number of conditions in order that f_{pm} may be an mth power is $\binom{m+p-1}{m} - p$.

Each one of the Hessians $H\phi_0$, K_j $(j = 1, 2, \cdots, p-2)$ is of order $2m-4$ in the variables which it contains, and so the number of vanishing coefficients in each is $2m-3$. Hence these give $(2m-3)(p-1)$ conditions in addition to the $\binom{m+p-1}{m} - m(p-1) - 1$ assumed ones. But of the $2m-3$ conditions obtained by equating to zero the coefficients of a binary Hessian covariant only $m-1$ are independent, as the m coefficients of the form can all be expressed in terms of a single quantity when the Hessian vanishes. Hence we have as a total number of conditions given by the original factorability conditions of f_{pm} and the Hessians

$$\binom{m+p-1}{m} - m(p-1) - 1 + (m-1)(p-1) = \binom{m+p-1}{m} - p,$$

which is thus the minimum number required. Hence the relations derived in § 2 furnish a minimum set.

In the same way it may be shown that (6), (7), (8), (9) are all minimum sets.

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THE GENERAL TERM OF A RECURRING SERIES.

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1. The principal theorem of this note expresses the general term of a recurring series rationally in terms of the first few terms and the constants of the scale of relation. Although I derived it in 1908, I have only recently learned that practically the same theorem was published by D'Ocagne in 1894 (*Journal de L'Ecole Polytechnique*, volume 64, pages 151–224) and by Netto in 1895 (*Monatshefte für Mathematik und Physik*, volume 6, pages 285–290). Nevertheless it may be worth while to publish my own work for three reasons: first, because my proof is simpler than those of D'Ocagne and Netto; second, because I have stated the result in a more explicit form than that of either of these authors *; third, because I have applied

* D'Ocagne gives an explicit statement of the theorem (p. 163) for the special case in which the series is a "suite fondamentale," but not for the general case.