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Further light on the conjugation of Paramæcium.

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On December 7, 1913, conjugation occurred in a mass culture started from my pedigreed race of *Paramœcium aurelia*[1] at the 4,102d generation, showing that this race is a conjugating race when the proper conditions for its consummation are realized.[2]

Variations in the tendency to conjugate which are exhibited by pure races and lines of *Paramœcium* have led Calkins to the view that herein lies the clue to the directly opposite results derived from his races and from mine.[3] "The race that I worked with in 1901 was a conjugating race which died out in the 742d generation. Woodruff's long line of over 3,500 generations is a non-conjugating race and the two races cannot be compared in regard to vitality, since normal conjugation was prevented in the conjugating race, whereas in the non-conjugating race there was no artificial prevention of a normal process."[4]

Since conjugation has now occurred in animals from my race there is no evidence extant that a "non-conjugating" race of *Paramœcium* exists.

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[1] The possibility of conjugation occurring in the main lines of the pedigreed race is prevented by daily isolation of the individuals. For details of this race cf. Woodruff: PROC. SOC. EXP. BIOL. AND MED., 1912, Vol. ix, p. 121.

[2] Details of this experiment will appear in the *Journ. Exp. Zoölogy*, Feb., 1914.

[3] G. N. Calkins (*J. Exper. Zoöl.*, Nov., 1913, p. 509): "The life history of conjugating lines has shown that if conjugation is prevented, the race dies out." L. L. Woodruff (*Archiv f. Protistenk.*, Jan., 1911, p. 266): "I believe this culture shows clearly that *Paramœcium aurelia*, when subjected to suitable culture conditions, has the power of unlimited reproduction by division without conjugation or artificial stimulation."

[4] Calkins, PROC. SOC. EXPER. BIOL. AND MED., Vol. 10, 1913, p. 67.