before the discovery of endopolyploidy, Wenyon[3] describes a great increase in the number of granules, assumed to be chromatin, during division of the macronucleus and remarks that "there must have taken place a remarkable increase in the chromatin during its formation and growth from the micronucleus from which it was originally derived" (p. 61).

In his very interesting paper on "Gene Action in Paramoecium", Sonneborn[4] describes the compound nature of the macronucleus without realizing that the description is typical of endopolyploidy. He says: "As set forth above, the macronucleus arises from the syncaryon as a simple diploid nucleus. It then grows enormously, becoming a multiple nucleus containing at least 30 units, each with a complete diploid set of genes ... At times of fertilization, the compound macronucleus falls apart into its component units and these are resorbed in the cytoplasm" (pp. 216-17).

There are some other interesting observations by Sonneborn confirming its endopolyploid nature. The fragments of the macronucleus undergo a fourfold increase while the new macronucleus is developing into a compound structure and it appears that the division of the new macronuclei could be suppressed experimentally. As a result individuals are produced with no macronuclei at all at the end of the second post-zygotic division. In such cases Sonneborn observed the passive distribution of the pieces of the old macronucleus during vegetative divisions. These instead of getting resorbed, develop into compound nuclei and thus at the end of a number of divisions each Ciliate comes to have only a single macronucleus.

It appears likely that the chromatin granules seen inside the macronucleus may be the heterochromatin[5] and using these as indicators—as done by Geitler[6]—it may even be possible in favourable material to study not only the variations in the degree of endopolyplody during the growth of the macronucleus to its adult size, but also after vegetative divisions.

Endopolyploidy in the yeast, therefore, does not appear to be an exception to the general rule among unicellular organisms. The significance of endomixis has baffled investigators up till the present day. But the moment one accepts that the macronucleus is endopolyploid not only does its important role in the physiological control of the activities of the cells becomes clear, but offers also an explanation as to why it should be regenerated from time to time. The usual fate of endopolyploid nuclei is death and disintegration after varying periods of activity. Hence the necessity for regeneration.

I am very grateful to Sir J. C. Ghosh, KT., D.SC., F.N.I., for his active interest and encouragement and the Council of the National Institute of Sciences of India for the award of an Imperial Chemical Industries Research Fellowship.

Dept. of General Chemistry,
Indian Institute of Science,
Bangalore (S. India),
June 20, 1947. M. K. SUBRAMANIAM.

1. Subramaniam, M. K., *Curr. Sci.*, 1947, **16**, 83-84. 2. Guilliermond, A., *Bot. Rev.*, **6**, 1940, 1-24. 3. Wenyon, C. M. *Protozoology*, London, 1926. 4. Sonneborn, T. M., *Ann. Mo. Bot. Gdn.*, 1945, 2132, 3-21. 5 Painter, T. S., *Trans. Conn. Acad. Arts. and Sci.*, 1945, **36**, 413-48. 6. Geitler, L., *Zeit. Zellf.*, 1937, **26**, 641-72.

A NOTE ON THE CHROMOSOME NUMBER IN *COLOCASIA ANTIQUORUM* SCHOTT.

THE reports of the chromosome number of *Colocasia antiquorum* Schott are conflicting. The diploid number was found to be 42 by Nakajima[1] and Janaki Ammal[2] and 28 by Asana and Sutaria.[3] Maeda[4] found $n = 14$.

The diploid number in a local variety, determined by me, is 36 (Fig. 1). Root-tips obtain-

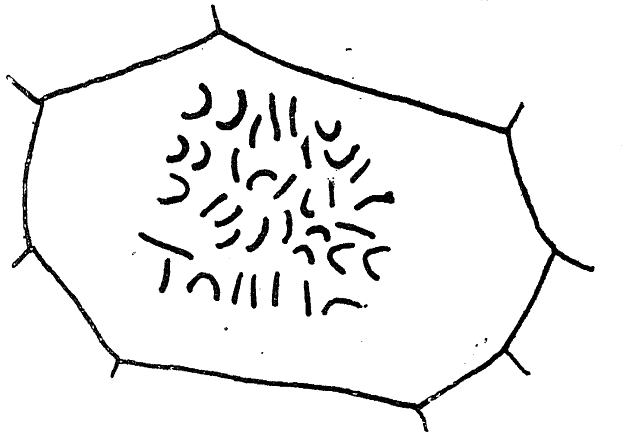

FIG. 1

ed from sprouting tubers were fixed in CrAF and stained with Genetian violet. As the drawing shows, chromosomes tend to be arranged in pairs, a form of 'somatic pairing' more marked at the periphery than at the centre.

Somatic pairing was first reported by Metz[5] in Diptera. Robertson[6] showed in *Paratettix* that somatic pairing occurred in diploid tissue of parthenogenetic individuals. In plants somatic pairing is reported in autopolyploids, as in *Iberis*[7] and *Cicer*.[8] The inference is that this *Colocasia* variety is an autopolyploid, and chromosome pairs are strictly homologous.

In vegetatively propagated plants polyploids and aneuploids tend to be preserved as races and varieties. The chromosome numbers reported by Nakajima and Janaki Ammal are multiples of 6. It is therefore probable that the variety with which these authors worked is a higher polyploid with the basic number 6. The material of Asana and Sutaria, and Maeda ppears to be neuploid.

I am thankful to Mr. S. Sampath for initiating the work and to Mr. K. Das for helping me in preparing this note for the press.

College of Agricultural Research,
Benares Hindu University,
Benares, N. SATYANARAYANA RAO.
June 16, 1947.

1. Nakajima, G., *Jap. J. Genet*, 1936, **12**, 211 2. Janaki Ammal, E. K., "Chromosome Atlas of Cultivated Plants" by Darlington and Janaki Ammal., London, 1945. p. 304. 3. Asana, J. J., and Sutaria, R. N., *J. Univ. Bombay*, 1939, **7**, 58. 4. Maeda, Y., *Proc. Crop Sc. Soc.*, 1932, **4**, Japan. 5. Metz, G. M., *J. Exptl. Zool.*, 1916, **21**, 213. 6. Robertson, W. R.B., *J. Morphol.*, 1930, **50**, 209. 7. Manton, I., *Proc. Roy. Soc., B.*, 1935, **68**, 522, 8. Iyengar, N. K. *Ann. Bot.*, 1939, **3**, N. S. 271.