

# Sweeter Milk Sugar Made Commercially

*Physiological Chemistry*

A form of milk sugar, called beta lactose, sufficiently sweet to be used as a table sugar, is about to be produced commercially through the efforts of Dr. John Harvey Kellogg, director of the Battle Creek Sanatorium.

The usual form of lactose is a chalk-like, slightly sweet powder that is difficult to consume in quantity. Since milk sugar is sometimes used therapeutically as a substitute for ordinary table sugar, chemically known as sucrose, the production of a form of lactose three times as sweet and three times as soluble as commercial lactose is likely to prove of value to medical practice. Patients will be able to substitute the beta lactose for the common sucrose of the table and this milk sugar will be taken as a food rather than an unpalatable medicine. It is about a third as sweet as ordinary sugar and will cost about fifteen to twenty times as much per pound.

Some physicians believe that lactose is preferable to the ordinary sucrose, produced from sugar cane or sugar beets, as a source of sweet carbohydrate in the diet. It is more slowly absorbed in the system than other

sugars and it is claimed to promote the growth of more beneficial bacteria in the lower portion of the alimentary canal. Lactose is formed nowhere else in nature than in the milk of mammals, not even in their blood. The fact that the bodily processes take the trouble to make this special sugar for the mother's milk caused scientists to discover that lactose seems to play an important part in keeping babies from such diseases as typhoid, dysentery and cholera. Predatory microbes cannot thrive in the infant's food tract because they cannot live in the lactic or buttermilk acid that the fermentation of lactose produces. A special sort of bacteria, *Bacillus bifidus* populates the lower food canal of nursing babies and these bacteria are the helpful agents that transform the lactose into the protecting lactic acid.

The theory back of the suggested substitution of lactose for sucrose as a special dietary measure is that such a protective bacterial action would be created in the lower food tract of the adult by the liberal use of the milk sugar.

It has been known for seventy-five

years that lactose exists in two forms having the same chemical composition, twelve atoms of carbon, twenty-two atoms of hydrogen and eleven atoms of oxygen to the molecule, but differing in physical properties. A quarter of a century ago, Dr. C. S. Hudson, the American sugar chemist formerly at the U. S. Bureau of Standards and now at the U. S. Hygienic Laboratory, clearly described the making of the sweeter beta form of lactose. From a solution of alpha lactose or milk sugar of commerce, the beta sugar can be crystallized out at a temperature above 200 degrees Fahrenheit.

Nearly two-fifths of the total solid content in cow's milk consists of lactose, and it is estimated that over a third as much lactose as cane sugar is consumed annually when the lactose content of milk is considered. Dr. Amé Pictet, the Swiss sugar chemist, recently announced that he had succeeded in synthesizing lactose, but the possibility of producing milk sugar in this way or any other way than from milk, is quite remote.

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## Young Genius

*Biography*

FRANCIS TREVELYAN MILLER, in *Lindbergh: His Story in Pictures* (Putnam):

President Coolidge has placed emphasis on Lindbergh's youth (25 years at the time of his first great achievement). It is interesting to record here the names of other youths who have won immortal fame at about this same age:

Alexander the Great conquered the known world at 25; Hannibal had reduced all Spain at 26; Caesar was a powerful leader at 28; Napoleon was winning famous battles at 24; Marshal Ney a division general at 25; Nelson in command at 23; Cromwell a statesman at 29; Lincoln in the legislature at 26; Columbus was leading an expedition at 25; Livingstone began his explorations in Africa at 27; Stanley started out to find him at 26.

James Watt was experimenting on steam as a motive force at 23; Eli Whitney inventing his cotton gin at 26; Edison perfecting new systems of communication at 24; Wagner had composed his first symphony at 19;

Goethe his first play at 19; Victor Hugo his first book at 20; Balzac had written thirty-one novels before the age of 26; Michaelangelo had created his great Madonna at 26; Raphael painted a masterpiece at 21; Beethoven was a great musician at 18; Mendelssohn, Mozart, Chopin, Byron, Keats, Shelley had established immortal fame before 29 years of age.

Genetic studies of genius prove that Lindbergh at 25, with his highly developed instinct for navigation in the air, is an historical figure true to type, a natural precursor of a New Epoch.

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Paper money was introduced in China in the ninth century due to a shortage of bronze money.

Asphalt has become the second most important mining product in Switzerland, salt being the first.

The Government is constructing six new lightships, the first to be propelled by Diesel electric machinery.

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