scription of his treatment, I should perhaps have made it clearer that the derived formula (6) gives only the distance D_{ij} measured from the initially chosen and fixed gene i to an arbitrary gene j. Other distances D_{jk}, $(i < j < k)$, are deduced from it by the postulate of additivity $(D_{jk} = D_{ik} - D_{ij})$. If the origin i is changed, there will be a similar formula (6), but it should not be assumed that the function p_0 is the same. In referring to certain conditions necessary 'to assure additivity,' Geiringer evidently means conditions that the function p_0 may be the same for all origins i. These conditions would be interpreted biologically as asserting uniformity of interference along the chromosome. I agree that there are further points to be cleared up in this connection.

If I might sum up the discussion, I would say that the geneticist's conception of the distance between genes is an actual property of the corresponding chromosome segment. Geiringer's definition represents the best possible general approach to this from the limited data of the l.d. alone. Haldane's definition fits the geneticist's conception, and his investigation is an attempt to get the best estimate of the distance by making approximate assumptions as to what happens between the observed genes. It is based on the unobservable crossover-distribution of a supposed infinite set of genes, but can be applied to particular models of this infinite c.d. so as to derive results which involve only a finite and observable c.d. Finally it should be mentioned that in the paper quoted, Haldane gave also an alternative method for the case $p = 2$, leading to the same formula (7'), which is really equivalent to defining the distance as the mathematical expectation of the number of chiasmata (not crossovers in G.'s sense) in the interval (i, j)."

A CRITERION OF CONVERGENCE FOR THE CLASSICAL ITERATIVE METHOD OF SOLVING LINEAR SIMULTANEOUS EQUATIONS

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The recent development of two devices[1, 2] for solving linear simultaneous equations by means of the classical iterative method[3] has stimulated the writer to investigate convergence criteria for the method. There are in the literature[4] necessary and sufficient criteria for convergence of symmetric systems, and sufficiency criteria for general systems. So far as the writer knows, however, this is the first development of a necessary and sufficient criterion for convergence in the general case. The results obtained are applicable to any arbitrary square non-singular matrix in which $a_{ii} \neq 0$.

Let the set of equations be represented by

$$AX = G, \tag{1}$$

[1] Morgan, T. D., Crawford, F. W., "Time-saving computing instruments designed for spectroscopic analysis", *The Oil and Gas Journal*, August 26 (1944), pp. 100–105.

[2] Berry, C. E., Wilcox, D. E., Rock, S. M., Washburn, H. W., "A computer for solving linear simultaneous equations", to be published.

[3] Hotelling, Harold, "Some new methods in matrix calculation", *The Annals of Mathematical Statistics*, Vol. XIV (1943), pp. 1–34.

[4] Mises, R. von and Pollaczek-Geiringer, Hilda, "Zusammenfassende Berichte. Praktische Verfahren der Gleichungsauflösung". *Zeitschrift für angewandte Math. und Mechanik*, Vol. 9 (1929), pp. 58–77, and 152–164.