thickly fuzzy seed-coat. It is thus similar in appearance to another lintless mutant which was discovered in 1932 in miscellaneous herbaceum material at Broach and the seed of which was kindly supplied to the writer by Mr. G. B. Patel, Cotton Breeder, Viramgam. The Baroda mutant was crossed with this and other known lintless mutants, in order to study its genetic relationships. The results obtained so far are briefly given below.

Baroda lintless × Broach 9 linted: The F_1 was linted. A single F_2 family consisting of 125 plants gave 96 linted: 29 lintless. On a 3 : 1 basis, the fit is good (x^2=0·216, P=0·5–0·7) and represents a single-factor segregation.

Baroda lintless × Viramgam lintless: F_1 was lintless and resembled the parents. In a single F_2 family of 147 plants, all plants were lintless like the parents. The same gene is thus responsible for lintlessness in both these types.

Baroda lintless when crossed with 1027 A.L.F., 1027 A.L.F. × Wagad, Dharwar, Nagpur, Mollisoni, Punjab glabrous and Nandyal lintless types gave a linted F_1, showing that the Baroda gene is distinct from these other mutants and complementary to them. In its cross with the Punjab hairy lintless, Baroda lintless gave a lintless F_1; but that these two genes are different is seen from the fact that in common crosses with 1027 A.L.F., 1027 A.L.F. × Wagad and Nagpur lintless, the Punjab hairy lintless gave a lintless F_1 whereas the F_1 with Baroda lintless was linted as stated above.

It is clear from these results that Baroda and Viramgam lintless represent independent mutations at the same locus and that they are distinct from other lintless types and complementary to a majority of them. The factor pair corresponding to the new mutant and the normal may be designated as $Li_d - il_d$. Further work to study the linkage relations of the gene is in progress.

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Baroda, G. K. GOVANDE.
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REGENERATIVE CAPACITY IN *PERIONYX SANSIBARICUS* MICHAELSEN (1891)

THIS earthworm, which is rather widely distributed in India from Allahabad to South Malabar, has been known hitherto only from preserved museum material. Through the kindness of W. B. Hayes, who furnished the specimens, and of I. D. Caleb, who provided the opportunity and facilities for the work, it has now been possible to study live individuals.

The species appears to have an unusually high regenerative capacity for an earthworm and to indicate in a preliminary way that capacity is the purpose of this note.

Worm 1.—A posterior portion (substrate) developed at intersegmental furrow 81/82, in 3 weeks, a head of 16 segments which was then removed. After this operation the substrate autotomized the last 15 segments. The remainder of the original substrate, in the next 11 days, regenerated a second head, this time of 13 segments, and a small tail 1½ mm. long. After removal of both ends, a piece now comprising only segments 88-122 of the original substrate, formed in 12 days at the anterior end a head of 14 segments, 3 mm. long, and at the posterior end a tail of 6 setigerous segments (and anal growth zone) 1 mm. long. The tail piece autotomized from the original substrate, survived but during the combined periods of development of the second and third heads, was able to produce at its anterior end only a single anal segment with no growth zone.

Worm 2.—A posterior substrate developed at 50/51 in 15 days a head of 17 segments. The new head and first four segments of the original substrate were then removed and the remainder divided into three pieces: (*a*) segments 55-113; (*b*) segments 114-143; (*c*) segments 144-163. In 15 days the (*a*) piece, now only 20 mm. long, produced a head 3 mm. long of 14 segments, and a tail 1½ mm. long, of 7 setigerous segments. The (*b*) piece, in 8 weeks, produced only a single anal segment at each end, while the (*c*) piece (5 weeks) formed only a single anal segment at the anterior end.

Worm 3.—A substrate comprising segments 21-50 autotomized the last 8 segments (which died) and then regenerated in 18 days a head 4½ mm. long of 16 segments, and a tail of 18 setigerous and pigmented segments. Head and tail regenerates with proximal 4 and 3 substrate segments were removed and discarded. In 26 days the remaining portion, now only 5 mm. long and of 13 segments, regenerated at each end a head, the anterior head 2½ mm. long with 13 segments, the posterior head 1½ mm. long and of 9 segments. The posterior portion of the original worm, segments 51-159, produced in 3 weeks at the anterior end, a head 6 mm. long of 19 segments.

Worm 4.—A substrate comprising segments 41-65 produced in 21 days a head of 4 mm. long of 17 segments, and a tail 7 mm. long. The substrate now comprised only 23 segments, 2 having been dedifferentiated and incorporated into the head and/or tail.

Worm 5.—This worm escaped and the next noon was found about 3 inches from its container, coiled up in full glare from a bright sky. The body was stiff but not brittle. The worm was placed in water. After a few moments the anterior half began to jerk back and forth but these movements soon ceased. The next day anterior and posterior portions were not only dead but decayed. There was no sign of autotomy. Dead parts were trimmed off. The remainder, of 22 segments, survived and regenerated a head of 13 segments as well as a tail 2½ mm. long.

Ewing College,
Allahabad, G. E. GATES.
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RESPIRATORY MOVEMENTS IN CARP FINGERLINGS

REDUCTION in oxygen in a medium invariably causes the fish to come to the surface and gasp for air. Their breathing on such occasions is always rapid. Whenever such a phenomenon has been observed, whether in a tank or in an aquarium, the test has always revealed either the presence of toxic substance or diminished