corresponds to a Lie subgroup, strikes me as one of those necessary but dull routines which are found in the elements of almost every mathematical subject. The classification of simple Lie algebras, on the other hand, is a stunning example of how beautiful linear algebra can be. The inclusion of the classification theorem at the end is a delicacy for the medicine the student has been forced to swallow; when so much of the proof is missing, however, the student is unable to recognize the treat for what it is.

There seem to be only a few misprints; e.g., the reference to A.3.9 on p. 146 should be A.1.6, and "notamment" is misspelt on p. 152. None of them should cause trouble. Each of the six chapters ends with historical notes and some exercises; many of the latter extend remarks and fill gaps in the text

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Mathematical theory of economic dynamics and equilibria, by V. L. Makarov and A. M. Rubinov, Springer-Verlag, New York, Heidelberg, Berlin, 1977, xv + 252 pp. $32.10.

In 1932 von Neumann presented a paper at a mathematics seminar at Princeton which was published six years later at the request of K. Menger [5] and translated into English in 1945 [6]. The ideas which form the main theme of the book under review, especially the key concepts of "economic dynamics" and its relation to "equilibria", appeared here in explicit mathematical form, probably for the first time. The von Neumann paper is one of the two "primary sources" for this book (the other will be mentioned later), and as such seems a convenient starting point for this review.

Here is a paraphrase of what von Neumann did. He considered an economic world in which there are n goods and a system of production, a *technology*, which can be described in the following simple manner. A *process* consists of a pair (a, b) of nonnegative n-vectors $(a_1, \ldots, a_n)$, $(b_1, \ldots, b_n)$ where the entries a_i and b_i represent the amounts of the ith good. The physical interpretation is that if the vector a is available in an *input* at some time t then the vector b can be obtained from it as an *output*, becoming available at time $t + 1$. Processes are assumed to be *positively homogeneous* so that if (a, b) is a process so also is $(\xi a, \xi b)$ for any $\xi \geqslant 0$. Further if (a, b) and (a', b') are processes it is assumed that they may be operated simultaneously so that $(a + a', b + b')$ is also a process. A technology T is simply a set of