holm determinant is in the system of linear integral equations

$$\psi_1 = \varphi_1 + \int \kappa_{11}\varphi_1 + \int \kappa_{12}\varphi_2, \tag{4}$$
$$\psi_2 = \varphi_2 + \int \kappa_{21}\varphi_1 + \int \kappa_{22}\varphi_2,$$

in which the kernels κ_{12}, and κ_{22} are expressed in terms of the $3n$ functions $\alpha_i(x)$, $\beta_i(x)$, and $\gamma_i(x)$ as follows:

$$\kappa_{12} = \Sigma_1^n \alpha_i(x)\beta_i(y), \qquad \kappa_{22} = \Sigma_1^n \gamma_i(x)\beta_i(y).$$

If we substitute these values and multiply the second of the two equations by $\beta_j(x)$ and integrate with respect to x, we replace the above system by a system of the type (3) in which $\varphi_j = \int \beta_j(x)\varphi_2(x)dx$. The value of the function φ_2 can then be determined from the second of the equations (4). Since the Fredholm determinant of a system (3) is a bordered determinant, the Fredholm determinant of a system of the type of (4) would also be.

Obviously, these results can be extended by introducing the general range in place of the range I: $a \leqq x \leqq b$ and general classes of functions instead of continuous functions, and a general linear operator in place of integration in accordance with the postulates of Moore's general theory.

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ON THE COHERENCE OF CERTAIN SYSTEMS IN GENERAL ANALYSIS.

BY PROFESSOR A. D. PITCHER

IN a previous paper* attention was called to the property *coherence*, so named, of systems $(\mathfrak{Q}; \delta)$, where $\mathfrak{Q}$ is an abstract class of elements q and $\delta(q_1q_2)$ a distance function defined for every pair q_1q_2 of elements of $\mathfrak{Q}$. In the present paper it is shown that certain of the most notable of the systems of E. H. Moore's Introduction to General Analysis† which were devised without reference to coherence, or indeed without

* "On the foundations of the calcul fonctionnel of Fréchet," by A. D. Pitcher and E. W. Chittenden, *Transactions Amer. Math. Society*, vol. 19, No. 1, pp. 66–78.

† Cf. New Haven Mathematical Colloquium, Yale University Press, 1910. We refer to this memoir as I. G. A.