

Charting the Growth of Science

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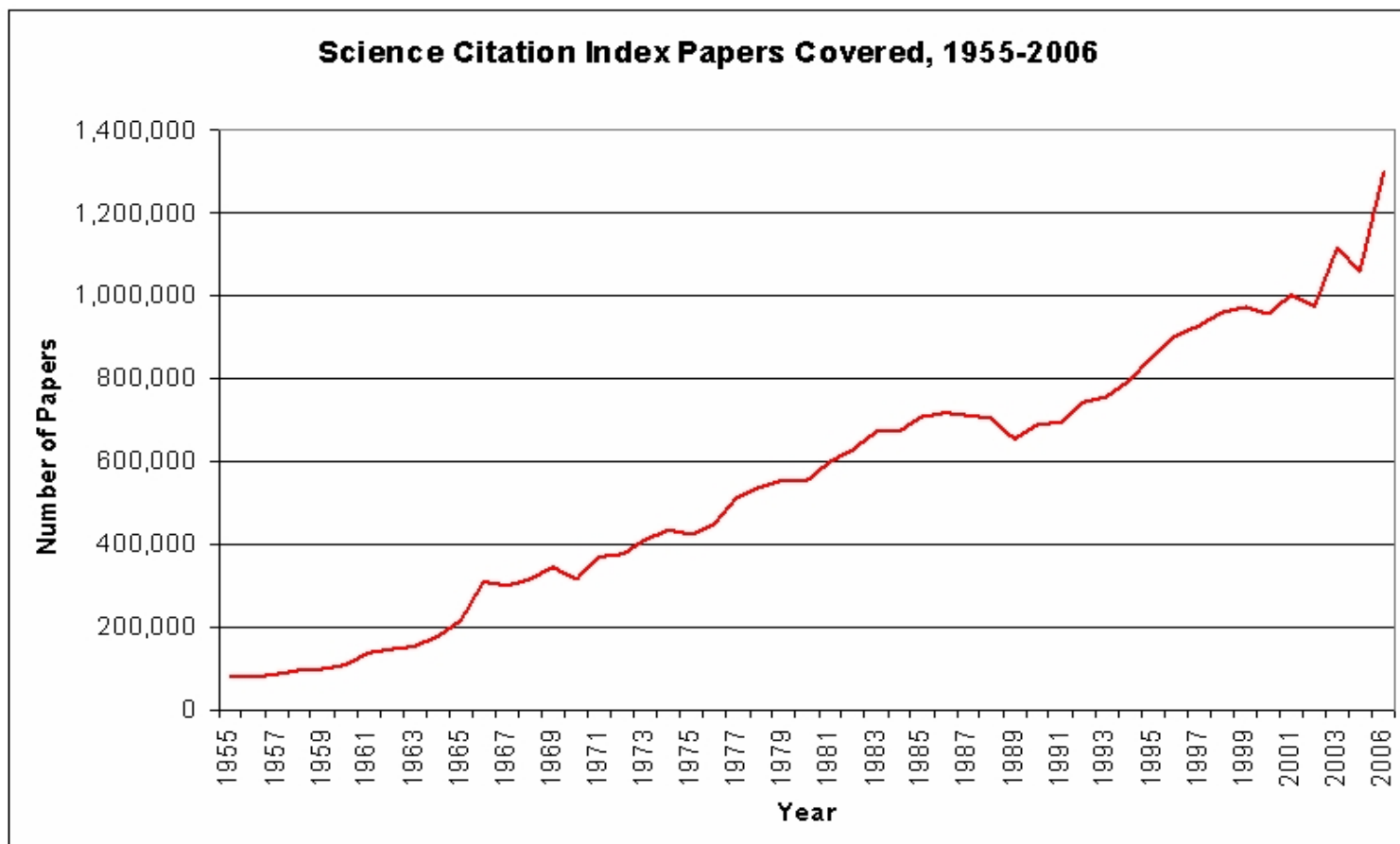
When Arnold Thackray informed me that I was to receive the CHF Award for Supporting Industries, I was quite surprised. I had to confess that somehow I had not been aware that there was such an award. Arnold informed me that the rationale for the award is to recognize those who "provide services and products vital to the continuing growth and development of the chemical and molecular sciences community."

