Porter showed that there were points on the circle of convergence which are condensation points for the zeros of the polynomial convergents and that in the neighborhood of every point of this circle the set of these polynomials took on values less than any assigned number however small. He also showed that no set of these polynomials remained limited throughout any region lying outside the circle of convergence.

A. S. CHESSIN,
Secretary.

SELECTED TOPICS IN THE THEORY OF BOUNDARY VALUE PROBLEMS OF DIFFERENTIAL EQUATIONS.

AN ABSTRACT OF FOUR LECTURES DELIVERED AT THE NEW HAVEN COLLOQUIUM, SEPTEMBER 5–8, 1906.

BY PROFESSOR MAX MASON.

§ 1.

FUNCTIONAL equations — particularly integral equations — have aroused much interest and activity in recent years. Important contributions to the subject have been made, notably by Volterra, Fredholm and Hilbert, and the results have found application in the field of mathematical physics and differential equations. The equations studied have been for the most part of a type difficult of solution, and the treatment correspondingly complicated.

There is however a type of functional equation whose solution may be obtained in a simple manner. Consider the equation

$$f = g + Sf, \tag{1}$$

where g is a known function, and S a *linear operator*, that is $S(u + v) = Su + Sv$. *The operator S will be called convergent if the infinite series*

$$\phi + S\phi + S^2\phi + S^3\phi + \cdots$$

converges for all functions ϕ which satisfy the conditions of con-