Many people are now asking themselves how this could have happened; only a few short years ago, the picture seemed decidedly different.

In the late 1950s and early 1960s, my great-uncle Leroy Burney, then Surgeon General of the United States, and my grandfather David Cox, president of the Kentucky Medical Association, joined many other physicians in the industrialized nations in declaring that the antibiotic era had come, jointly proclaiming the end for all time of epidemic disease.

This 1962 statement by an eminent Nobel laureate, the Australian physician Sir F. Macfarlane Burnet, is typical. By the end of the twentieth century, he commented, we will see the "virtual elimination of infectious disease as a significant factor in societal life." Further study and publication of infectious disease research, he continued, "is almost to write of something that has passed into history." Seven years later, one of my great-uncle's successors, Surgeon General William Stewart, testified to Congress that "it was time to close the book on infectious diseases." They couldn't have been more wrong.

THE END OF MIRACLE DRUGS

Though penicillin was discovered in 1928, only during World War II was it commercially developed, and not until after the war did its use became routine. Those were heady days. It seemed that science could do anything. New antibiotics were being discovered daily; the arsenal of medicine seemed overwhelming. In the euphoria of the moment, no one heeded the few voices raising concerns. Among them, ironically enough, was Alexander Fleming, the discoverer of penicillin. Dr. Fleming noted as early as 1929 in the *British Journal of Experimental Pathology* that numerous bacteria were already resistant to the drug he had discovered, and by 1945 he warned in a *New York Times* interview that improper use of penicillin would inevitably lead to the development of resistant bacteria. Fleming's observations were only too true. At the time of his interview, just 14 percent of *Staphylococcus aureus* bacteria were resistant to penicillin. By 1950, an incredible 59 percent were resistant, and by 1995, that figure had jumped to 95 percent. Originally limited to patients in the hospitals (the primary breeding ground for such bacteria), the resistant strains are now common throughout the world's population. And