

Science Notes

BY WILLIAM G. HAYNES.

NITRATED COTTON

In following up the latest developments of the European War it is quite often true that we are amazed at the wonderful progress made in the manufacture of high explosives. Then turning to the effects of this war upon American manufacturers of the products, one can only dream of the vast amount of money which one imagines them to be storing away as profits. Little attention is paid to the fact that a large percentage of the output from these factories is composed of material made solely for peaceful trades.

How different are the visions that loom up at the mention of the words "guncotton" and "celluloid." One is instantly associated with rifles, cannon and war, while the other calls to mind such common articles as collar buttons, combs, etc. Yet the two are very much the same except for the fact that celluloid contains camphor, while guncotton does not. Up to a certain point the manufacture of the products is practically the same.

The technical name for pure cotton is celluloid, so it is not difficult to see that nitrated cotton, nitrocellulose, cellulose nitrate and guncotton mean pretty much the same thing.

Fortunately some of the largest powder companies of America are proud of the fact that most of their nitrated cotton is made for peaceful purposes. As an instance of this, your attention is called to the following extract from "Manufacturers' Record" (Sept. 14) wherein the Du Pont Company shows some of the uses to which their nitrated cotton is put:

"The rise of cotton from its low price during the 'buy-a-bale' period to its present highly satisfactory price, around 15 cents, was brought about largely by the enormous cotton requirements of the Du Pont Company and others engaged in the manufacture of military explosives.

The fleecy staple, on account of being the purest cellulose obtainable, and because it is obtainable in such large amounts, naturally becomes the important factor in the manufacture of a long list of chemical products. It is not utilized entirely for the manufacture of cloth, but finds an important place in the processes of manufacturing chemicals.

The nitrating of cotton is simply treating it with nitric acid of varying strength. The process requires but a few days for its completion. Whether the finished product is guncotton or the soluble cotton of commerce referred to later depends on the degree of nitration, which is governed by the strength of the acid used or by the length of time the nitrating process is allowed to continue.

The process of nitration is exceedingly simple from the theoretical standpoint, but from the practical standpoint becomes more or less involved and requires the most careful advance research work and painstaking care in every step of the process. It includes a purification so thorough that all foreign substances, dirt and oils are absolutely removed. The final use of the nitrated cotton must be determined on before nitration is begun, for if the nitration is permitted to stop too soon or progress too far, the mass is ruined for the purpose for which it may be needed.

Although the million pounds per day capacity of the Du Pont plant at Hopewell, Va., has been taxed to the utmost during much of the past two years, its enormous output of nitrated cotton was not used exclusively for military guncotton and smokeless powder, and an ever increasing amount was converted into soluble cotton for use in chemical industries.

There are many uses for soluble cotton, the largest individual use being in the manufacture of leather substitutes. This industry, which has been the field of so much chemical and manufacturing research, has within the past few years developed so rapidly as to tax factory facilities, and all leather manufacturers of importance in this line are now far behind with their orders.

This growing demand for leather substitutes has been brought about by the high price and increasing scarcity of good leather, and the public realization of the weakness of cheap split leather, commonly referred to as "genuine leather," to such an extent as to be spectacular. The uses of leather substitutes are in practically every field of endeavor. The demand comes from the automobile manufacturer, the car builder, the bookbinder, the shoe manufacturer, the trunk and case manufacturer, the furniture manufacturer, the glove manufacturer, the hat and cap manufacturer, the novelty manufacturer, and, in fact, from practically everyone using a strong, pliable, waterproof fabric.

A good example of this great use is to be found in the plants of the automobile and furniture manufacturers, for when such plants reach the basis of 1000 cars or sets per day, leather of any grade becomes entirely out of the question, because it is impossible to obtain, varies greatly in quality, must be separately cut by experts, is subject to great waste, and is very expensive to handle. In such cases where economies of 1 cent per car or chair are important, leather substitutes win because of superiority over cheap splits in wearing qualities, waterproofness, feasibility of cutting in multiples by machinery and greater ease of use.

(To be Continued.)

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LINCOLN'S CABIN BECOMES NATIONAL PROPERTY

Washington, District of Columbia.—The cabin which was Lincoln's first home, now standing on its original site near Hodgenville, Ky., became the other day the property of the nation. A man who sees it, and later sees the completed grand marble memorial to Lincoln on the bank of the Potomac at Washington, will have seen typical edifices of the most symbolic career yet known to the republic.

The one is ten logs high on a side; is plastered with soil, and has an outer chimney of logs, sticks and mud. The other is to cost millions; be made and adorned by artists of distinction; and become, next to Mt. Vernon, the home of Washington, the most frequented of all American civic temples.

What enduring monuments these are, not only to Lincoln, but to the 10,000,000 Black men and women and children in America—it was because of the Emancipation Proclamation that Lincoln will longest be remembered.

When you need a good clean shave, see P. H. Jenkins, 1313 Dodge street. —Adv.

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