If we let ω be any of the possible solutions of

$$x = \beta(\omega), \qquad g(0) \leqq \omega \leqq g(1),$$

we may write (4) in the form

$$F(\omega) = M(\omega) + \lambda \int_{g(0)}^{g(1)} k(\omega, s)F(s)ds,$$

where $F(\omega)=f(\beta(\omega))$, $M(\omega)=m(\beta(\omega))$, $k(\omega, s)=K(\beta(\omega), \beta(s))$. We thus have our main result:

THEOREM 3. *When $G(x, y)$ is absolutely continuous $g(y)$ the Fredholm-Stieltjes integral equation* (1) *is reducible to an ordinary Fredholm integral equation.*

4. **Mixed linear equations.** The mixed equation*

$$f(x) = m(x) + \sum_{i=1}^{m} \lambda K^{(i)}(x)f(s_i) + \lambda \int_0^1 K(x, s)f(s)ds \tag{5}$$

can easily be put into the form

$$f(x) = m(x) + \lambda \int_0^1 R(x, s)f(s)dg(s).$$

Thus from Theorem 3 we see that equation (5) is reducible to a Fredholm integral equation.

DUKE UNIVERSITY

A THEOREM ON QUADRATIC FORMS†

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In this note the following result is proved:

THEOREM. *Suppose $A[x] \equiv a_{\alpha\beta}x_\alpha x_\beta$,‡ $B[x] \equiv b_{\alpha\beta}x_\alpha x_\beta$ are real quadratic forms in (x_α), $(\alpha = 1, \cdots, n)$, and that $A[x] > 0$ for all real $(x_\alpha) \neq (0_\alpha)$ satisfying $B[x] = 0$. Then there exists a real constant λ_0 such that $A[x] - \lambda_0 B[x]$ is a positive definite quadratic form.*

This theorem is of use in considering the Clebsch condition for multiple integrals in the calculus of variations. A. A. Albert§ has given

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* W. A. Hurwitz, *Mixed linear integral equations of the first order*, Transactions of this Society, vol. 16 (1915), pp. 121–133.

† Presented to the Society, December 30, 1937.

‡ The tensor analysis summation convention is used throughout.

§ This Bulletin, vol. 44 (1938), pp. 250–253.