The Effect of Centrifugal Force on Plants.

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The effect of the successive displacement of contents in plant cells has never been carried out to the full extent. This would be an interesting piece of research in as much as it would show not only the capacity of plant cells to resist possible injury by repeated displacement of the contents over long periods, but also that it would demonstrate the recuperative power of such cells. Especially if this latter began to diminsh it would be important to know when and how rapidly the protoplasm reacted in this respect. I have already performed a few experiments of this kind where, however, the contents of Closterium moniliferum was displaced only a few times successively.[1] Approximately no difference was noticed in this plant when centrifuged successively a few times and the specimens kept in the dark.

I have more recently tried the same experiments on Oedogonium ciliatum with similar results. The following four experiments will show the response of the plant when centrifuged 15 minutes at 26°C. I centrifuged Oedogonium ciliatum, using 1,500 gravities. All the contents were displaced which returned in the light in 7 days. After the second centrifuging the contents returned in 6½ days. After the third centrifuging in 6 days and after the fourth centrifuging in 6½ days. Clearly, from these few experiments, the protoplasm is apparently not detrimentally affected and shows that a large number of such experiments would be necessary to determine this point. There are interesting questions to be ascertained in such experiments, among them being that of the response of the protoplasm to certain stimuli when the contents are displaced.

[1] Jarbücher für wissenschaftlichen Botanik, 1915, Vol. 56, pp. 229-233.