

# *Centropyxis*-Variants



A typical large *Centropyxis discoides* with few small spines



The smaller *Centropyxis aculeata*.

In my January-posting I briefly touched the topic of evolution and heritage of protists with asexual reproduction, the so-called agamospecies.

Within biological species, i.e. those who reproduce sexually, new generations are the result of a recombination of genes from a large gene pool. Mutations, if not disadvantageous, become part of the gene pool.

In our case however generations of protists are lines of identical clones. With each mutation a modified new line of clones begins.

1917 F. M. Roots studied the “Inheritance in the asexual reproduction of *Centropyxis aculeata*”

Below one of his graphs:

INHERITANCE IN *CENTROPYXIS ACULEATA*

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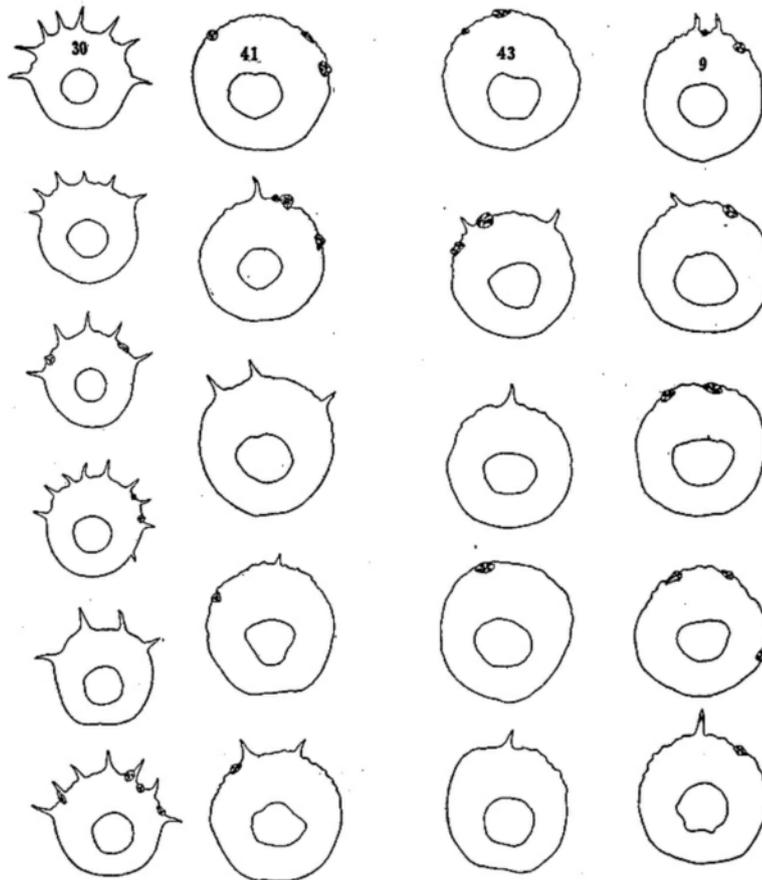
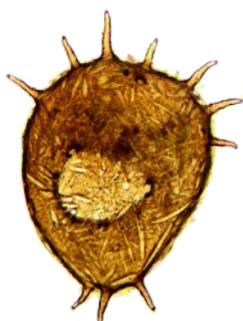


FIGURE 4.—Sample individuals (after camera outlines) of lines 9, 30, 41 and 43.

