

PERFUMERY is considered by many to be an art, presumably because to label it a science is to reduce its powers of enchantment and mystery to an analysis of aldehydes and terpenes, not to mention indoles and salicylates. A science it undoubtedly is, however, with precise factors such as phase partition and critical dilution determining the success of an ephemeral fragrance.

The Perfume Handbook by Nigel Groom skilfully blends whimsy with chemistry, with a fair sprinkling of social and scientific history. Its encyclopaedic format of alphabetic listings (for example, "Low note . . . the third and last phase in the process of a perfume's evaporation on the skin, when the most lasting ingredients, such as woody or animalic scents, become most discernible") disguises a stimulating interpretation of matters olfactory. This is a catalogue, heavily laced with anecdote, of how human responses can be manipulated. Formulas are given for making Arabian incense and the favourite perfume of Henry VIII, and in an appendix some 1,300 modern scents are listed using almost as many adjectives. The book is illustrated with photographs and sketches (shown here are mace and nutmeg, *Myristica fragrans*). Chapman and Hall, £35, \$29.95.

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pross before the Second World War in electronics research assured a great wartime build-up in that field. In turn, the strength gained in wartime provided a powerful base for postwar industrial developments and the microcomputer boom that lay at the heart of 128's prosperity. Helping too in those early days, they add, was the presence in Washington of Vannevar Bush, a former MIT professor of electrical engineering, as head of the wartime research effort. "With his many MIT connections", the authors state, "it was perhaps inevitable that Bush would think first of his former employer when delegating contracts."

They credit MIT's longstanding cultivation of close ties with industry for providing a natural thrust for faculty and associates to take the plunge into garage-based high-tech enterprise. They note the abundance of Pentagon money in Massachusetts — some \$8 billion in prime contracts, including \$455 million to MIT and associated laboratories in 1990. Many of the small start-up companies in the initial round of 128's growth were launched without the help of venture capital, but private investment later became a considerable factor in the economics of high-tech enterprise in Massachusetts, totalling \$13.4 billion between 1978 and 1984.

Except for several sparse references to Silicon Valley and a few other regions that, in some part, underwent the 128 phenomenon of rapid high-tech growth, the authors focus exclusively on the Massachusetts experience. In doing so, they cover their stated territory, but neglect the opportunity to enlarge our understanding of post-industrial economic growth. Academic strength, entrepreneurship, heavy spending on defence

research and development, and financial acumen are not confined to Boston.

As US presidential candidates joust over the proper role of government in assuring industrial prosperity, it would be helpful to receive useful lessons from the 128 experience. But, although billed in the subtitle of this volume, the offerings are fairly slim, and several of them bear a whiff of regional 'boosterism'. Policymakers are advised that because of the riches of educational and research facilities in the vicinity of Route 128, Silicon Valley and southern California (the last two just mentioned barely), these regions "can provide particularly valuable places for both industry and government to locate advanced technology research facilities, which in turn further encourage the passage of new technologies into the marketplace". And there is the customary pitch for string-free federal money for research, justified on the grounds that "it is dangerous for the federal government to try to out-guess the marketplace or the course of research. It makes more sense to rely on the creativity and entrepreneurship inherent in the system to adapt to meet these needs and demands."

Given the glut of federal money and military goals that underpinned the Boston-area high-tech economy — before the crash, that is — the case for *laissez-faire* is questionable. Rosegrant and Lampe do a good job of telling what happened on that remarkable road that rings Boston and Cambridge. The dynamics of the process are another story. □

Daniel S. Greenberg is editor and publisher of *Science & Government Report*, 3736 Kanawha Street NW, Washington DC 20015, USA.

Brazen anatomy

Fred S. Rosen

Encyclopedia of Immunology. 3 Volumes. Edited by Ivan M. Roitt and Peter J. Delves. Academic: 1992. Pp. 1,578. \$450, £300.

ENCYCLOPAEDISTS are members of an antique profession. Compulsion or hubris or both have long induced scholars to attempt to write down all that is known, *tam sacrarum quam profanum epistemon*, as an encyclopaedist of Basel wrote in 1559. Somewhat later Coleridge noted that an encyclopaedia should contain pure science, applied science, biographical and historical matter, a lexicography and an index. The editors of the *Encyclopedia of Immunology* have assembled both the sacred and the profane from more than 1,200 outstanding scholars and researchers in the field. The contributions, which are 250 to 2,500 words long, maintain a uniform level of conciseness, clarity and excellence. The entries, in a remarkable way, cover the current state of knowledge about immunology. Certainly these three volumes belong on the bookshelf of anyone working in the field.

The editors could have profited from the advice of Coleridge because biographical material would have enlivened this ambitious work. At least, the achievements of the dead and the ennobled could have been described with a succinctness that characterizes the rest of the work and have made this great body of knowledge more vivid.

The volumes might possibly have been even more useful had the entries been arranged by subject matter. The mediaeval Arabic encyclopaedist, Ibn Qutayba, began with power and ended with women. And again Coleridge in his wisdom stated: "To call a huge unconnected miscellany of the *omne scibile*, in an arrangement determined by the accident of initial letter, an encyclopaedia, is the impudent ignorance of your Presbyterian bookmakers." The Calvinist press of the Reformation may not be alone in a state of impudent ignorance.

Immunology began as a branch of microbiology. Its infancy was spent in the description of immunological responses to infection. In this encyclopaedia there is a complete coverage of the immune response to all important infectious pathogens. Nowhere else, to the best of my knowledge, can this information be so quickly and easily obtained. The illustrations, such as an electron micrograph of cryptosporidia resident in the gut of a lamb (or it could be a patient with AIDS), are excellent and indeed worth the proverbial