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**Age of parents and vitality in *Uroleptus mobilis*.**

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Previous studies on the vitality of *Uroleptus mobilis* have shown that all ex-conjugants start with an initial high vitality as measured by the division rate. From this initial high rate, vitality gradually decreases during the life cycle until the race dies a natural death. After the first fifty days of a cycle endogamous conjugation may occur at any time with a resulting renewal of vitality in the ex-conjugants. Sufficient data have now been obtained to indicate that there is a difference in vitality of offspring given off at different age periods of the parental series, and a summary of such data is shown in the accompanying table.

Line 1 gives the total number of generations, or divisions, in each series; line 2 the total number of days required for those divisions; line 3, compared with line 5, indicates the extent of the renewal of vitality resulting from conjugation; line 4 gives the average division rate for any ten days of the entire life cycle on the assumption that divisions are equally distributed; line 6 gives the age of parents in days, at the time of conjugation which resulted in the offspring series, and line 8 the age in generations; lines 7 and 9 give the number of days and the number of divisions subsequent to the time of conjugation which resulted in the offspring series and represent the vitality remaining in the parental protoplasm.

High vitality in a series is indicated (1) by a high division rate which represents high metabolic activity; (2) by the large number of generations, or divisions, which the series undergoes, indicating a combination of high metabolic activity and endurance or lasting capacity; and (3) by endurance or long length of life of a series in days which may be combined with, or independent of, (1) and (2).

High vitality was shown in all three ways by series *C*, *F*, *I*, *P*, *U*<sub>1</sub>, *U*<sub>2</sub>, and *V*. Low vitality was shown in all three ways by series *Q*, *R*, and *a*, while series *W* and *H* were low in regard to

		C.	D.	F.	I.	L.	N.	O.	P.	U <sub>1</sub> .	U <sub>2</sub> .	V.	H.	J.	Q.	R.	W.	a.	A.
		(A.)	(A.)	(C.)	(F.)	(I.)	(J.)	(M.)	(L.)	(L.)	(L.)	(P.)	(A.)	(A.)	(I.)	(J.)	(N.)	(P.)	(P.)
Offspring.....		349	271	317	322	273	257	268	327	285	301	317	268	253	23	180	207	159	313
Parents.....																	to date	148	267
1	Total number of divisions.....	294	215	257	240	210	189	197	287	236	255	265	245	197	35	185	229	148	267
2	Number of days to last division.....																		
3	Division rate per 10-days to last division of parents.....	13.6	14.3	13.4	16.2	16.3	16.6	15.5	12.5	13.9	13.8	13.8	16.7	17.4	6.7	14.8	10.9	12.4	—
4	Division rate per 10 days for entire life.....	11.8	12.4	12.3	13.4	13.0	13.6	13.6	11.4	12.8	11.8	12.0	10.9	12.8	6.6	9.7	9.0	10.7	11.7
5	Division rate from time of offspring.....	11.9	12.1	10.8	11.1	13.7	9.0	11.0	11.2	9.3	9.3	10.5	7.8	1.1	1.5	2.1	5.4	4.6	—
6	Age in days at time of offspring.....	70	100	50	100	120	120	60	70	140	140	90	170	250	200	160	130	210	—
7	Number of days of life after time of offspring.....	197	167	244	156	90	77	136	140	70	70	197	97	17	40	37	59	77	—
8	Age in divisions at time of offspring.....	78	137	86	143	199	188	108	116	208	208	120	237	311	316	245	225	291	—
9	Number of divisions after time of offspring.....	235	176	263	174	123	65	150	157	65	65	207	76	2	6	8	32	36	—

Statistics of Offspring.

Statistics of Parents.

division rate and number of divisions, but high in endurance. The other series were intermediate as regards vitality some of them being high in (1) and intermediate in (2) and (3) as in series *D*, *L*, *N*, *O*, and *J*.

Without exception the series showing high vitality in all three ways came from young parents. Thus the *C* series started when the parent *A* series was 70 days old and in the 78th generation; the *F* series started when the parent *C* series was 50 days old and in the 86th generation; the *I* series was started when the parent *F* series was 100 days old and in the 143d generation; the *P* series and both *U* series came from the *L* series which was 70 days old and in the 116th generation when the *P* series started, and 140 days, or twice as old, and in the 208th generation when *U*<sub>1</sub> and *U*<sub>2</sub> were started; the *V* series, finally, was started from the *P* series when the latter was 90 days and 120 generations old.

Without exception, also, the series showing low vitality in all three ways came from old parents. Thus the *Q* series was started when the parent *I* series was 200 days old and in its 316th generation and should be contrasted with the *L* series which came from the same parent when younger; the *R* series was started when the parent *J* series was 160 days old and in the 245th generation, and should be contrasted with the *N* series which came from the same parent when it was 120 days old and in the 188th generation; the *a* series was started when the parent *P* series was 210 days old and in the 291st generation and should be contrasted with the *V* series which came from the same parents when they were 90 days old and in the 120th generation. The *W* series and the *H* series both of which were weak in respect to division rate and number of generations came from parents that were similarly old, the *W* series from *N* when in its 225th generation; the *H* series from *A* in its 237th generation. The *J* series was exceptional, for, coming from very old parents (*A* series when 250 days old and in the 311th generation) it was weak only in endurance.