whose original proof was very difficult (and for which still a new, quite simple proof was found recently by Hörmander and Melin). Goodman's proof grows out naturally from his fundamental guiding idea of approximating one algebraic structure by another which he uses fruitfully at other points too.

The notes are mainly oriented towards the Rothschild-Stein theory of hypoellipticity and they contain an account of singular integral theory in a rather general setting well adapted to this application. But there are also two long sections about the applications to intertwining operators and to the Cauchy-Szegö integral. These contain clear detailed explanations of the original problems and their connections with other things. A particularly attractive feature is the inclusion in the section on the Cauchy-Szegö integral of an account of the work of R. D. Ogden and S. Vági which illuminates the problem from the side of harmonic analysis on H_n. There is also an interesting appendix on generalized Jonquières groups, and there is a good bibliography.

This set of notes, which could actually be called a book, is indispensable to anyone seriously interested in this promising new subject.

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Stochastic processes, by John Lamperti, Applied Mathematical Sciences, vol. 23, Springer-Verlag, New York, Heidelberg, Berlin, 1977, xiv + 266 pp., \$9.80.

Ever since the appearance of J. L. Doob's 1953 book of that name, *Stochastic processes* has been a term to conjure up visions of elaborate mathematics applicable to studying the passage of time in random phenomena. It has been aptly remarked (I believe by Professor Lawrence Marcus) that the real universe is *either* a mechanical system of infinite dimension, *or* a stochastic process. If we admit the presence of random elements then only the second alternative is possible. In a topic of this breadth, however, it is inevitable that one does not make headway with a frontal approach but only by the maxim of "divide and conquer". One postulates various special properties which lend themselves to mathematical development, but one leaves the question of their universal applicability to others (presumably, to philosophers and theologians). It is perfectly sufficient that the results be interesting mathematically, and that they apply (to a sufficient degree) within very restricted areas of validity.

In writing a general text on stochastic processes, one is thus confronted at the outset with a dilemma. On the one hand, since a stochastic process is simply a family of random variables X_t, $t \in T$, on a probability space (Ω, F, P), there is little or nothing to be said about the subject as a whole. On the other hand, as soon as special further properties are assumed, the subject divides into domains which are rather far apart, both physically and mathematically, according to the differing natures of those assumptions. The situation is not unlike what one would encounter in biology if asked to write on the topic of "habitats". It is first of all necessary to specify what creatures are to be the inhabitants, and this makes a vast difference in the results!