

get to be about 10,000 times as bright as the sun, and the brightest of the supernovae, which are ten thousand times brighter than the novae. It is due, he believes, to the fact that the stars have different masses. He finds that a mass 40 per cent larger than the sun is a critical value. Above this figure the collapse is much more violent—result is a supernova.

Dr. Gamow said that these great stellar explosions occur in our Milky Way system about once in three centuries.

"The last explosion of that type in our galaxy was that observed by Tycho Brahe in A.D. 1572," he stated. "The previous one was observed by the Chinese in 1054. The Star of Bethelhem was evidently also a supernova of about 4 B.C."

Science News Letter, January 4, 1941

BIOLOGY

Extremely High Pressures "Paralyze" Protoplasm

About 5,000 Pounds Per Square Inch Stops Streaming Movement Characteristic of Living Stuff of Cells

VERY high pressure, such as is found in the deepest parts of the sea, has a paralyzing effect on protoplasm, the living substance found in all cells, Prof. Douglas A. Marsland of New York University reported to the meeting of the American Association for the Advancement of Science in Philadelphia at a special symposium on protoplasmic activity. The pressure apparatus with which he worked was rebuilt out of a hydraulic jack such as is used in commercial garages for lifting heavy trucks.

The effect of extreme pressure is most evident in stopping the streaming movement that is characteristic of all protoplasm. This streaming can be observed readily in the leaf cells of certain plants, in moving amoeboid cells, in dividing animal cells, and in the expansion and contraction of the color bodies in the skins of fishes. All these varied forms of protoplasmic streaming were retarded as the pressure went up, and stopped altogether at the same high pressure—5,000 pounds per square inch. The stopping occurred when non-streaming parts of the protoplasm became unable to change from fluid to a firmer, jelly-like substance, which appears to be a necessary prelude to the streaming activity.

Science News Letter, January 4, 1941

Speed Blossoming of Trees

AN EXTRACT of last year's dead leaves will delay the opening of next year's buds, on cut fruit-tree twigs set in it, Prof. C. G. Vinson of the University of Missouri reported to the Association. A contrary effect on peach twigs,

forcing the flowering at an earlier date, was obtained with several organic acids commonly found in plant tissues—succinic, maleic, fumaric and malic. Tannic acid had an effect similar to that of the dead-leaf extract, hindering flower opening.

The experiments reported by Prof. Vinson are preliminary steps in a search for a compound that can be sprayed on dormant fruit trees in early spring, to prevent them from blossoming too early and then getting caught by frost, at present a source of great losses in northern orchard regions.

Science News Letter, January 4, 1941

Water a Barrier

EVEN moderately wide stretches of water form barriers to birds that cannot swim, when they are migrating in spring and autumn, Prof. S. C. Ball of Yale University stated at the meeting of the Ecological Society of America. He stated that he has often seen flocks of birds decline to cross Gaspé Bay, a relatively small body of water at the outmost end of Quebec Province, although the wooded shore was fully visible from the opposite side. Instead, they turn and make the long detour via the shoreline.

Prof. Ball is inclined to believe, however, that the real impulse is not so much fear of the water as inclination to stay near the forests that mean food and shelter to them. He has observed the same hesitancy about flying over open grassy deltas even where the river channels are quite narrow.

Science News Letter, January 4, 1941



IN

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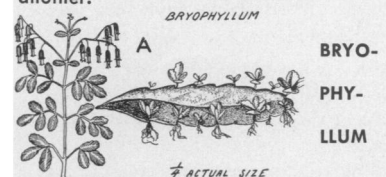
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