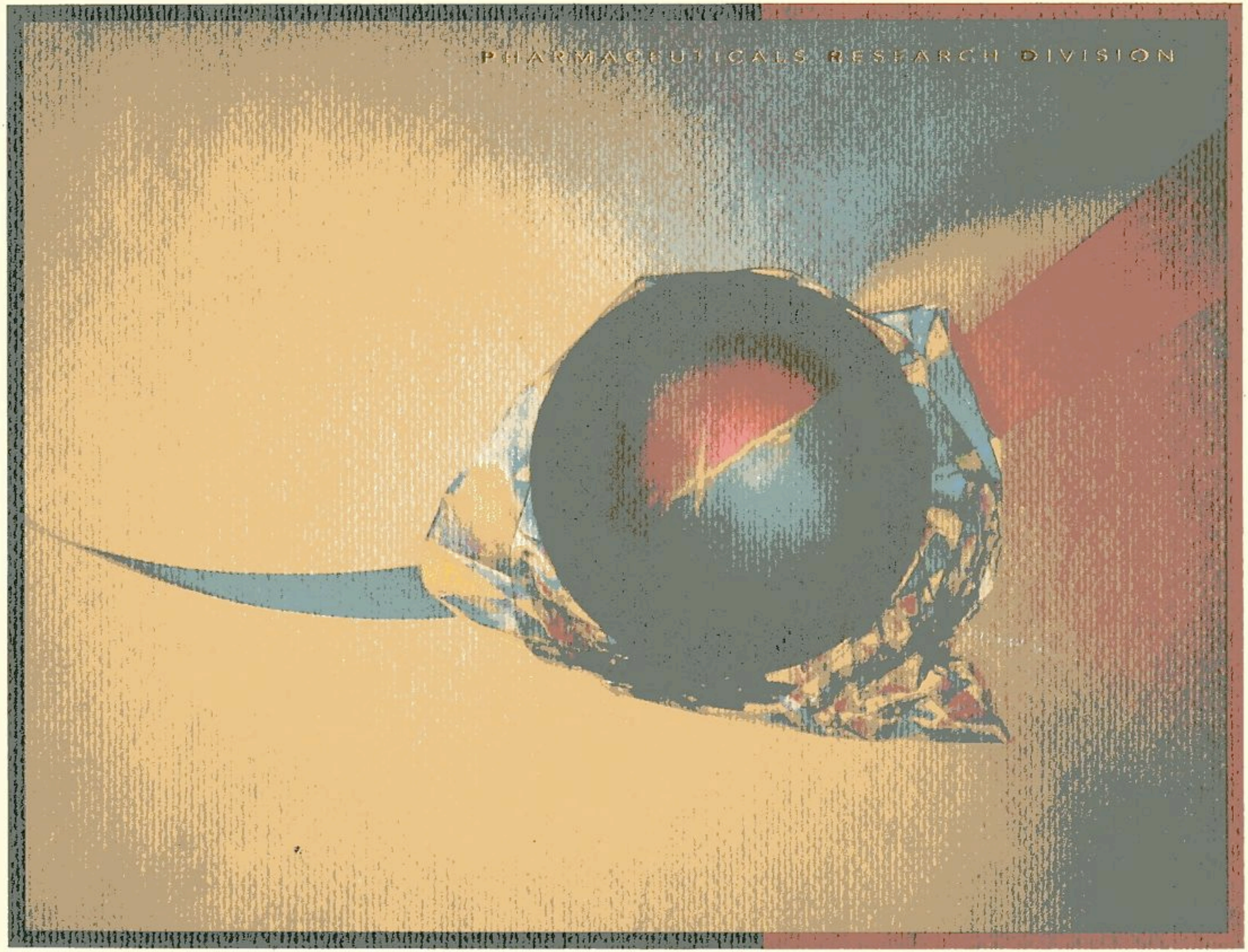
STERLING WINTHROP



FROM BENCH TO BEDSIDE

Promise and Peril at the University–Industry Interface

Sir Gustav J. V. Nossal,
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It may surprise you to hear that when I was a young man in medical science, we thought very little about industry. The word "patent" hardly existed in our lexicon. If we thought about industry — and it was rarely — it was usually as a milking cow — not for our consulting honoraria but for our research. We were purer than the pure. Our discoveries would stun the world as soon as we published them, and would alleviate all its problems.

But of course, we were terribly naive. We were not at all realistic about the one-to-ten ratio of research cost to development cost, which is probably more like one to twenty or thirty if the truth be known. The famous $200 million figure for the development of a new drug, which doubtless is $300 million today, was not at all something we knew about.

There were reasons for this other than our naivete. Although the organic chemistry of the pharmaceutical industry was brilliant and cutting edge, the biology was less outstanding. The pharmacologic screening models for identifying new drugs were not very realistic; they had a large empirical component and, therefore, there were surprises when drugs finally came to the marketplace. The first major tranquilizer, of course, came from the development of antishivering agents that made history in cardiac surgery. And, ever since imipramine, we have had dozens of examples of the same kind of thing.

Twenty years ago, though, something special happened. A new era of medical science began with gene cloning. That new era totally revolutionized biomedical science at the basic science end, and, as a result, along came a new style of company, the DNA company. First there was Cetus, then there was Genentech, then came Biogen and The Genetics Institute, and soon a flood of companies. These companies were different because the very brightest of the scientists, the high priests of the new biology, were either themselves forming the companies or were very much behind the entrepreneurs who formed them. As a result of this, postdoctoral fellows of the greatest excellence were