



Goldenrod

GOLDENROD, which is now at the height of its bloom, over most of the country, is a thing of beauty and therefore justified of itself. However, since Thomas Edison decided to give one species of it a tryout as a possible emergency rubber source, it has received advertising of a kind that has made it attractive to hard-boiled citizens, who think in terms of their pocketbooks.

However, despite the press-agenting it has received, goldenrod will still have to earn its way by its appeal to the eye. For Mr. Edison has stressed the fact that he does not expect even the best of his goldenrods to compete with tropical rubber trees under peace-time conditions, and that all he is hoping for is an emergency supply that can be raised domestically.

And only one species of goldenrod is involved at that, the one known to botanists as *Solidago leavenworthii*, native to the North Carolina lowland country. The eighty or so other species, that range pretty well all over the United States, either have too little rubber in them or else have not yet been tried out on Mr. Edison's farm.

One thing has long interfered with the proper appreciation of goldenrod by the people in general. That is the wholly erroneous belief that the flower causes a great deal of hay fever. Hay fever is at its height during goldenrod season, it is true, but it is not goldenrod pollen that causes it. Several other weeds, notably two species of ragweed, are in bloom at the same time, and shed great quantities of irritating pollen into the air. But because their flowers are inconspicuous nobody pays much attention to them, and the innocent bright flowers of goldenrod have to take the undeserved blame.

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MEDICINE

Artificial Gallstones Teach More About Painful Illness

GALLSTONES, often the cause of extremely painful illness, have been made in the laboratory by Professor Harry B. Weiser and George R. Gray, of the Rice Institute, Houston, Tex. These laboratory-made gallstones are very similar in appearance to the ones formed in the human body. This production throws light on how these stones are produced by nature.

Natural gallstones are composed of a fat called cholesterol, alkalis, calcium salts, and bile coloring matter. Just how these substances, all found in the body, are united to produce gallstones has long been a subject for investigation by scientists, and many complex theories have been evolved to explain the formation of these stones.

Calcium Precipitated

By using these same materials and applying certain principles of physical and colloid chemistry, Prof. Weiser and Mr. Gray were able to produce gallstones closely resembling the natural ones.

From their investigations, reported at the Ninth Colloid Symposium at Ohio State University, they concluded

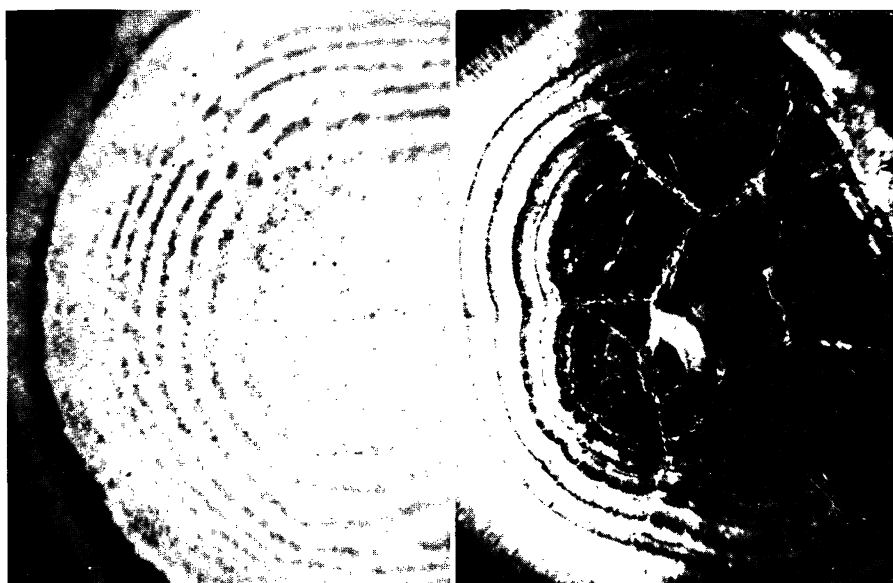
that the formation of gallstones of the type called "layered," proceeds somewhat as follows: Inflammation either starts the process, or at least favors it, by producing irreversibly precipitated protein materials, such as fibrin and albumin. Changes due to disease bring about the precipitation of cholesterol, carrying calcium with it.

The color substances of bile, which are finely divided particles suspended in the bile fluid, diffuse into this mass and are precipitated in the form of rhythmic bands.

The structure and arrangement of the bands is influenced by the shape of the mass, its density due to the pressure of other stones, and by variations in the composition of the bile fluid.

After the bands are formed, the stone may be invaded by radial crystallization of the cholesterol, cracks may develop, more cholesterol crystals may be deposited, or the stone may be changed in other ways, producing the wide variety of forms which are found in gall bladder disease and some of which the Houston investigators produced in their laboratory.

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ARTIFICIAL AND NATURAL GALLSTONES

The one at the left is the first made in a laboratory. How nature makes stones like the one shown at the right has long been a puzzle to scientists. Experiments regarding gallstones were made at the Rice Institute.