list of lectures by ralph
india, 2005-2006

1. The first one (day #5, my second day in Calcutta) before the venerable Calcutta Mathematical Society, was an advertisement for new branches of mathematics, e.g., chaos, fractals, computer graphics, and all that, with mention of agent based modeling, my current passion. Audience of seven, no reaction. It seems that remain very satisfied with the old branches.

2-6. The next day (#6) began a series of five daily lectures, an elementary course in chaos theory for professors. Here I was able to experiment with a new pedagogic strategy, since my textbook, *Dynamics the Geometry of Behavior*, profusely illustrated with 850 hand drawings by Chris Shaw, was newly digitized as an eBook. I prepared each lecture slightly in advance by adding bookmarks to the PDF files of the eBook, so I could show the desired page with one click of the mouse. Way better than Powerpoint !!! Seemed to work quite well.

7. The next lecture was on Thursday, Dec. 29 (day #16) at ISI, my most sophisticated audience so far, professors of physics and applied math. I told the whole history of computational morphogenesis, that is, simulation of pattern formation in membranes: how the leopard gets its spots, trees get branches in rings, brains can recognize a smell, and so on. Spans 1972 (Prigogine's group in Brussels) to my work with Jack Corliss and John Dorband with the world's fastest supercomputer in 1990. I had planned to show a video of the latter, sort of a simulated acid trip, but their VCR did not like my video cassette. A tough sell without the mind-boggling graphics.

8. And then, on Jan. 04 (day #23), the first of two lectures at JU. This is one of the best universities, but I was warned that this is the time of year for exams, so none of the students would be able to come. In fact, there was a small but very keen audience of physics and math professors who actually know, use, and teach chaos theory. But I had no advance idea what they were interested in, so I prepared nothing and did not even bring Hypatia, my trusty 12 inch Powerbook. Over tea in the chair's office just before starting, I asked what was wanted, and was told, the software I use for experiments. I compromised and offered the role of computer graphics in chaos research, the interplay between pure math and computational results, in the context of my own first twenty years of research. I promised a computer demo in the next lecture.

9. The very next day, Jan. 05 (#24), the second lecture at JU. I showed complex dynamical system software, Madonna and Netlogo, to a smaller audience.

10. Jan 06 (day #25), second lecture at ISI, audience including faculty from engineering, physics, math, ... and psychology !!! Chaos and consciousness, cellular dynamical models for ideas, forms, perceptions. Background in Greek (neoplatonic) and Indian (kashmiri shaivism) philosophy with support from personal experience.

11. Jan 08, 2006 (day #27), Indian Biophysical Society (IBS 2006), Saha Institute, Salt Lake, Kolkata: *Mathematical Biology, Then and Now*. The interaction of biology and dynamical systems theory, including chaos theory, complexity, and agents, from 1900 until the present.

12. Jan. 09 (day #28), Presidency College, Kolkata: New branches of math.

13. Jan 10 (day #29), Army Institute of Management: Chaos, complexity, and business

14. Jan 14 (day #33), Ramakrishna Mission Institute of Culture: Vibrations and Forms

15-18. Jan 16-19 (days #35-38) JNU, Delhi: Short course

19. Jan 24 (day #43) NIAS, Bangalore: Agent based models

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