There can be little doubt that chemical and scientific information are vital to, if not the lifeblood of the chemical world. This was recognized long before I was born. Indeed, it was recognized even before Chemical Abstracts came into existence, just 100 years ago. In the 19th century the chemical industry was dominated by Germany. And even after the war, when I took general chemistry from Joel Hildebrand, and organic chemistry with Melvin Calvin, at the University of California, Berkeley, German was still considered essential to a student's graduate preparation. I studied German both in high school and college. Names like Beilstein and Gmelin were known to every chemist. I won't expand on this diversion into the history of chemical documentation but it seems fitting to mention history at a place called the Chemical Heritage Foundation. And though I once was an expert abstractor, 15 minutes is not enough time to trace the development of chemical information services for the past 150 years.

Over lunch with Arnold, we agreed that I would, however, use my time to show you some bibliometric data on modern abstracting and indexing services to demonstrate the growth of the chemical industry. The following slides will show you the growth of chemical and scientific information over the past 50 years. As the founder of the *Science Citation Index*, it is natural that I draw upon the Web of Science database which, as you will see, more or less parallels the picture based on data from *Chemical Abstracts*. It is important to note that my early association with the pharmaceutical industry, and in particular, Smith, Kline, and French, focused my awareness of the multi-disciplinary nature of that field. The growth of molecular biology emphasized chemistry as a molecular science. Hence, it is not surprising that in 1956 we launched *Current Contents* for the Pharmaco-Medical and Life Sciences. From its inception, *Current Contents* catered to the emerging fields of biochemistry and molecular biology. I also mentioned Smith Kline because I am conscious that this lovely hall is named after my erstwhile colleague at SK&F-- Glen Ulliyot .

