

Chemistry, Godmother of the South

Chemistry

Makes Agriculture and Industry Thrive Side by Side

CHEMISTRY is the fairy god-mother that is changing the old agricultural South into the industrial giant of the new arousing.

This was the keynote of the spring meeting of the American Chemical Society, attended by a considerable proportion of its 17,000 members, who heard from Southern chemists and saw in the industrial plants in and around Atlanta the story of the chemical metamorphosis of the South.

Chemistry has touched and transformed many of the classic products of the South: cotton, sugar-cane, wood products, rosin and turpentine. A classical example is found in sugar-cane, whose crushed fiber, or bagasse, now goes into millions of board feet of artificial lumber; this new wall-board industry has caused the cultivation of cane primarily for the fiber, so that the former principal product, sugar, has now become the by-product in certain cane-growing regions.

One of the first of all modern chemical industries, the manufacture of synthetic indigo, ruined a Southern plantation industry, the cultivation of natural indigo. Now, however, "time brings its revenges" to the South, for the hills of the Carolinas, Virginia and Tennessee have become the home of a large sector of the newer textile industry, which absorbs vast quantities of the products of the now vastly developed synthetic dyestuff trade.

But in promoting industry chemistry is not threatening to abolish agriculture. It is doing quite the contrary for the rural South. It is promoting agriculture as well as industry partly by finding new uses for agricultural products and partly by assisting in bringing them into being and protecting them from their natural enemies. Because of the help chemistry has been to industry in the South, that section has contracted a debt to the science which it can pay only by whole-hearted encouragement and generous support of chemical education and research, said Dr. Harrison E. Howe, editor of *Industrial and Engineering Chemistry*.

Dr. Howe has just finished an 11,000-mile survey tour, during which he visited numerous industrial plants, educational institutions and research laboratories where chemistry plays an important part in the program. He is convinced that now is the time when chemistry should be most strongly en-

From all parts of the United States chemists went to Atlanta on April 7-11 to hear reviews and predictions of the part their profession is taking in the industrial arousing of the South, for the South with her industries formed the central theme of the spring meeting of the American Chemical Society. The most interesting achievements reported are described on this page and on page 237.

couraged, not only for the speedier ending of present industrial sag but for the upbuilding of the greater era of prosperity which is to follow.

GOOD food for human beings will come from parts of cotton seed now fed to cattle and hogs, or even wasted. So predicted a New York chemist, David Wesson.

"A cotton crop of fifteen million bales furnishes the oil mills with five million tons of seed," he said. "This seed produces, under present methods of manufacture, 308 pounds of oil per ton of seed, or 13 pounds of fat for each inhabitant of the United States. Improving manufacturing methods would yield 20 per cent. more oil and allow the utilization of the 900,000 tons of protein present in the seed for human food, supplying approximately one-half the protein needs of the country." Cotton seeds will soon be shaved even closer to increase the supply of a raw material which just a few years ago was a complete waste but is now used to make a variety of products from non-shatterable glass to artificial silk.

This is what W. Donald Munson, of Chattanooga, Tenn., said about cotton linters, the short fibers left on the seed after ginning. They are now removed in a delinting machine in which the cotton seed comes in contact with saws revolving at high speed to take away the short fibers.

The demands of the industries employing cotton cellulose as a base has increased so rapidly since the World War that cheaper methods of production will doubtless be developed and the shorter fibers now left on the seed utilized, it was pointed out.

RESEARCH has made possible the production of a large portion of the annual turpentine and rosin yield in the southeastern states from pine stumps instead of full-grown trees. Brian S. Brown, Savannah, Ga., reported.

Early methods practiced until the beginning of the present century were fatal to trees, Mr. Brown said. Then the external cup to catch the gum replaced the internal cup. Now improved methods of chipping trees, increasing fire protection and rapid growth of slash pine insure practically unlimited future supplies of rosin and turpentine.

ALTHOUGH the manufacture of artificial silk and wool has increased enormously during recent years, the production of the synthetic fibers in 1929 was less than four per cent. that of the natural fibers, Prof. Charles E. Mullin, of Clemson College, S. C., said.

Prof. Mullin also predicted that the 1930 output of synthetic yarns will exceed the million and a quarter pounds of last year by more than 30 per cent., and he added that the saturation point today is as far off as it was 10 years ago. The growth of the artificial silk industry has been the most spectacular of Virginia's recent developments, Professors Robert E. Hussey and Philip C. Scherer, of the Virginia Polytechnic Institute, declared. "Starting in 1917 with one small plant the industry has grown until now the estimated output for 1930 will be 28 per cent. of the total United States production or about 10 per cent. of the world production," they said.

CALCIUM gluconate, a chemical made by the action of moulds once thought good for nothing but spoiling things, is a valuable addition to the feed of milch cows, experiments conducted by W. A. Turner, E. A. Kane and W. S. Hale, of the U. S. Department of Agriculture, show.

Calcium gluconate is a compound of gluconic acid, which is now made experimentally in quantities in the Department of Agriculture laboratories at Arlington, Va. A few years ago it was worth over \$100 a pound, when it could be had at all; now its cost is down to about 35 cents a pound. This makes possible experiments looking toward its eventual practical use.

The calcium gluconate was added to the feed of the cows as a possible source of additional lime for their blood and also for their milk. Lime salts are among the valuable mineral constituents needed in milk, especially in milk fed to young children.

Science News-Letter, April 12, 1930