

SCIENTIFIC PROCEEDINGS.

ABSTRACTS OF THE COMMUNICATIONS.

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16 (541)

Retention of normal polarity in centrifuged stems of *Tubularia*.

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Stems of the hydroid, *Tubularia crocea*, were cut from the colony, which had been taken directly from the sea. The hydranths were removed by cutting them from the stems immediately below their attachment. A small branch from the stem was left intact to serve for orientation, and the hydranth which belonged to this branch was cut off.

These stems were placed in specially prepared tubes fitted to a hematocrit centrifuge, operated by hand. Rotation was made at varying speeds and for varying intervals of time ranging from a minimum speed of rotation of about two hundred and forty per minute to a maximum of about six hundred rotations per minute. A greater speed than this resulted in forcing the contents of the perisarc tube out at the distal end. The periods of time of rotation varied from a minimum at highest speed of one minute to a period of maximum operation at medium number of rotations per minute (approximately three hundred, the centrifuge being about one-in-four, but there was no speedometer available to accurately measure the number of rotations at the higher speeds), for one half hour.

The behavior of *Tubularia* stems under all of these conditions was uniform and unvarying. When regeneration occurred, which was true in 100 per cent. of the cases under observation, as the stems lay horizontally in finger-bowls, the hydranth appeared at

the originally *distal* end of the stem, regardless as to whether the distal or proximal end of the stem had been directed centrifugally or centripetally in the experiment and regardless of the fact, that as in the higher speeds, the contents of the perisarc tube were compressed into the end of this tube which was directed centrifugally in rotation. This compression varied with the centrifugal force involved, but at the higher speeds, the contents which filled the tube for a distance of four centimeters, would be compressed, in the experiment, into a space measuring about five millimeters. When regeneration took place, the red pigment which marks the future hydranth pole could be seen collecting in the compressed protoplasm and gradually it migrated up the tube of perisarc until it reached the end of this tube, whereupon the tentacles and other parts of the normal hydranth appeared.

That the red pigment has no rôle as a "formative stuff" has already been shown by Morgan according to evidence derived from another method of approaching the point and the present set of observations appears to show that if any stratification of "formative stuffs" occurs in the normal stem of the hydroid, whereby hydranth forming stuffs and stolon forming material are relegated to their respective ends of the stem, these stuffs are not responsive to the action of centrifugal force in the degrees used in the experiments or else they become rearranged when the centrifugal action has ceased. The generalization may be made that polarity in *Tubularia crocea* cannot be altered by the action of centrifugal force, in shifting "organbildende Bezirke" from one end of the hydroid stem to the other.

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**Creatin and creatinine metabolism during convalescence
after typhoid fever.**

By **NELLIS B. FOSTER.**

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On account of the apparently intimate connection between
"muscle efficiency" and the output of creatinine in human urine