Warburton's and the Staff of Life

By Mr David Tomlinson Retired Technical Director of Warburton's Bakery

Synopsis of talk given on 14th February 2012

Warburtons are the second largest food brand in the U K after Coca Cola, the retail value of sales in 2011 was approx. £742.4 million pounds. The total baking industry sales were valued at £2.8 billion in 2011. They are a fifth generation family business being founded in 1873 and by the mid eighties had 220 bakery retail shops, packaged cake, malt bread, savoury pie businesses a few other entrepreneurial enterprises and five bread bakeries

This all changed when the fifth generation succeeded their parents in owning and managing the business just over 20 years ago.

They are now unique in the baking industry because they do not manufacture products under any other name are completely family owned and managed. They have 13 bread bakeries spread across mainland UK having sold off all the other interest in the mid 90s they have a 32.5% by value share of the wrapped bread market in the country and sell approx. 13 million products per week.

Their maxim is:- 'Care for our products, care for our people and care for the communities which we serve'.

In the past 20 years they have endeavoured to become Britain's favourite baker and have complete coverage of the whole of mainland UK.

Their objective now is "To become one of the Worlds Best Family Food Businesses"

The rival brands are Hovis and Kingsmill plus one or two smaller locally based companies

How have they achieved this?

Concentration on the development of the Brand

The quality and consistency of product and developing and establishing the market for premium bread in the UK.

Establishing unique wheat growing programmes in UK, Canada and Europe with local farmers

Maintaining product differential by continuously being at the cutting edge of bakery and engineering technology

Bread Production

Bread has been produce from the same ingredients since ancient times: -
Flour (usually wheat) salt, yeast and water. A dough is made which then has to be fermented or developed in order to allow the Gluten (protein) in the flour to become elastic to allow carbon dioxide produced by

the yeast to blow bubbles into the dough: The technical term that technologists use to describe this is :- Gas production and gas retention!

This is part of a wonderful natural process involving enzymes in both yeast and flour that has to be kept in balance during both milling and baking.
Bread all over the globe is produced in a very similar way.

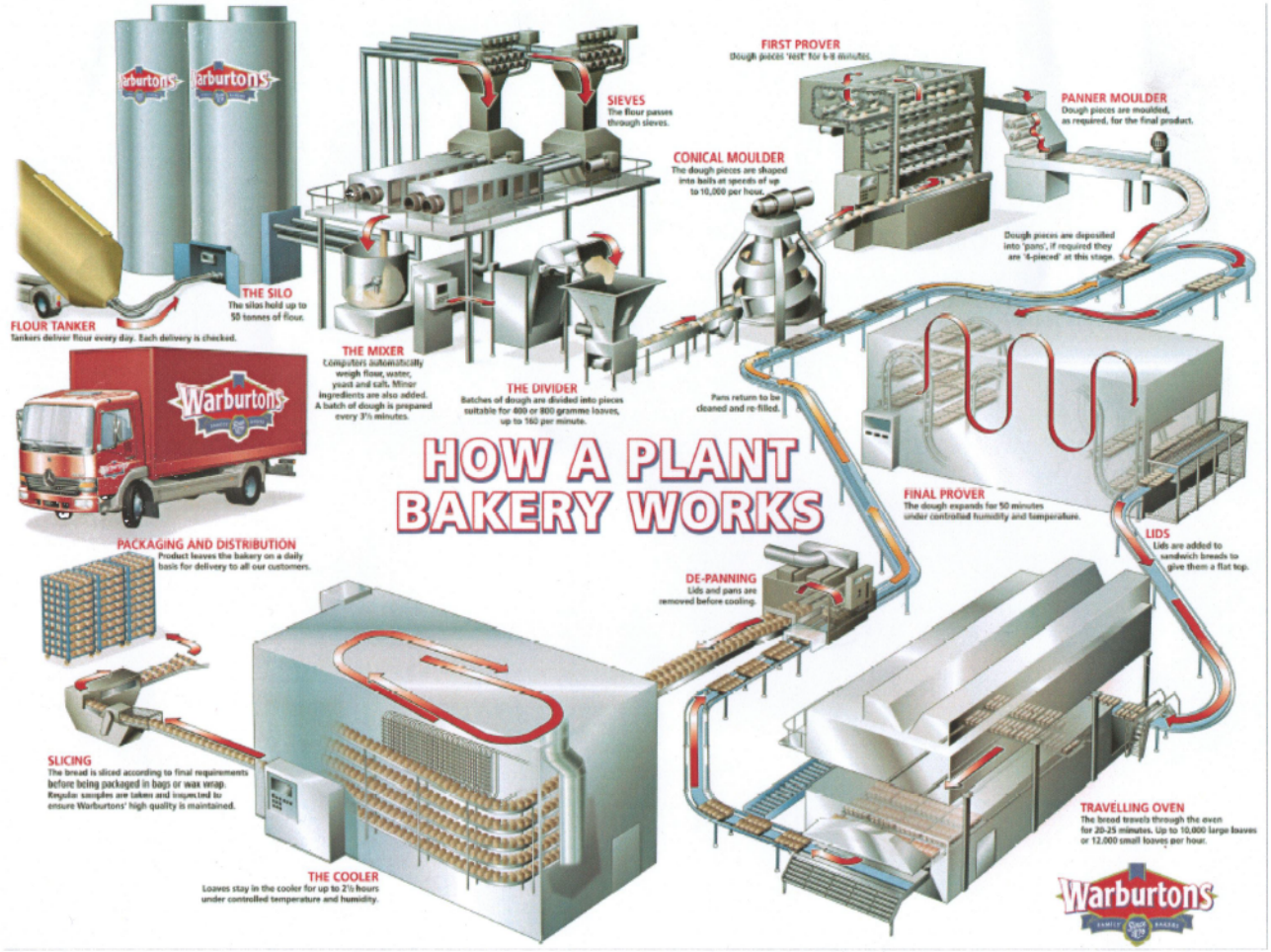
Baking became industrialised in Victorian times when machinery and oven technology roughly coincided with the science of microbiology and yeast production.
Bread dough's were usually fermented for many hours and kept in large troughs /mixing bowls, which were stored in "dough rooms " occupied immense floor space which has to be temperature and humidity controlled.

