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INVENTION

Paper Made From Fungi

➤ A NEW SOURCE for the manufacture of paper and paper products, the filaments of fungi, has been proved feasible by four scientists at the Institute of Paper Chemistry, Appleton, Wis.

To understand clearly the importance of their invention, the fact that all today's paper and paper products are made from one primary division of the plant kingdom should be known. All life on earth is considered divided between the plant and animal kingdoms. Within the plant kingdom, there are two phyla, or primary divisions. One is known as Spermatophyta and the other as Thallophyta.

The Spermatophytes include the highest plants, or those that produce seeds, such as trees. It is from this division that present-day paper products are made.

The Thallophytes are a diverse group of plants that include the fungi, algae, bacteria, lichens and slime molds. Although the invention relates primarily to fungi, the other classes are included.

To make paper or paper products from fungi, the scientists use that part of the fungus known as the thallus, which, if it is filament- or thread-like in character, is known as the mycelium. Substantially pure filaments of fungi are prepared and disintegrated in much the same manner as in usual paper manufacture. The disintegrated fungi can then be suspended in water and made into a sheet.

Sheets of mycelia alone, the inventors report, tend to become brittle. However, the addition of as little as ten percent by weight of cellulose fibers gives sheets of paper with "much the same characteristics" as normal paper, although with somewhat less strength.



FOUR-WAY STEEL — Crystals of steel that can be magnetized in four directions are shown here in this photograph taken at the Westinghouse Research Laboratories, Pittsburgh, Pa.

When the mycelia sheet is subjected to heat or pressure, or both, a continuous film is formed that is both transparent and flexible. Paper sheets including the mycelia have high gloss and good printing characteristics, which make the mycelia valuable as a sizing agent.

The addition of mycelia to wood pulp, the inventors state, also makes possible the manufacture of paper and paper products having flame resistant properties.

For this development, the scientists were awarded patent number 2,811,442. The scientists are Willis M. Van Horn, Julian H. Conkey and Bernard F. Shema, Appleton, and William H. Shockley, Camas, Wash.

Science News Letter, November 9, 1957

GENERAL SCIENCE

Army Issues Want Ad For 200 Scientists

➤ THE U. S. ARMY wants 200 scientists to become regular army officers.

In a very attractive 35-page "want-ad," the Army has introduced its Project 200, described as a "unique program" for scientists and other advanced specialists offering "not only unlimited professional horizons but also outstanding personal rewards."

The Department of Defense campaign, said to be a "high-priority" project, is a recruitment drive for 200 outstanding civilian specialists in 20 critical fields.

"Since the work of men in Project 200 is of the most advanced nature," the Army says, "the qualifications for the project are naturally high."

Science News Letter, November 9, 1957

METALLURGY

New Kind of Steel Lets Magnetism Turn Corners

➤ A NEW KIND of steel that allows magnetism to go around corners has been developed.

The silicon and iron magnetic material, developed at Westinghouse Research Laboratories, Pittsburgh, Pa., is expected to simplify construction and improve performance of electrical equipment.

Dr. Clarence Zener, Westinghouse research director, called the steel a "major scientific breakthrough for the electrical industry." He attributed the successful climax of the 25-year search for such a material to the steel's crystal orientation that allows it to be magnetized in four directions simultaneously.

Steel now used in magnetic cores can be magnetized in two directions only, back and forth along the direction in which it was rolled by the manufacturer.

The Westinghouse research grew out of work originated by scientists of the Siemens-Halske Co., Hanau, Germany.

Science News Letter, November 9, 1957