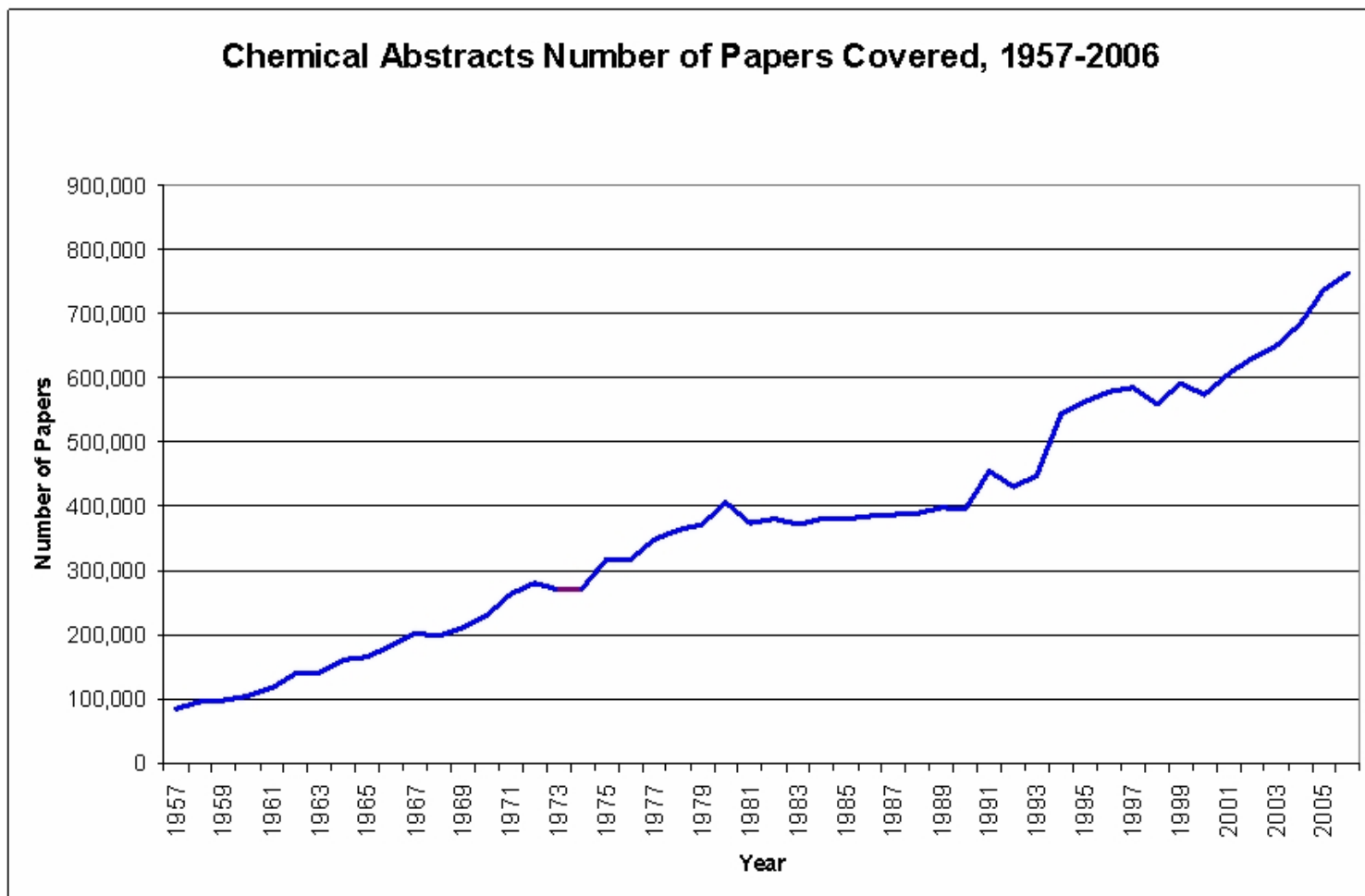
SLIDE 1: SCIENCE CITATION INDEX PAPERS COVERED, 1955-2006

This first slide shows you the number of papers indexed in the *Science Citation Index* from 1956 to 2006. Over the past 50 years, the *SCI*'s coverage has grown from about 125,000 articles per year to about 1,200,000 per year – a ten-fold increase.



