

Foreword

Bridging the Two Cultures

The gulf between the sciences and the other cultural worlds of the humanities and social sciences is increasingly widening, yet scientists themselves spend precious little time in attempting to communicate with these other cultures. To a large extent this is due to the scientist's obsession with peer approval and the recognition that his tribe offers few incentives to communicating with a broader public that will do nothing for a scientist's professional reputation. Somewhat late in life, I decided to do something about illuminating the scientist's culture for a broader audience, and to do it through a tetralogy of novels in a genre I call "science-in-fiction"—not to be confused with science fiction. For me, a novel can only be anointed as "science-in-fiction" if all the science—i.e. what we do—and most of the idiosyncratic behavior of scientists—i.e. how we do it—described in it is plausible. None of these restrictions apply to science fiction. But if one actually wants to use fiction to smuggle scientific facts into the consciousness of a scientifically illiterate public—and I do think that such smuggling is intellectually and societally beneficial—then it is crucial that the facts behind that science be described accurately. Otherwise, how will the scientifically uninformed reader distinguish between what science is presented for entertainment and what is informative?

But of all literary forms, why use fiction—or drama? The majority of scientifically untrained persons are afraid of science. They raise a shield, the moment they learn that some scientific facts are about to be sprung on them. It is that portion of the public—the ascientific or even antiscientific person—that I want to touch. Instead of starting with the aggressive preamble,

“let me tell you about my science,” I prefer to start with the more innocent “let me tell you a story” and then incorporate realistic science and true-to-life scientists into the plot.

Scientists operate within a tribal culture whose rules, mores and idiosyncrasies are generally not communicated through specific lectures or books, but rather are acquired through a form of intellectual osmosis in a mentor-disciple relationship. Apprentice scientists acquire their “street smarts”—in some respects the soul and baggage of contemporary scientific behavior—by observing the mentor’s self-interested concerns with publication practices and priorities, the order of the authors, the choice of the journal, the striving for academic fame—even culminating in Nobel lust. Each of these issues is loaded with ethical significance.

To me, it is important that the public does not look at scientists primarily as nerds, Frankensteins or Strangeloves. And because “science-in-fiction” or “science-in-theatre” deal not only with real science but more importantly with real scientists, I feel that a clansman can best describe a scientist’s tribal culture and idiosyncratic behavior.

In our formal written discourse, we scientists never use the dialogic form—in fact we are not permitted to use it. Yet pedagogically, dialog is frequently much more accessible and—let us be frank—also more entertaining. The purest dialogic form of literature, of course, is drama. And if “science-in-fiction” is a rare genre, “science-in-theatre” is virtually unknown.

My interest in contributing to that genre was triggered by the success of Steven Poliakoff’s “**Blinded by the Sun**” at the National Theatre, London (1996)—a play that received much publicity even in the scientific press. Illuminating in many respects very effectively some of the idiosyncratic aspects of a scientist’s drive for name recognition as well as the competitive aspects of a collegial enterprise, it attempted to present in dramatic form the debate about “cold fusion” of a few years ago. Other sophisticated playwrights have used science for theatrical purposes where the science is incidental to the drama. Hugh Whitmore (“**Breaking the Code**”), Tom Stoppard (“**Arcadia**”), Friedrich Dürrenmatt (“**The Physicists**”), and Bertolt Brecht (“**Life of Galileo**”) are some earlier stellar examples.

In my projected trilogy, I am interested in the reverse approach: using the theatre for scientific enlightenment, *where the science is central rather than peripheral and impeccably correct*. As a model, consider Michael Frayn's "**Copenhagen**" (1998), a "science-in-theatre" play par excellence. Frayn makes no concession to scientific illiteracy. He calls upon quantum mechanics and the uncertainty principle for much of the scintillating interplay between two Nobelists, Werner Heisenberg and Niels Bohr.

Instead of selecting topics from contemporary chemistry or physics with their inherently complicated abstract terminology, I have turned to biology. More specifically, I chose recent, cutting-edge research in reproductive biology for four reasons: everyone can personally associate in one way or another with reproduction and sex; it encompasses an area of my professional competence; the terminology is relatively simple; and most importantly, such research is steeped with enormous ethical implications. To test these waters, I chose the ICSI technique as the scientific focus of "**An Immaculate Misconception**," since in my opinion, ICSI—more than any other in vitro fertilization method—is contributing to the impending separation of sex ("in bed") and fertilization ("under the microscope").

I feel justified in assuming that most prospective readers of the present book or audiences intending to see a theatrical production of my play, will be unfamiliar with the term ICSI. Yet I am confident that—once having seen the injection of a single sperm into an egg in scenes 5 and 6 of "**An Immaculate Misconception**"—they will understand the ICSI technology and will never forget it or its ethical ramifications. If so, "science-in-theatre" will have bridged, however briefly, the widening gulf.