$$(5)\quad \{(a_2b_3 - a_3b_2)x_1 + (a_3b_1 - a_1b_3)x_2 + (a_1b_2 - a_2b_1)x_3\} \times \{s_1x_2x_3(x_2 - x_3) + s_1x_3x_1(x_3 - x_1) + s_3x_1x_2(x_1 - x_2)\} = 0.$$

Clearly, the quartic degenerates into the S-line of the pencil of cubics, and into a cubic having (s_1, s_2, s_3) as the S-point. Hence the

THEOREM: *Any cubic of the net with a given S-point may be generated by any pencil of cubics within the net, not containing the given cubic, and the projective pencil of lines joining the S-point of the given cubic to the S-points of the cubics of the pencil.*

Consider next two pencils of cubics C_λ with the S-line l, and C_μ with the S-line m, and a point S, not on l or m. Draw any line g through S, cutting l and m in S_λ and S_μ, and construct the cubics C_λ and C_μ having S_λ and S_μ as S-points.

They both pass through the two fixed points P and P' on g corresponding to each other in the Steinerian transformation. But P and P' also lie on the cubic C_S associated with S as an S-point. For a variable g through S, S_λ and S_μ describe two perspective point sets on l and m which are projective with the pencils of cubics C_λ and C_μ. These pencils are therefore themselves projective, and generate the cubic C_S. Hence the

THEOREM: *Every cubic of the net associated with a Steinerian transformation may be generated in an infinite number of ways by projective pencils of cubics of the same net.*

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SOME THEOREMS OF COMPARISON AND OSCILLATION.

BY PROFESSOR TOMLINSON FORT.

(Read before the American Mathematical Society September 4, 1917.)

THEOREM I: *Given*

$$(1)\qquad \frac{d}{dx}(K_1(x)y_1') + G_1(x)y_1 = 0$$

and

$$(2)\qquad \frac{d}{dx}(K_2(x)y_2') + G_2(x)y_2 = 0,$$