I			II		
(1,2,1,3),	(2,3,2,1),	(3,1,3,2),	(1,2,1,3),	(2,1,3,1),	(3,3,2,2),
(1,2,1,3),	(2,1,2,2),	(3,3,3,1),	(1,2,1,3),	(2,1,3,2),	(3,3,2,1),
(1,2,1,3),	(2,3,2,2),	(3,1,3,1),	(1,2,1,3),	(2,3,3,1),	(3,1,2,2),
(1,2,1,3),	(2,1,2,1),	(3,3,3,2),	(1,2,1,3),	(2,3,3,2),	(3,1,2,1),

while in $R(M)$ we have

III		
(1,2,3),	(2,3,1),	(3,1,2),
(1,2,3),	(2,1,2),	(3,3,1),
(1,2,3),	(2,3,2),	(3,1,1),
(1,2,3),	(2,1,1),	(3,3,2).

Since $\phi_1 = e_1 + e_3$, $\phi_2 = e_2$, $\phi_3 = e_4$, it is not difficult to identify the sets in group III with those in group I. Thus

$$(1,\ 2,\ 3)_{\phi_j} = \phi_1 + 2\phi_2 + 3\phi_3 = e_1 + 2e_2 + e_3 + 3e_4 = (1,\ 2,\ 1,\ 3)_{e_i},$$

and similarly $(2,\ 3,\ 2)_{\phi_j} = (2,\ 3,\ 2,\ 2)_{e_i}$, $(3,\ 1,\ 1)_{\phi_j} = (3,\ 1,\ 3,\ 1)_{e_i}$.

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TRIPLE SYSTEMS AS RULED QUADRICS*

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1. **Introduction.** If n elements $x_1, x_2, \cdots, x_n$ can be arranged in triples such that each pair x_ix_j occurs in one and only one triple, the arrangement so formed is a simple triple system. Credit for the first published paper on such systems is given to Kirkman.† Methods of construction, properties, and forms of interpretation of these and more general multiple systems can be found throughout the mathematical literature since that date.‡ In this note I propose to treat the element as a generic line in an ordinary three-space. Likewise, I shall point out some of the group properties which seem worthy of men-

* Presented to the Society, November 28, 1936.

† Kirkman, The Cambridge and Dublin Mathematical Journal, vol. 2 (1847), pp. 192–204.

‡ See A. Emch, *Triple and multiple systems, their geometric configurations and groups*, Transactions of this Society, vol. 31 (1929), pp. 25–42. An almost complete list of references is given in this paper. A more recent discussion of multiple systems is to be found in an article by R. D. Carmichael, *Tactical configurations of rank two*, American Journal of Mathematics, vol. 53 (1931), pp. 217–240.