

Waltham Watch Company, are working on defense orders for instruments such as the girls are learning to make. The women in this project have already demonstrated that they possess hand and finger dexterity needed for this precision work.

The trainees are taught to operate light lathes, watch lathes, bench engine lathes,

kick presses, punch presses and eyelet and riveting machines. They also receive instruction in spot welding.

The program was initiated by the Newton Public School system, as part of the national WPA Vocational Training Program.

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ARCHAEOLOGY

Magnificent Art Gallery Created by Cavemen of France

Discovery Originally Made by Five Schoolboys Near Montignac Is Confirmed By Abbe Henri Breuil

DISCOVERY in unoccupied France of a "magnificent" 30,000 year old gallery of prehistoric cave-man art, rich in pagan human figures, enormous bulls, horses and one black rhinoceros, is stirring scientific circles in the United States.

The world-famous authority, Abbe Henri Breuil, has succeeded in reporting to the British science journal, *Nature*, (Dec. 21) his authentication of the art discovery near the little town of Montignac in southwestern France.

Five schoolboys were the real discoverers of Lescaux cave, which will take its place in prehistoric annals alongside the "Sistine Chapel of Magdalenian art" in Altamira cave, in Spain. The new-found gallery of European art is pronounced far more ancient than the Altamira paintings, which are rated about 20,000 years old. Lescaux cave was decorated in closing days of the Aurignacian era of the Old Stone Age, a stage of culture which archaeologists have begun to distinguish by the still rather unfamiliar name of the Perigordian epoch.

Enormous bulls nearly 16 feet long, drawn in wide black lines with big spots sprinkled on the beasts' heads, impressed the Abbe Breuil, as he became first expert critic to appraise the ancient masterpieces. In one area of the dark underground passages and galleries, he counted more than 80 pictures, chiefly done on blocks that have fallen from the vault above. Some ascending galleries of the cave are still almost entirely unexplored.

The artists who worked by torchlight in the cave, painted horses with red color, giving them heavy coats in softly dappled pattern. Other animals portrayed, probably with magic rites as an aid in hunting, include oxen, bison, stags, two

lions, and one questionable bear figure.

Describing a striking scene, suggesting prehistoric European drama, the Abbe Breuil reports:

"To the left a black rhinoceros walks slowly away; in the center, drawn in red, a half-conventionalized man is lying beside a javelin and a throwing stick. To the right, a sand-colored bison outlined in black gazes at him; its entrails seem to be flowing out like a horse ripped open in a bull-fight."

In peaceful contrast: near the man a bird is perched on a post.

Foreseeing many surprises in store when the art can be further studied, the French prehistorian says that the pictures show signs of different techniques with frequent painting over the same space and frequent attempts at restoration.

Signs, such as chessboard patterns, resembling coats of arms, and pronged, comb-shaped patterns, and barred rectangles are numerous among the pictures.

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PLANT PHYSIOLOGY

One-Celled Plants Stimulated by Ultraviolet

ULTRAVIOLET radiation, usually considered inimical to life, proves a stimulant to reproduction in primitive one-celled green water plants when applied in less than lethal doses, experiments by Mrs. Florence Meier Chase, Smithsonian Institution biologist, have demonstrated.

Ultraviolet rays of certain specific wavelengths are now widely used in hospitals and elsewhere to rid the air of bacteria. Earlier researches by Mrs. Chase showed that the invisible rays

had similarly deadly effect on her primitive green plant cells. But when the same kind of plants are exposed to the same ultraviolet wavelengths for about two-thirds of the time necessary to kill them, instead of dying they multiply at greatly increased rates.

Increased reproduction rates differed according to specific wavelengths, Mrs. Chase found. She found four wavelengths biologically effective: 2352, 2483, 2652 and 2967 Angstrom units, respectively. Each of these wavelengths increased the cell-division rate in a quite definite ratio.

Green cells exposed to the stimulating dose of the 2352-Angstrom rays multiplied 4.7 times faster than a control culture of unirradiated cells of the same kind. The 2483-Angstrom wavelength stimulated cell multiplication to 3.9 times the normal rate, and the 2652-Angstrom wavelength rays produced a stimulation to 4.65 times normal. Least stimulation was brought about by the longest (2967-Angstrom) wavelength: 1.62 times normal.

Although the green cells increased their numbers thus rapidly under the influence of ultraviolet radiation, the size of the individual cells in the stimulated cultures became much smaller than normal, as if the cells could not take time to grow up before they were hurried into reproduction.

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ENTOMOLOGY

Bees Have No Rulers, Yet Their Society Is Not Anarchy

See Front Cover

SPRING'S first hints, bringing earliest tree buds to swelling, tempts venturesome bees out of doors to see what's going on. Already, on warm days, they are dragging out of the hives the bodies of their luckless companions who have not survived the winter, and dumping them unceremoniously to the ground beneath. Bees, often pointed to as the ultimate in the socialist state, certainly are complete utilitarians and apparently have no sentiments of any kind.

The life of the bee colony is ably described and beautifully pictured in a new book by Edwin Way Teale, *The Golden Throng* (Reviewed, SNL, this issue). Every bee in the hive knows its job and does it, without needing to be told or compelled to do so. It goes through a definite round of duties according to its age: nursemaid, home worker, forager afield—again with no authority other than its own instincts to