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REPORT

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COUNTRY	USSR	CD NO.	
SUBJECT	Scientific - Metals, stress corrosion	DATE OF INFORMATION	1950
HOW PUBLISHED	Book	DATE DIST.	15 Mar 1952
WHERE PUBLISHED	Moscow	NO. OF PAGES	2
DATE PUBLISHED	1950	SUPPLEMENT TO REPORT NO.	
LANGUAGE	Russian		

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SOURCE Korroziya metallov pod napryazheniyem i sposoby zashchity, Mashgiz.

DESCRIPTION OF THE BOOK "STRESS CORROSION OF METALS AND PROTECTIVE MEASURES"

This book represents a symposium of scientific research and experimental works conducted lately in the metal corrosion laboratory of the Central Scientific-Research Institute of Technology and Machine Building (TsNITMASH).

The paper "Protection of Steel Against Corrosion-Fatigue Deterioration," by Candidate of Technical Sciences A. V. Ryabchenkov, suggests a series of treatments and protective measures which effectively increase fatigue strength and life of parts working under conditions met in a water-supply system and in sea water.

Especially noticeable improvement in corrosion-fatigue strength of carbon steel may be attained by short nitriding, zinc plating, shot peening, or rolling with subsequent galvanizing and electrochemical protection with zinc protector or current.

"Investigation in the Field of Boiler Brittleness," by Prof S. G. Vedenkin and Engineer V. M. Nikiforova, longest article (36 pp) in the book, contributes to investigation of crack formation in locomotive and stationary boilers, revealing the effect on development of cracks produced by such basic factors as metal properties, composition of water medium, and operating conditions. Several measures are suggested for preventing crack formation in steam boilers. The paper also includes a general review of theories accepted for explaining phenomena of crack formation.

"Study of the Corrosion Resistance of Boiler Steels Under Action of Steam of High Temperatures," by Prof S. G. Vedenkin, Candidate of Technical Sciences Ye. A. Davidovskaya, and Engineer L. P. Kestel', represents the first attempt at studying the corrosion resistance of steels used in the Soviet boiler industry in an atmosphere of superheated steam. Preliminary investigation of actual behavior of various steels in high-pressure boilers took place before laboratory study. Causes and mechanism of corrosion development are discussed, and conclusions are made concerning the effect of temperature on oxidation of steels in the atmosphere of steam.

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Candidate of Technical Sciences Ye. A. Davidovskaya and Engineer L. P. Kestel', in the article "Development of Protective Measures Against Jamming of Moving Machine Joints at High Temperatures," describe their laboratory investigation of temperature-resistant lubricants and suggest, as most effective, lubricants containing colloidal silver.

"Effect of Surface Finish on the Corrosion Resistance of Steel," by Candidate of Technical Sciences A. V. Ryabchenkov and Engineer M. G. Timbulatov, gives results of investigating the tendency of steel to corrosion, depending on surface finishing by cutting, shot peening, running with rollers, grinding, and mechanical or electrolytic polishing.

The same authors are represented by another work, "Investigation of the Effect of Surface Finish on the Corrosion Tendency of Steel by the Method of Plotting Polarization Curves."

The last article, "Electrolytic Chrome Plating for Repairing Automobile Parts," by Engineer A. V. Rykova, deals with experiments for determining optimum conditions of the electrolytic process and the effect of chrome plating on mechanical properties of structural steels.

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