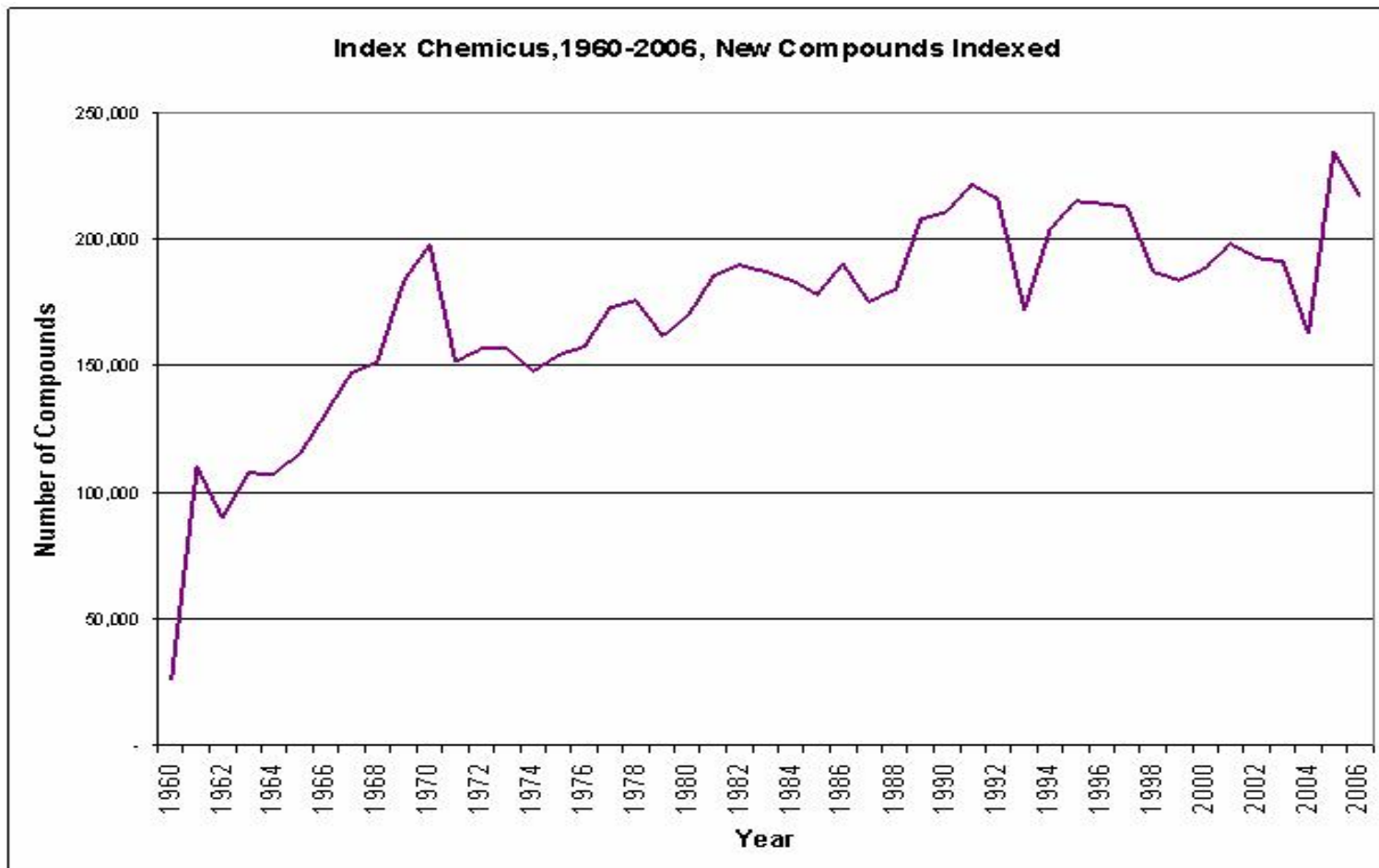
SLIDE 2: CHEMICAL ABSTRACTS NUMBER OF PAPERS COVERED, 1957-2006

Since I have had a long connection to chemical information per se, it is relevant to draw on the CAS database to demonstrate its growth, which parallels that of the *SCI*. Clearly the slope of these two curves is almost identical.

