the world. The Italian colleagues were very dubious, as apparently Italy is also in free fall, and I wanted to know Linda and Raoul's opinions. In the course of two days of intense discussion (while Senators Obama and Clinton were fighting it out at home for the Democratic nomination) I became convinced that (despite problems in Italy and the UK) the European Union was evolving in an interesting and optimistic fashion. I also got to see Elizabeth Gergely, who had invited me a decade ago to speak at a conference on chaos theory at the Rudolph Steiner Schule Wien/Maurer, one of the earliest of the Waldorf Schools. Elizabeth took me to an incredible performance of Beethoven's *Missa Solemnis* by the Vienna Philharmonic. Awesome. And then I boarded the Eurostar to Florence, with a lunch stop in Venice where I got to see Rob Shaw, founder of our Santa Cruz Chaos Cabal in the 1970s.

FLORENCE

Over the years I have spent a week or two in Florence many times, and several of the mathematicians there have also visited me in Santa Cruz. But the last time I had seen any of them was seven or eight years ago, so this was an important reunion. I got to catch up with all of them: Franco Gori, Lucio Geronazzo, Marcello Galeotti, and Gerald Goodman at the University of Florence, and Lionello Punzo of the University of Siena.

Franco invited me to speak in his department. To this more sophisticated group of pure mathematicians, I give an old-style talk on the pure math behind the new models of complex dynamical systems, explaining the invisible structures that, according to chaos theory, make the predictions of these models unreliable. On a brief round trip to Siena, during lunch on his sailboat, Lionello and I imagined a joint project on modeling environmental tourism in Siena. I also made a Eurostar day trip to Rome, where I saw friends from Ross School trips, Carla Panicali and her nephew Nikolaj, as well as Doyne Farmer, another alum of the Santa Cruz Chaos Cabal. And then, my favorite train ride, the Pendolino from Milan to Geneva.

GENEVA

It was a very disappointing ride as the Alps were hidden in fog. At the Geneva train station I was met by Dutch White and his partner Judy. Dutch, and in fact his whole extended family, have been my crucial friends and alternative family for forty years, and here also there had been a lapse of six years or so. This was a marvelous reunion and so many forgotten experiences were revived and brought to the foreground. After many meetings and hugs I sadly boarded the Pendolino (again disappointing due to fog) back to Milan.

MILAN AGAIN

At the station I was met by Renzo Ricci, a new friend from MathKnow08, who is professor of mathematical physics at the University of Milan/Bicocco. He escorted me to lunch at his university and my third lecture of this trip, again on the technical problems with the computer simulation of complex dynamical systems. And then the flight home, where Ray and our dog Shea were waiting at the customs port of San Francisco International.

AND THEN, WILDFIRE !!!

Arriving home on a Sunday afternoon, it was very hot. The heat and jet lag slowed me down, but I unpacked and debriefed my laptop, sorted the mail, and cleaned house for a couple of days. On Wednesday afternoon, I was disturbed at my computer desk by a call from Ray, who was downtown shopping. She could see a massive column of smoke that seemed to be somewhere near our home and was calling to raise the alarm. Looking out the window, I could see it too. It seemed to be on the main road near our house. She rushed home while I packed up my backup hard drives and a laptop. By the time Ray arrived we knew that the fire was about two miles away and we might have an order of mandatory evacuation at any time, so we packed up our dog Shea, cat Lucy, and a few essentials like passports, into two cars. As a deputy sheriff arrived to order us out immediately, Ray released our horse Aria in a neighboring field and called the emergency line to request Aria's evacuation. As we drove out, we passed the evacuation horse trailer on the way in. Driving slowly past major roadblocks we found our way to Santa Cruz where life continued as if nothing unusual was happening. We pulled to the side of the road for a powwow, and decided to go to Linda Rosewood's house. She had been the first friend to call to offer assistance (later we had a few more offers) and also, she had a fenced yard suitable for our dog. There we setup our "control center" with laptop and cell phones, and began a frustrating search for information about Aria's whereabouts, the proxim-

ity of the fire to our property, and so on. By Wednesday evening we had located Aria at an animal shelter nearby and paid her a visit. On Thursday the fire had burned 900 acres and ten homes, and a shift in the wind halted the advance of the fire less than a mile from our place. On Friday afternoon we were able to return home, and found no damage at all. Whew!

AFTERWORDS

Rereading this dispatch, written in my usual cold-blooded style, I regret that I have not expressed my feelings. My nostalgia on reliving my European loves, lectures, and train rides of the past is due not only to the extraordinary lapse of some years between visits to Europe, but also due to the approach of my 72nd birthday in a couple of weeks. Age, coupled with the Fall of the Dollar and the Rise of Carbon Footprints, incline to even less frequent visits in the coming years. One day, there must be a Last Trip to Europe. Finally, coming home to the fire – Hell in Paradise – made this little Wave of Nostalgia into an overwhelming Tsunami of Sadness. Amen.

THE END