

## GEOLOGY

**Geologists Debate Cause Of Sinking Idaho Farm**

**W**HAT made the cave that's swallowing up Harley Robertson's farm at Buhl, Idaho? Geologists are all agreed that the collapsing roof of a vast cavern is responsible for the sinking of over one hundred acres into an abyss more than two hundred feet deep, but none of them agree about what caused it.

Local men blame an underground river, like the Lost River, which sinks into the ground nearby. Other geologists believe that the cave was made millions of years ago, when lavas poured out over the region, and hardened on top. The liquid mass below flowed on, leaving caverns, in much the same way that the filling of a pie can leak out without breaking the crust.

Irrigation water, which brought wealth to the region, is blamed by others. Leaking irrigation water may have seeped into and carried away the underlying rocks, leaving vast caves. Still another theory is that the old channel of the nearby Salmon River, filled by the lava flows of several millions years ago, has been slowly cleared by underground streams. These cut away part of the roof, allowing the land to slump. Now it is feared that the Salmon will be diverted into underground channels, becoming a new "Lost River."

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## PHILOSOPHY

**Darwin Held Golden Rule To be Law of Man's Nature**

**D**ARWIN'S doctrine implying "the survival of the fittest" is invoked almost as a dogma by believers in unrestricted competition, whose own faith is summed up in the old slogan, "everybody for himself and the devil take the hindmost." Such persons snort at the very idea of the Golden Rule as a piece of squashy sentimentalism.

To such, it will probably come as a shock to learn that Charles Darwin specifically upheld the Golden Rule as a fundamental law of the nature of man. The passage in which he did so, usually overlooked or ignored by the hardboiled school of individualistic philosophers, occurs in one of his two most important books, "The Descent of Man."

Dr. William E. Ritter, retired director of the Scripps Institution of Oceanography and honorary president of Science Service, calls specific attention to

it in connection with some of his recent philosophic investigations.

"I have lately endeavored to show," Darwin wrote, "that the social instincts—the prime principles of man's moral constitution—with the aid of active intellectual powers and the effects of habit, naturally lead to the Golden Rule: 'As ye would that men should do to you, do ye to them likewise,' and this lies at the foundation of morality."

To Dr. Ritter himself, this passage has long been a "hard saying". He states:

"Until recently it had seemed to me to contain elements so incompatible as to make it almost meaningless. But with a searching re-study of Mr. Darwin's life and works it no longer seems that way to me. And I am quite sure there was for him fundamental compatibility, not only in his teachings but in his own personal life."

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## BIOCHEMISTRY

**New Vitamin B Factor Discovered at Wisconsin**

**A** NEW factor which belongs to the vitamin B complex, and which is needed for the nutrition of animals was recently discovered by C. A. Elvehjem, C. J. Koehn, and J. J. Oleson, University of Wisconsin scientists working in cooperation with the Wisconsin Alumni Research Foundation.

With the existence of the new factor established, the scientists turned their attention toward isolating it. Certain discarded fractions of the liver which have been used in preparing vitamin B-2 and flavin, were precipitated with a mixture of alcohol and ether, and when tested were found to be highly active in the new factor. Further purification and concentration have been brought about by means of solvents and precipitation.

The work done thus far has made it possible to describe the behavior of this factor when subjected to various treatments. It is readily soluble in water, but not in acetone. It is absorbed on charcoal at neutral pH. It is readily destroyed by heat in autoclaving.

Thus far, no extensive study has been made on the distribution of this factor, but it has been found in considerable quantities in yeast and fresh milk. Cereal grains seem to be very deficient in it.

Since this factor may have considerable importance in animal nutrition, the Wisconsin research workers will follow up their discovery with an intensive investigation of the role it plays.

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**IN SCIENCE**

## AGRONOMY

**Too Much Drainage Proves Damage to German Lands**

**D**RAINAGE of areas better left as lake or swamp is proving a difficulty in Germany no less than in the United States. For every area thus recovered and put to agricultural use, there is a neighboring area that is damaged through the lowering of its water table and the consequent disturbance of its biotic balance, declares Alwin Seifert in the German journal, *Naturschutz*.

Digging drainage ditches is a principal occupation of the German Arbeitsdienst, which is the equivalent of the American C. C. C. Herr Seifert is convinced that they are turning a good thing into a bad, by carrying it too far.

Another land reclamation project that comes under question is the straightening and deepening of stream channels, to reduce floods. This necessarily involves the destruction of a great deal of timber in the streamside belts, as well as a troublesome lowering of the water table. Moreover, straight channels for water drainage automatically provide above them straight channels for air drainage, with consequent increase in the drying effects of valley winds.

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## AGRONOMY

**Inverted Periscope Used To Watch Growth of Roots**

**P**ERISCOPES were used by rear-rank watchers in the crowds at the recent coronation; but it has remained for a research worker at the County Farm Institute at Penkridge, England, to hit upon the ingenious idea of an inverted periscope to see what is going on underground.

The idea was originated by G. H. Bates of the Institute staff. Mr. Bates studies roots of plants by means of wide glass tubes buried among them. The roots grow against the glass, as though it were only another kind of stone. By lowering his small inverted periscope into the tubes, with a small electric lamp to give light, he can easily see what the roots are about.

