

BOTANY

Plants Grow in Red Light

Plants, grown in dark for as long as three weeks on their own stored food, are normal appearing, but are yellowish in color and have no green.

► PLANTS THAT are perfectly normal-looking except for their color will grow without light. The dark-grown plants are yellowish, with no green at all to be seen. When they are put into light, however, they turn green.

Tiny plants have been grown for as long as three weeks without light, Dr. Robert B. Withrow of the Smithsonian Institution reported to the Botanical Society of Washington. Usually young plants, when without visible light, grow long and spindling, the young tendrils stretching out in a vain effort to reach light.

The yellowish, but otherwise normal-appearing plants, were grown in light that is on the far edge of visible red and in the near infra-red.

Scientists have been studying the effect of light on seedlings for a long time and they have known five separate processes were involved:

1. Photosynthesis, whereby the plant cells change carbon dioxide and water into sugar, a reaction that can occur only when chlorophyll is present and in light. All forms of life, animal as well as plant, are absolutely dependent on this process for all their food, either directly or indirectly.

2. Formation of chlorophyll, the complex chemical compound somewhat resembling blood in its structure but with magnesium instead of iron, responsible for the green color of plants and an important factor in photosynthesis.

3. Phototropism, which involves the bending of plants toward a window.

4. Photoperiodism, by which light, through the factor of day length, controls the time of flowering of many plants. It is largely responsible for the separation of many wild flowers into spring, summer and fall blooming classes.

5. Photomaturity, the process Dr. Withrow and associates have brought about using far red radiation. This reaction causes the leaves of young seedlings to expand. It also causes increased cell wall development and the disappearance of the hook or arch that appears in the stem as seedlings come through the ground.

Until now, however, scientists have not been able to separate the growth and development reactions involved in phototropism, photoperiodism and photomaturity from the chlorophyll and photosynthesis processes. Using barely visible light in the far red as well as infra-red, they can study the biochemistry of plant growth while the food stored by the seedling for its first two or three weeks' growth lasts. Since no visible

light is present, chlorophyll does not develop nor does photosynthesis take place, but growth and development do occur as long as the seed's own food reserves remain.

Dr. Withrow's experiments, mainly on young bean plants, were performed in the reorganized radiation laboratory at the Smithsonian Institution. They are part of a planned program to learn more about the exact mechanism by which the green plant turns sunlight's energy into the food which we eat.

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ASTRONOMY

Faint Nova Found By Mexican Astronomer

► ANOTHER STAR has blazed forth in the southern sky. Much too faint to be seen without a good telescope, this 12th magnitude nova is in the constellation of Sagittarius, the archer.

Like another "new star" found in Sagittarius last February, this nova was dis-

covered by Dr. Guillermo Haro, director of Mexico's National Astrophysical Observatory at Tonanzintla, Puebla. Dr. Haro reports that the flare-up of the star, which caused it to increase several hundred times in brightness, possibly occurred before Feb. 21 as it appears on photographic plates taken that long ago. Photographs of that area of the heavens made last year, however, fail to show the star, even though 18th magnitude stars were "caught" by the Schmidt camera.

News of Dr. Haro's discovery—the third nova he has found this year—has just reached Harvard College Observatory, Cambridge, Mass., clearing house for astronomical information in the western hemisphere.

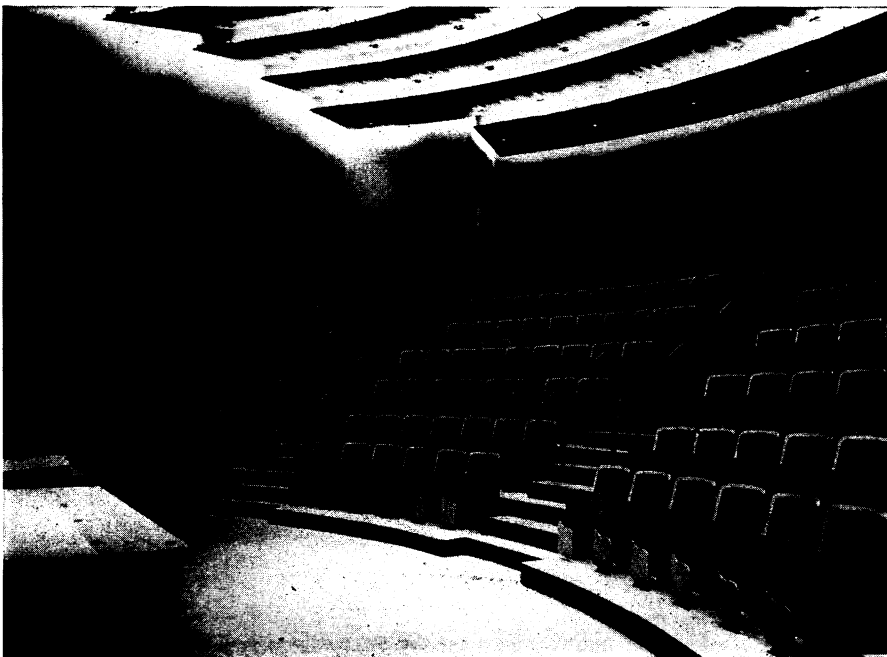
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ICHTHYOLOGY

Blood Groups Track Fish in Sea Wandering

► FISH HAVE blood groups, too. In tuna fish blood there is an antigen similar to that in human Group A blood. This and other findings, reported by Dr. John E. Cushing of the Santa Barbara College of the University of California, result from studies made to see whether separate breeding populations within single species of fish could be readily distinguished. The movements of fish populations in the sea might also be followed by blood tests, Dr. Cushing suggests in his report to the journal SCIENCE (April 11).

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SCIENCE AMPHITHEATER—One of the two large lecture rooms in Harvard's new Allston Burr Lecture Hall where classes started this week. The building is designed and especially equipped for showing scientific experiments to students who are studying as laymen, not as future scientists.