Essentially the baking process in the UK went unchanged until the early 1970's when the Chorleywood bread making process wad developed by the British Baking Industry Research Association. (now know as Campden BRI)

This process eliminated the bulk fermentation process by utilising high energy mixing machinery to develop the dough and enabling the gluten to be in the correct condition. in 5 minutes! A REVOLUTION!

Ironically most of the other processes with manufacturing area remain largely unchanged since sliced bread became available in the late 1930s. What has altered almost out of sight is production efficiency. When bread plants were first automated they produced approx 1200 loaves per hour and now they can produce up to 10,000 per hour on a continuous process with a single production line line, for up to 140 hours per week. There are now less than 50 plant bakeries in the UK which make the about 60 million loaves per week whereas in the 50'sand 60's there were over 125 bakery's.

The illustration below shows "how a plant bakery work"



The equipment comprises primarily of "three big boxes" the final prover, the oven and the cooler. Broadly speaking these are large travelling conveyors, which transport the products in pans through a 4-½ hour process .

Proving takes place in a temp /humidity controlled environment of around for 60 min; this allows the dough to rise in the pans. Its is then transferred gently into a gas fired oven which can be up to 4mtrs wide and 20/ 30 metres long which utilise various combinations of heat conduction /convection and or radiation techniques.

The loaves are then de-panned by vacuum and conveyed into a cooler, which again is temperature and humidity controlled which reduces the core temperature of the loaf from 98 degrees c to 30 c in appox 2.1/ 2hours

Bread is then suitable for slicing, packing automatic picking and onward distribution.

Extensive use of robotics and sophisticated order picking systems are used and manning points in all areas have been reduced dramatically across the whole of plant production in the last 15years

The elements, which have the most profound effect on the quality and sales of "our daily bread", have remained the same for decades: -

Freshness and softness
An even crumb texture without holes
Good "butterabiltiy"
An eating quality and flavour that has good taste bearing in mind that is largely a carrier of enjoyable flavours.

For outstanding bakery companies like Warburton's the specification and cost of the wheat/flour right through from the farmers field to the toast or sandwich on the plate is vital.

But it is the design and development of the equipment during mixing and moulding (Shaping) of the dough that has a most dramatic impact on quality of the finished product during the process.

Sophisticated electronic techniques which mix and develop dough using pressure, vacuum and measure the energy input during the process, control the final crumb colour and texture of the loaf and although the next stage of the process (moulding) is a traditional piece of equipment it now shapes the dough piece through micro adjusted rollers and pressure boards and wonderfully engineered automatic panning units which not only affect the final colour and crumb quality but also the whole of the plants efficiency dramatically.

The other pieces of equipment seen on the diagram have a significant role in the production process but as you may expect it are the storage, shelf life and distribution large supermarkets and the consumer, which create a set of both problems opportunities!

The baking industry has led the world in production efficiency over the past 30 years; in no small measure it is due to a combination of both UK technical and engineering excellence. The only limitations to further progress are, as always, our own ideas and vision!

NB No reference has been made in this synopsis to the legal and nutritional implication to the consumer. But that is as they say a whole different subject area.