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SPAIN, 2007: INTRODUCTION

My last dispatch was from India (see <http://www.ralph-abraham.org/new/fulspec/>) a year ago. Since then I have done much, but travelled little. Until these last three weeks that is, from February 21 to March 11. So here is the tale in brief.

Last January, Courtney Ross (of the Ross School, where I have consulted off and on since 1995) rang up to invite me and Ray on a school trip to the south of Spain. The focus would be on the Medieval period known as the Convivencia, characterized by the peaceful coexistence of three cultures -- Muslim, Christian, and Jewish -- leading up to the expulsions of 1492. I have been in a classroom at the Ross School only once in a decade, and never on any of the school trips, so I was swift in agreeing to go. This trip would be unusual also in that Mrs. Ross herself was planning to go.

So as it worked out, go she did, and I did -- along with a few friends and staff of Mrs. Ross, 14 amazing Ross High School students, and four teachers. Ray was unable to come along as she was busy with her paintings and shows. The trip spanned almost three weeks, with brief stops in New York City, Rome, the Vatican City, two weeks in Andalucia (the South of Spain), and finally Toledo and Madrid.

Our two weeks in Andalucia included (with approximate dates):

- Cordoba -- Mezquita (960)
 - Medina Azahara (976)
 - Juderia and Sinagoga (1315)
- Sevilla -- Giralda (1198)
 - Alcazar (1366)
 - Cathedral (1507),
- Ronda -- Mondragon Palace (1314)
- Granada -- Albayzin (1277)
 - Alhambra (1391)

Also, each city has an excellent archeological museum.

My role was dual, as cultural history mentor, and as math teacher. As mentor I went along on most of the professionally guided tours of the archeological sites, medieval monuments, and historical museums listed above. The guides were fabulously knowledgeable, and superb teachers, so we all gained a rich background in the medieval history of the Christian, Islamic, and Jewish subcultures in Spain.

As teacher I gave five lessons to the high school students, a lifetime first for me. These were devoted to:

- * the basic concepts of dynamical systems (chaos) theory,
- * the dynamics of the cultural history of Andalucia,
- * the transmission of ancient wisdom from Greece to Europe,
- * the modeling and simulation of complex dynamical systems,
- * the NetLogo agent-based modeling system with examples.

This is all a bit stratospheric for high school, and I cannot say how much the young people retained from these talks, but they seemed to enjoy them. We had computer, projector, and screen with us, and numerous computer graphic animations helped.

For me there was a most unexpected outcome of the trip. While walking, and in cafes and restaurants, Mrs. Ross and I brainstormed on the possibilities for modeling and simulation of all the history we were learning, and jointly came up with a physiological metaphor and modeling strategy. We came to see the economic movement of people and mail bags along trade routes as the circulatory system of a gigantic organism, growing and evolving, and carrying along (much like hormones in the bloodstream of a mammal) the religious and philosophical systems that react chemically, and so frequently precipitate wars, revolutions, and the like. This metaphor, illuminated with computer simulations and animations, might be expanded one day as courseware, or as an educational game.

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