

PLANT PHYSIOLOGY

Fungi, Thriving on Arsenic, Make Gases That Kill Men

FUNGI have appetites that put to shame that of the traditional billy-goat. They thrive on things that are rank poison to other plants and to animals. The astonishing appetites of some fungi for compounds of arsenic have furnished the latest problem for research by two mycologists of the U. S. Department of Agriculture, Dr. Charles Thom and Kenneth B. Raper.

Inspiration for the research was furnished by the occurrence of two deaths in Great Britain, apparently due to the action of these molds on arsenic-containing walls. The need for tangible information about these organisms as they occur in America was evident. Existing literature, considerable in amount but scattered, and some of it inconclusive, runs back through the past century or more. Eventually it was found that these fungi fed upon arsenic-impregnated wallpaper and other things, giving off poisonous gases that made human beings sick and even caused some deaths.

Dr. Thom and Mr. Raper cultivated the accused species of fungi, as well as some others not before suspected, upon nutrient media containing arsenic. From several of their cultures they obtained arsenical gases abundantly. Some other fungi grew on the arsenic-containing nutrients but did not produce any poison gases, these the experimenters designated as "arsenic-tolerant." Some fungi failed to grow. As a result of the study it is recommended that compounds of arsenic should not be used as preservatives

for materials to be kept in enclosed spaces, where the gases generated might do harm.

This research helps answer the question why arsenic sprays and dusts can be so widely used against insects without general poisoning of the soil. "Arsenic" fungi were found abundantly in the soils examined and appear to be active enough to aid in disposing of the arsenic commonly applied. In special cases, however, damage to crops is known to occur under conditions where large applications of arsenic fall upon soils of special composition. These are still under investigation.

Science News Letter, May 27, 1933

MINING

Saw Replaces Explosives In Coal Mining

COAL is now being mined with a saw instead of being broken loose with explosives. The development of the coal saw to its present highly practical state has improved quality and value of coal, C. D. McLaughlin, superintendent of the Pioneer Coal Company, told the American Mining Congress.

It has also improved working conditions and safety in mines without any change in organization and supervision, and without displacement of labor. Large lump coal that stands handling and transportation well results from saw mining.

Science News Letter, May 27, 1933



ECOLOGY



Too-Dominant Parents

MOST TREES cast too dense a shade for their own seedlings.

In a well-grown forest of pine, for instance, you will find no little pine trees; in a closed stand of oak no young oaks. You will find the young stages of such trees as these associating with their elders only where accident or the lie of the land lets patches of sunlight down to the forest floor.

For many trees are not at all shade-tolerant, and these include especially the trees that are most apt to come first to a new area of treeless land, either after a fire, or when a stretch of lake bottom, for some cause or other, becomes dry land.

In an area like that of northern Indiana or southern Michigan, where once the most magnificent hardwood forests of this continent grew, the first trees to establish a consistent and cohesive forest stand are usually jack pines. These have the double advantage of flying seeds, making their distribution and colonization easy, and of quite modest requirements in the matter of soil fertility, so that they will accept life where other tree species decline to take the chance, or fail to make a go of it if they do start.

But jack pines are trees of the sunlight, requiring full illumination from infancy onward. So when the first generation of trees has taken full possession of the land and stand with their arms locked to defend their ownership, there is not enough sunlight among their trunks for any little pines.

This is what gives trees of another kind their chance. Oaks can tolerate at least a certain amount of shade when they are young, so that under jack pines,

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