

BOTANY

Mushrooms Aid Mental Ills

THE MENTALLY ILL may be able to get peace and quiet with their steak and mushrooms, providing they eat some special mushrooms described at the 9th International Botanical Congress meeting in Montreal.

The clue to the possible medical usefulness of these mushrooms was uncovered as a result of studies of the Mexican Indians and their religious rituals, Dr. Roger Heim of the Natural History Museum, Paris, reported.

For some years it has been known that the native Mexicans eat certain mushrooms because of their "miraculous" hallucinogenic effects. After eating the mushrooms, the Indians would have visions. Taken in large enough quantity, however, the plant is known to have a dangerous effect. Poor, discouraged Indians have been known to take their own lives after a "calming" meal of mushrooms.

After years of research in several European laboratories, scientists are now ready

with a synthetic substance that duplicates some of the beneficial effects of the mushrooms. Taken in large doses, as he did himself for experimental purposes, the substance is a powerful hallucinogen, Dr. Heim said. In small, therapeutic doses its effects can be beneficial. It is not habit-forming. However, in its present form, different persons have different reactions.

There are 15 species of mushrooms, many of them new to the scientific world, that have this hallucinogenic effect: 14 are in the *Psilocybe* group while one is in the *Stropharia* group of mushrooms. Dry mushrooms contain about 0.3 to 0.5 percent psilocybine. In his laboratory in Paris, Dr. Heim has grown about 11 of these mushrooms. It is possible to grow them on a semi-industrial scale. Analysis, carried out with chemist A. Hofmann, showed that indole substances were the ones involved. Further chemical research is being carried out, as well as medical studies.

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GENETICS

Inherit Prostate Cancer

THERE IS A definite tendency for cancer of the prostate gland to "run in families," a scientist reported to the American Society of Human Genetics meeting at University Park, Pa.

In a study of 228 families of men who had died of prostate cancer, 15 male relatives were identified as having died of this disease. This is three times the number found in a control group, said Dr. Charles M. Woolf of the Laboratory of Human Genetics, University of Utah.

This supports the theory that this cancer is influenced by a gene that affects only one organ—the prostate gland. In addition Dr. Woolf reported, there were more deaths from other types of cancer among the families of the study group than in the control group. This number—35 cancer deaths as compared with 24—could be due to chance, he pointed out, but it may reflect incor-

rect diagnosis. It is possible that these cancers originated in the prostate gland and that the disease later affected other organs.

Female relatives of the study group had no more cancer deaths than did the controls.

Persons of the same sex and approximately the same age, who had died in the same year and place as those persons who had died of prostate cancer, made up the control group.

Other researchers have shown that several kinds of cancer are apparently influenced by genes that interact with non-genetic factors, Dr. Woolf said. Stomach cancer and breast cancer are two forms of the disease in which an "etiological role for heredity" has been shown, he said. Results of his study indicate there is also a familial tendency for prostate cancer.

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ANTHROPOLOGY

Skull May Be Ape Man

THE ANCIENT fossil skull reported by Dr. Louis Leakey as discovered in Tanganyika, Africa, may be a lingering example of the Australopithecine ape-man. This suggestion is made by a scientist at the Smithsonian Institution.

The skull, estimated to be 600,000 years old, is reported to have a brain capacity of 600 cubic centimeters. This is probably within the range of brain size of the African ape-man, which is estimated to have varied from about 450 cubic centimeters to about 700. Some gorillas have a cranial capacity of 600 cubic centimeters, but these

are massive creatures so that the brain size is not so large in proportion to body size.

If Dr. and Mrs. Leakey, who made the discovery, follow the usual custom of anthropologists, casts will be made of the ancient skull and sent to anthropologists throughout the world for independent study. The Smithsonian in Washington has a large collection of such casts.

Anthropologists in the United States as well as elsewhere in the world will await with great interest receipt of such casts and the complete scientific report of this important find.

The Pleistocene, the geologic era during which the fossil creature lived, lasted a little less than a million years and started about a million years ago. It is divided into three parts by anthropologists. The early Pleistocene is represented only by the Australopithecines, the African ape-men. This early form used for tools only small stones picked up and crudely chipped for immediate use. In the middle Pleistocene lived Pithcanthropus, the ape-man, including the famous Peking Man, Java Man and other ancient Asian forms. These later creatures learned how to fabricate stone tools on definite patterns. Then began the passing on of skills and the specialization of tools for particular purposes. In the late Pleistocene came Neanderthal and *Homo Sapiens*.

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ICHTHYOLOGY

Guppy-like Fish Produce Only Female Offspring

See Front Cover

Two kinds of "all-female females" have been discovered by Robert T. Miller, Associate Professor of Zoology at the University of Michigan. These fish belong to the genus *Boeciliopsis*, the same family as guppies.

Professor Miller has isolated about 16 species, 14 of which have normal reproduction. The other two are unique because their offspring include all-female females. The photograph on the cover of this week's SCIENCE NEWS LETTER shows one of these unusual guppy-like females. Each of the two species has two kinds of females. One is normal and the other is all-female, producing daughters even though she mated with the same male that fathered the normal ones. The only difference between the two is in teeth structure.

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BIOCHEMISTRY

How Plant Chemical Works Is Still a Mystery

THE "SUBAPICAL" STEM tissues are the ones most affected by the gibberellins, Dr. Roy M. Sachs of the University of California told the American Institute of Biological Sciences meeting at University Park, Pa.

These are the tissues below the youngest of apical tissues, such as the tip of the stem. From 20 to 24 hours after treatment with gibberellic acid, cell division, an increase in cell numbers, was 10 to 30 times greater than in untreated plants. This activity was greatest in the subapical tissue.

One observation, Dr. Sachs said, has been that the gibberellic acid gets to the active sites in the plant tissue in less than two hours. If the "primary" effect of the gibberellins is unknown, there is still ample evidence that it acts within two hours.

The fact that cell walls become more plastic within two hours after gibberellin is applied may be related somehow to the fact that cell division activity also increases at the same time.

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