This paper is a review of the results in ergodic theory and its applications that appeared during the period from 1967 till 1975. Two main directions considered here are the remarkable results achieved by D. S. Ornstein and his collaborators on the problem of metric isomorphism of Bernoulli automorphisms and $K$-automorphisms and the new deep connections of ergodic theory with statistical mechanics. The main part of this review is devoted to the ergodic theory of hyperbolic dynamical systems. On the other hand many papers concerning the applications of ergodic theory, in particular “physical” works, which do not contain mathematical results are not considered. The text of this review contains the full definitions of only the main new ideas that appeared in ergodic theory during the last ten years and the old definitions are not given here. This review will be of great use to all mathematicians and physicists who deal with ergodic theory in their work.

{For the entire collection see MR0504499.}  

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