by the author himself), this chapter is particularly worthwhile reading. We might also mention the extensive bibliography.

HANS FREUDENTHAL

*Qualitative theory of differential equations.* Parts I and II. By V. V. Nemytskii and V. V. Stepanov. Trans. from the 2d Russian edition. Princeton University Press, 1960. 8+523 pp. $12.50.

REVIEW OF PART I

This is a translation of the second (1949) Russian edition. There are four chapters, a bibliography and index to part one.

Chapter one is on existence and continuity theorems. It contains existence and uniqueness theorems for real systems and includes dependence on initial conditions, but not on parameters. The last section is on fields of lineal elements.

Chapter two is on systems of two differential equations and contains 110 pages. Aside from a detailed treatment of singular points in the plane, results of Poincaré and Bendixon and many extensions are given. Trajectories on a torus are treated. The Lienard plane is considered.

Chapter three is on systems of $n$ equations. It contains a treatment of linear systems, including the case of constant and periodic coefficients. Asymptotic behavior of linear and non-linear systems is treated. The main tool is the "variation of constants" formula in its matrix form.

Chapter four is on neighborhoods of singular points and of periodic solutions. The singular point in the analytic case is treated at length. Lyapunov stability and the method of surfaces of section are treated.

The appendix is an excerpt from the Bulletin of Moscow University; No. 8 (1952), Mathematics, by Nemytskii and is a survey of contributions by Russians.

(The results of O. Dunkel published in Proc. Amer. Acad. Arts Sci. vol. 38 (1912–1913) which are being rediscovered in various countries every few years appear as a relatively recent Russian result here. Since the reviewer also "discovered" the Dunkel results some years ago, he feels free to point out fellow offenders.)

NORMAN LEVINSON

REVIEW OF PART 2

An autonomous system of ordinary differential equations

$$(*) \qquad \frac{dx_i}{dt} = f_i(x_1, \cdots, x_n) \qquad (i = 1, \cdots, n)$$