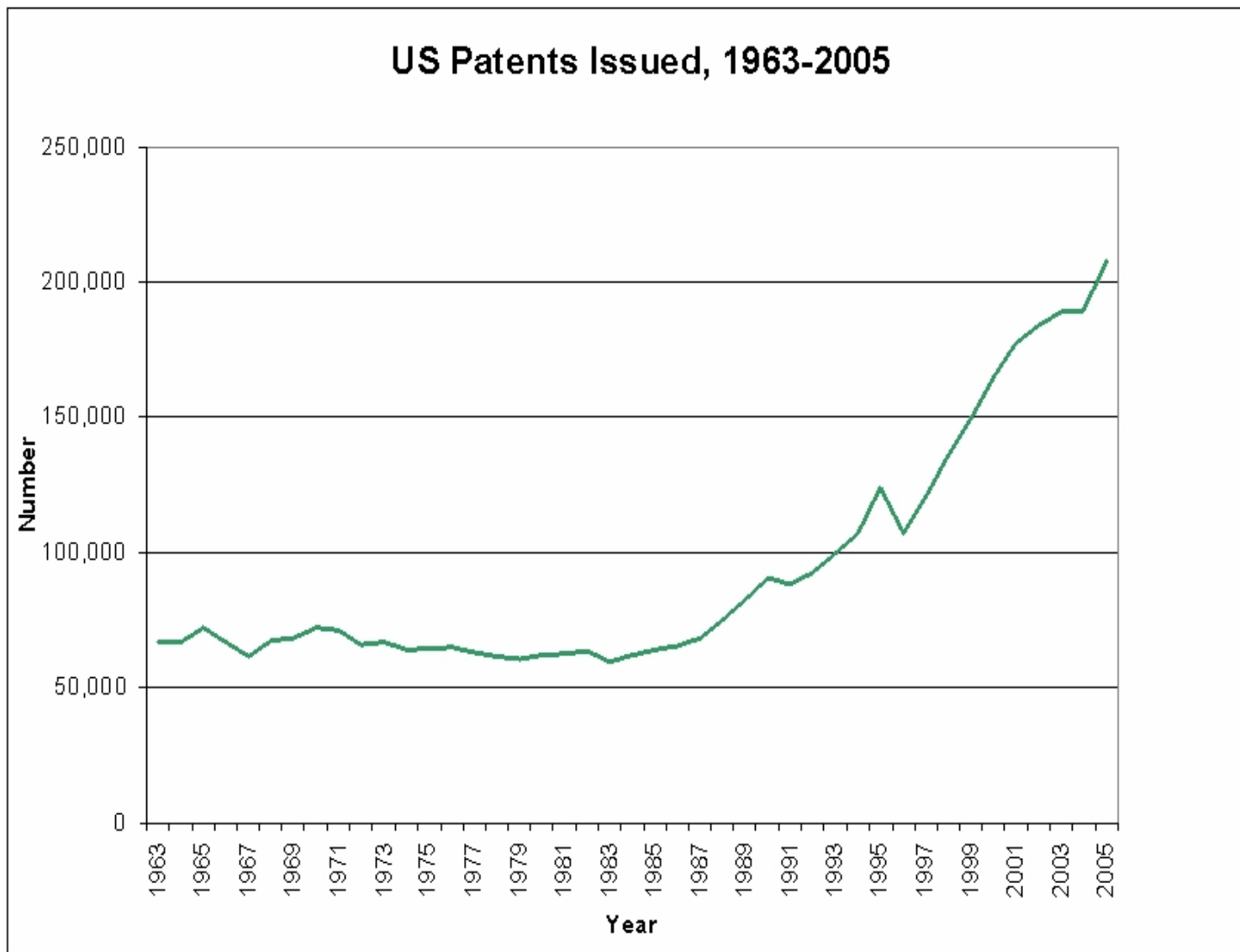


SLIDE 3: INDEX CHEMICUS, 1960-2006, NEW COMPOUNDS INDEXED

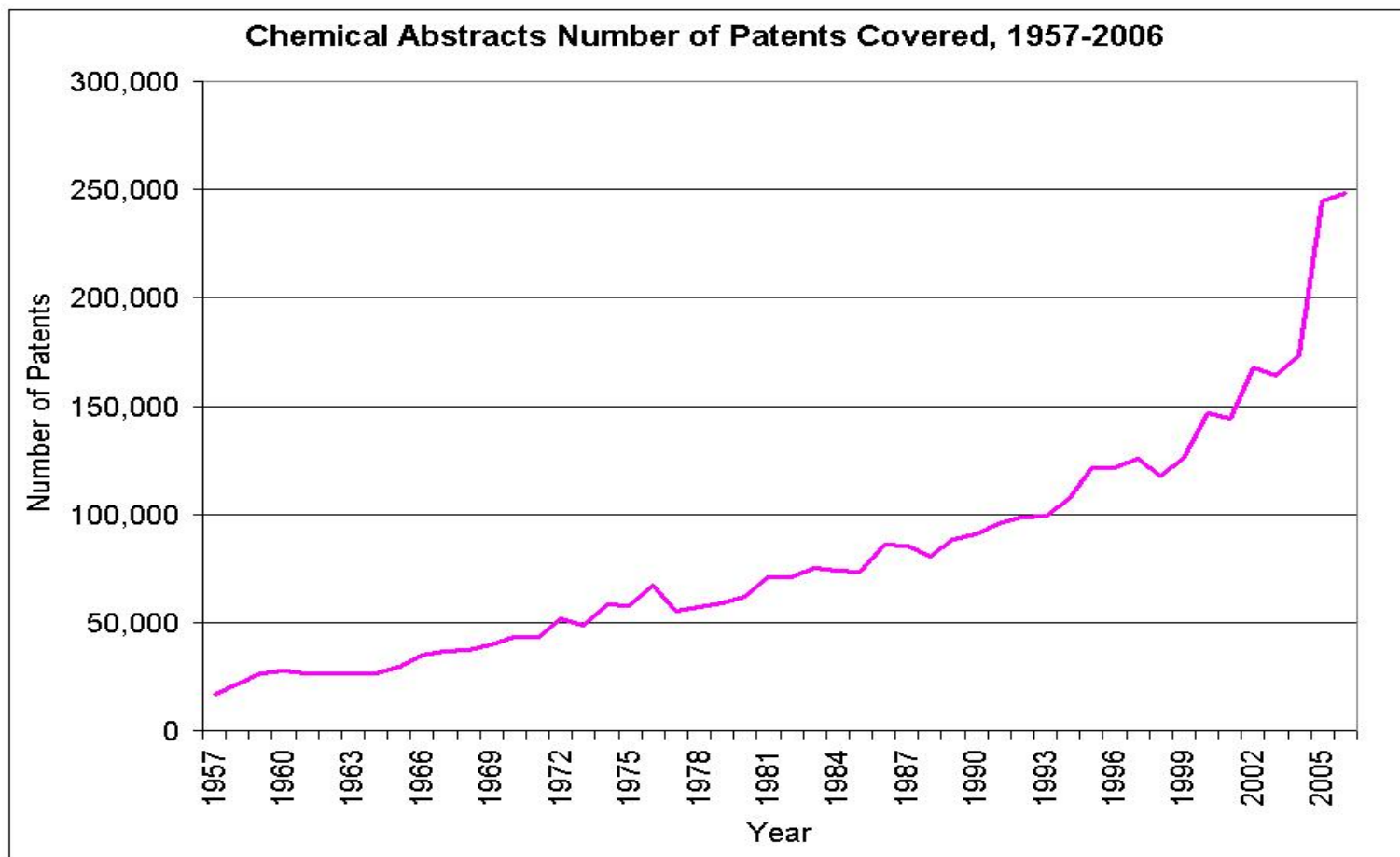
In this slide, I've shown the number of new organic compounds reported each year in *Index Chemicus*.



SLIDE 4: US PATENTS ISSUED, 1963-2005 - Finally, I thought you would want to see comparable data for US patents.



SLIDE 5: *CHEMICAL ABSTRACTS* NUMBER OF PATENTS COVERED, 1957-2006



In closing, I would like to thank the Chemical Heritage Foundation for this recognition, and to recognize the many family members and friends who made it possible.