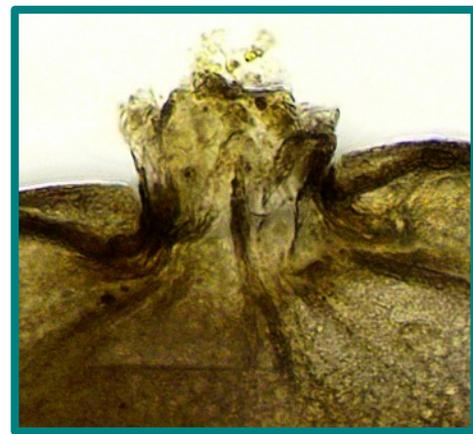
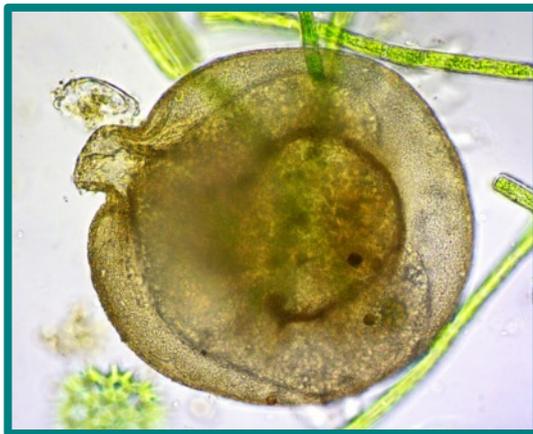
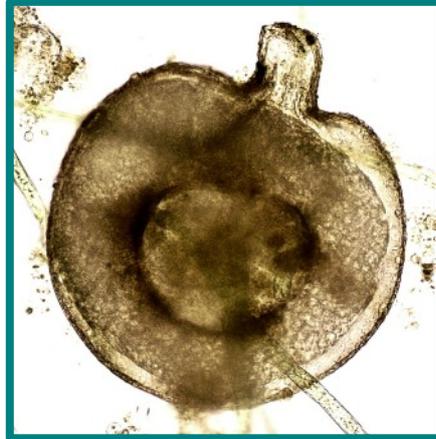
It shows the diversity of shapes within four direct lines of clones, left to right. Each line shows only limited variations, while there are considerable differences of shapes from one line to the next. Still they are all *Centropyxis aculeata*.

All species of the genus *Centropyxis* vary to some extent from clone to clone. Monstrosities are common, see these examples. However, if these monstrosities divide, their monstrous shapes are not inherited.



Recently I found in a six month old water sample from an Austrian bog not only hundreds of *Centropyxis discoides* with none or few spines, as

shown on the front page, but also many (about 1 out of 5) specimen of the peculiar and so far unknown shape shown below:



I assume that what is looking like an apple stem is either a modified spine or an extension/doubling of the pseudostome.

Remarkable is the fact that this new shape has been inherited to an extensive new line of identical clones. Obviously a major mutation had started this line of clones which one might consider as a new variant or even species.

Agamospecies are no biological species. They are rather arbitrarily distinguished on the basis of phenotypic and genetic characters. If a transmuted variation has developed differences as significant as

those between biological species they may be rated as new species in the Linnean hierarchy.

When I probed this water sample in the first place I found only few *Centropyxis discoides* at all. In the meantime the water chemistry has changed considerably from pH 4.5 to 7.0 and dissolved salts from 60 to 124  $\mu\text{S}$ . I assume that the modification took place under these changing conditions. So my new variants will die out when their aquarium will inevitably become uninhabitable.

Too bad, but it wasn't a beauty anyway!

# *Centropyxis aculeata* forma *duplicata*

Another example of a meanwhile extinct species/variant:

1897 Raoul Francé found in Lake Balaton “a form of rhizopod, not too abundant, which immediately stands out due to its peculiar shape”.

He speculated that this was a kind of Siamese twin and therefore named it “forma *duplicata*”.

1902 Eugène Penard found this specimen of *duplicata* in Lake Geneva.

It has not been seen since.

No doubt this peculiar variant would have been observed in later years if it would still exist.

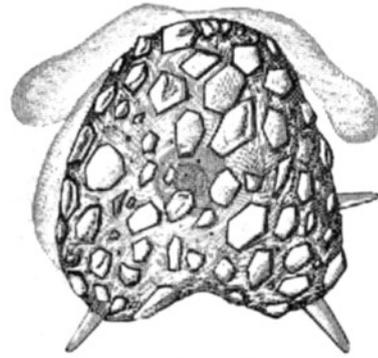


Fig. 1. *Centropyxis aculeata*, forma *duplicata*.



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Further reading:

- [Ferry Siemensmas pages on \*Centropyxis\*.](#)
- [My relevant page.](#)
- [Eugène Penards Faune rhizopodique.](#)

Other sources:

Ernst Mayr, 2004, What Evolution is, ISBN 978-0753813683,

Francé, R., 1897: Resultate der wiss. Erforschung des Balatonsees.

All comments to the author [Hans Rothauscher](#) are welcome.

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