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# E FIELDS

## PLANT PHYSIOLOGY

### Polarized Light Without Effect on Plant Growth

**M**OONLIGHT has no effect on growing crops, if experiments with "artificial moonlight," or polarized light, are any criterion. Results of these experiments were announced by Dr. Earl S. Johnston of the Smithsonian Institution.

Polarized light was used instead of ordinary light in tests with numbers of oat seedlings. Two effects were watched for: the bending response which plants normally show to light, and the assimilation of carbon dioxide to form carbohydrates, which is always dependent on light. Control groups of seedlings were exposed to ordinary light, under conditions otherwise identical.

The reactions of the plants in both groups of experiments were so nearly identical that Dr. Johnston concludes there were no really significant differences between them, and hence no special effect that could be ascribed to polarized light.

In polarized light, the wave-fronts vibrate in only one direction, instead of at random in all directions as in ordinary light. Light is polarized by passing through certain kinds of crystals and by reflection from many different types of surfaces. Sunlight reflected from the moon contains a high proportion of polarized light.

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## PSYCHOLOGY

### Backward Child Suffers From Many Bad Conditions

**T**HOUSANDS of children returning to school in September will look forward to the adventure with happiness, for to them school means achievement, progress, the opening of new worlds. To others, unfortunately, the outlook is not so cheerful. For them, school will mean failure, disappointment, disgrace, and ridicule. They are the backward children.

What is wrong with the backward child? What is responsible, most often, for the heartaches that face parent and

child alike when the little one just can't make the grade? An investigation of systematic thoroughness by a British psychologist, Dr. Cyril Burt, reveals that the average backward child suffers from at least three adverse circumstances. As many as sixty distinguishable conditions may be at fault.

With normal mental endowment, the child handicapped with poverty in his home, lack of proper food, physical under-development, defects of hearing, speech, or vision, will overcome these obstacles. He may not be able to do his best. But somehow he will get along.

The child not so fortunate in mental gifts is in a more serious state, Dr. Burt found. For him, the way should be smoothed. He needs medical attention if necessary. Food, sleep, fresh air, opportunity for helpful play should be provided. Above all, he needs special attention from a teacher who will study his individual defects, and possibilities.

Special schools for the backward are urged by Dr. Burt. If the retarded child, whatever the reason for his lack of progress, is placed with average children of his own age, he may soon be looked upon as a "hopeless dunce, doomed to perpetual failure, and in everlasting disgrace." Demoted, he finds himself among youngsters whom he scorns as "mere kids" and resents the babyish atmosphere of the place. Sometimes transfer to a new school may bring new confidence and self-respect vital to happiness and development.

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## ENGINEERING

### Egyptian Government Restoring Fayoum Oasis

**T**HE GREAT Fayoum oasis, which once was a flourishing province of Egypt although separated from the Nile river by a strip of desert some 62 miles across, may now return to something like its former prosperity.

Generations of Egyptian monarchs built, centuries ago, great irrigation projects to control and regulate the Nile floods. Included was the great "Moeris" Lake which was a source of wonderment to the ancient Greeks.

The present Egyptian government is now endeavoring to build at Fayoum a reservoir for water supply which will have practical value to the district. Contracts have been awarded to German firms for the installation of a water plant with three pumping stations.

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## BOTANY

### Foresters Strive to Save Notable Giant Cycad Tree

See Front Cover

**C**AN Australian foresters save Great-Grandfather Peter?

Thoughtless boys cut him down. The foresters have set him up again, and hope he will keep on living.

Great-Grandfather Peter is the local name given to a big cycad, perhaps the oldest tree of its kind in the world. It grew on Tambourine Mountain, near Brisbane, Australia, until a short time ago when a group of boys, idly looking about for something to chop at, cut it down.

At the time, word went out that the fallen giant was ten or fifteen thousand years old. This, however, has more local patriotism than solid science behind it, for there is no way of estimating the age of this particular kind of tree. Rings in a cycad (when they are there at all) are not formed in the same way as rings in other trees, and so do not have the same meaning.

The fall of Great-Grandfather Peter was looked upon as a real calamity. The tree had long been a familiar landmark in the Tambourine Mountain woods, and was thought of as an individual. People who knew boasted of the great tree's three-foot-long cones, weighing upwards of 85 pounds, as though they were the exceptional children of a human neighbor.

The forester treated the cut surface of the tree with an antiseptic solution and set it upright in a hole in the earth, hoping that it would strike root and live again. This has happened in the case of smaller specimens of cycads, though of different kind from Great-Grandfather Peter. There is enough stored food in the thick trunk, dense and heavy as stone, to keep the plant alive for several years even without roots. So the old tree's human neighbors wait and hope.

Cycads are found now only in tropical and subtropical lands. Most of them look rather like palms, and are often so called. But botanically, despite appearances, they are more nearly related to pines than to palms.

The photograph of Great-Grandfather Peter reproduced on the front cover of this issue of THE SCIENCE NEWS LETTER was taken by Mrs. Hilda Geissman Curtis, who lives on Tambourine Mountain.

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