CERTAIN NON-INVOLUTORIAL CREMONA TRANSFORMATIONS OF HYPERSPACE

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1. *Introduction.* The problem here presented was suggested by a paper by Maria Miglio.* A four page synthetic outline given there for S_4 has been enlarged upon and extended to S_r in the present paper.

2. *Definition of the Transformation.* A non-involutorial Cremona transformation in S_r is set up as follows. A $(1, 1)$ correspondence is established between the elements of a pencil of primals on a base o_1 and the points of a rational curve f_n of order n. A $(1, 1)$ correspondence is also established between the elements of a pencil of primals on a base o_2 and the points of f_n. Any point P in S_r determines with o_1 an element of the first pencil and associated with this element there is a point A on f_n. Associated with A there is an element of the second pencil on o_2. The intersection of this element with the line AP gives P', the image of P in the transformation. The inverse transformation proceeds in a similar way starting with the pencil of elements on o_2.

This transformation is examined as applied to the following cases:

Case A. Pencil of primes on o_1, pencil of primes on o_2.

Case B. (a) Pencil of quadric primals on o_1, pencil of primes on o_2.

         (b) Pencil of quadric primals on o_1, pencil of quadric primals on o_2.

Case C. (a) Pencil of cubic primals on o_1, pencil of primes on o_2.

         (b) Pencil of cubic primals on o_1, pencil of quadric primals on o_2.

         (c) Pencil of cubic primals on o_1, pencil of cubic primals on o_2.

Case D. Pencils of primals of higher order with f_n a line f_1.

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* Maria Miglio, *Nell' S_4 una classe di trasformazioni birazionali*, Catania Accademia Gioenia Atti, (5), vol. 18 (1932) [Mem. 19], pp. 1–22.