Ja. S. Zypkin: Adaptation und Lernen in automatische Systemen. (Adaptation and learning in automatic systems, in german)
Beihefte zur Zeitschrift "Regelungstechnik". R. Oldenbourg Verlag, München, Wien, 1966, 76 pages, 11 fig., price DM 13,50.

This booklet is the printed version of a talk given at a congress for Engineering Cybernetics at Odessa U. S. S. R. , September 1965. It was published in Russian in the journal "Avtomatika i Telemekhanika" and, translated into English, in Automation and Remote Control. ($\underline{27}$, 1, Jan. 1966)

Prof. Zypkin also used a great part of this material in a survey paper at the third IFAC (International Federation of Automatic Control) Congress in London, June 1966, and as such it will be published in the proceedings of that congress.

The purpose of this publication is to give a coherent picture of the problems that arise in adaptive, learning and self-learning systems. The list of references contains 161 publications, a large majority of which are from the last ten years. The unifying element of all is found in the theories for and methods of solving extremum problems i. e. the search for extremal values of functions of more variables or functionals with constraints. In view of the stochastic environment of the applications under discussion the theory of stochastic approximation is emphasized. The chapters of the booklet are entitled:
- Mathematical Programming. Methods of Stochastic Approximation
- Character Recognition
- Parameter Estimation
- Adaptive Filters
- Adaptive Control Systems
- Some Applications of Adaptation in Operations Research and Reliability Theory.

In the limited number of pages available the author only sketches the problems, the algorithms that can be used for the solution of these problems and in some cases the conditions under which the solution holds. For those who want to be introduced to the problem of learning and adaptive systems and who want to have a survey of relevant literature on these topics this booklet can be strongly recommended. It might be disturbing for some readers that the transliteration system used differs a little from the ISO or BSI recommendations.

<div align="right">P. Eykhoff</div>