dom bit generation for cryptographic purposes in the sense of A. Yao, M. Blum, and S. Micali, that is, the problem of finding functions which stretch a short string of truly random bits into a long string of bits which looks random to observers having limited computational power. This problem is closely linked with issues of computational complexity. The author presents two different constructions of pseudorandom bit generators that relate to given complexity classes. The first construction is of a general type and produces bit strings that look random to any algorithm from a complexity class C using an arbitrary function that is hard for C. In particular, using the known lower bounds for constant-depth circuits, this construction yields unconditionally proven pseudorandom bit generators for constant-depth circuits. The second construction, which does not rely on any unproven hypothesis, produces bit strings that look random to all Logspace machines.

H. N.

33[65C05, 65D32].—NANCY FLOURNOY & ROBERT K. TSUTAKAWA (Editors), *Statistical Multiple Integration*, Contemporary Mathematics, Vol. 115, American Mathematical Society, Providence, RI, 1991, xii+276 pp., $25\frac{1}{2}$ cm. Price $71.00.

This collection of articles arose from the AMS–IMS–SIAM Joint Summer Research Conference on Statistical Multiple Integration which was held at Humboldt University, Arcata, California, in 1989. The emphasis in these papers is on Monte Carlo methods and analytic approximation methods. Articles of particular interest for numerical analysts are those by D. K. Kahaner on existing software for multidimensional numerical integration, by A. Genz on subregion adaptive algorithms, by M. Mascagni on the implementation of algorithms for high-dimensional numerical integration on massively parallel computers, and by M.-S. Oh on importance sampling.

H. N.

34[11–06, 11B37, 11B39].—G. E. BERGUM, A. N. PHILIPPOU & A. F. HORADAM (Editors), *Applications of Fibonacci Numbers*, Vol. 4, Kluwer, Dordrecht, 1991, xxiv+313 pp., $24\frac{1}{2}$ cm. Price $99.00/Dfl.180.

This book consists of thirty-three papers from among the thirty-eight papers presented at the Fourth International Conference on Fibonacci Numbers and their Applications held at Wake Forest University, Winston-Salem, NC from July 30–August 3, 1990. The theme of these Conferences is wider than that suggested by their title; in fact, they are devoted to the theory and application of linear recurring sequences in general. The papers are very diverse, discussing the occurrence of these sequences in such settings as: algebra, combinatorics, graph theory, geometry, number theory, probability, and even electronics.

H. C. W.