



The changing face of leather

For just about as long as recorded history, leather has been the staple material for footwear production, whether it was the shoes Ötzi was wearing while running away from his murderers in the Swiss Alps some 5,000 years ago or King David wearing his simple sandals in Biblical times.

Advances in the production of leather for shoes progressed in slow, measured steps; for centuries, the leather available for footwear manufacturers had relied solely on vegetable tanning until the end of 1800s. Then, with the development of chrome tanning, footwear manufacturers suddenly found that leather was being produced faster, with greater choice, as tanning times

fell from almost a year to a matter of a few weeks.

It took virtually another century before the next fundamental change in tanning occurred. Chrome-free tanning systems have only started to develop within the last decade and could prove of interest to footwear producers. The 2000s saw the opening up of new possibilities in the relationship between tanner and shoemaker. The pace of change had been speeded up and the beneficiaries are the manufacturer and their customers.

DRIVING CHANGE

The leather supply chain in 2015 would be barely recognisable to the footwear manufacturer of 1915. The motivating forces for fresh thinking

have had little to do with the demands of the footwear producer. The real drivers for change, however, can be traced to a better understanding of the structure of hides and skins, the physics and chemistry applied in leather production, as well as the advances in machinery manufacture and, crucially, the use of the computer and microprocessor.

The attitudes of governments, legislators and the agendas of environmental lobbyists cannot be ignored either. The lobbyists are akin to the parents on the touchline, watching their offspring play soccer, and demanding greater effort from their children: they can make a lot of noise without the responsibility of making the play.

In the latter decades of the 20th century, the noise could no longer be ignored and demands grew for industry, in general, to clean up their act. Without doubt there were and are extremely responsible industries that did not need the urging of the legislators but there were sufficient that needed more of 'the stick and less of the carrot'.

From an historical point of view, these streams of change and external forces on leather production can be seen to have merged into a consistent flow of benefit for the footwear manufacturer.

ISO, EU AND OTHER ABBREVIATIONS

Uniformity of product is key to shoemaking. In the first instance, meaningful standards had to be developed. What were known as BS standards were translated into EN and ISO standards. One of the first that entered consumer consciousness was BS 5750, introduced in 1978 and which became ISO 9000 in 1987. It is in effect a quality management standard and implied that the product produced would be of a consistent quality; it did not define that the product was either good or bad.

It soon became clear that more stringent standards on production would be needed and so a deluge of ISOs flooded in. Probably the ISO 14000 group has had most influence on the tanning sector as it deals with the environmental impact of any industrial activity. As the standards organisation describes it, the ISO 14000 family provides practical tools for companies looking to identify and control their environmental impact and constantly improve their environmental performance. Other standards within the family focus on specific environmental aspects such as life cycle analysis, communication and auditing.

Introducing concepts such as life cycle analysis is a relatively new approach but one which increasingly is having an impact on footwear production. Anything the tanning industry can do to help must be seen as a welcome contribution. Who would have thought that carbon footprint would enter everyday language so speedily, yet it is an



Modern effluent treatment plants have transformed the global industry to the extent that a tannery today can be sited in an urban area and the local population is largely unaware of the tannery on their doorstep. This photograph shows part of a primary effluent treatment system installed at a tannery within the city of Santiago, Dominican Republic.

CREDIT: WTP



Recycling, reduce and reuse are very much part of modern tanning. These settling vessels being installed in a tannery in Austria are designed for the recovery of proteins, following the acid precipitation of unhairing/liming wastewaters and washings after sulphide removal.

CREDIT: WTP

aspect of leather production that this journal's sister publication, *World Leather*, had raised as an issue well before the turn of the 20th century.

While the tanning sector was digesting the impact of fresh standards, along came the EU's REACH initiative, the regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals. It entered into force on 1st June 2007. The implementation of this

legislation has had an impact worldwide. Companies wishing to send product into the vast European market realised that they too would need to be compliant with its demands. As most of the major developers and suppliers of chemicals to the tanning industry are firmly based in Europe, even if much of their production is outside of the EU, the leather producers beyond the confines of the EU found that they would have

to adapt and amend their production methods too.

The effect, again, was to the benefit of the footwear manufacturers, who could begin to rely on the leather supplied being compliant with enhanced health and safety regulations. These changes also affected the dyestuffs and finishes used by leather producers and potentially hazardous products were removed from the supply chain.

ADDING CONFIDENCE, EXPLODING MYTHS

Two further initiatives have added weight to the changing face of leather for the benefit of the shoemaker: LWG and ToTY. In their different ways, both are designed to allow footwear manufacturers to confidently continue using leather as a material of choice. LWG, the leather working group, came into existence in 2005 with the aim of promoting sustainable and appropriate environmental stewardship practices within the leather industry. As part of this, the LWG created a protocol to accurately assess the compliance and environmental stewardship practices of leather manufacturers. It is the group's objective to work transparently, involving tanners, brands, retailers and other relevant supply chain representation. It has created an auditing system and is supported by some of the major global brands in footwear.

ToTY or, more correctly, the Tannery of the Year Awards programme, was the brainchild of the magazine *World Leather*. The international leather industry had come together at a conference in Paris in 2007; the overriding consensus was that, as much as the global industry had advanced, there remained concern that the perceptions of leather production were still based on those of the 1960s and even earlier. It was still regarded in some quarters as a dirty, polluting industry. The industry needed to be promoted as the modern, clean and responsible sector it had become and the myths promoted against leather in the 21st century had to be exploded.

While industry leaders agreed on the need, none of the international organisations could afford to develop the proper response or the means of communicating the new reality. *World*



The machines in the tannery today can match those to be found in advanced technology companies. This vacuum drying machine at a tannery in Australia is used to extend and flatten skins before completion of the drying process. CREDIT: WTP



Sophisticated machines, such as this roller coater, provide tanners with multiple options to suit their production, similar to deciding what features you would like when buying a car. The options that can be added to the basic machine appear to be almost as numerous. CREDIT: GEMATA SPA

Leather created the Tannery of the Year concept and it won the support of ICT, the international council of tanners, IULTCS, the international union of leather technicians and chemists, and ICHSLTA, the international council of hides, skins and leather traders' association, as well as other global companies supplying the tanning sector.

Besides promoting the modern leather industry, the Awards programme, with its in-depth

analyses, is designed to bring best practice in the sector to a wider audience and to disseminate innovative thinking around the world, as well as to prove the corporate social responsibility of the best on all continents. It has already illustrated how even the smallest tanneries, even in remote parts of the world, can match large corporations which often escape such detailed scrutiny by 'the parents on the touchline'. The magazine's current *Nothing to Hide*



Regrettably the colourful tourist scene from Morocco still gets reproduced as representative of the leather industry today – check Wikipedia/leather, nothing could be further away from modern reality. CREDIT: SHUTTERSTOCK / MIKADUN



Modern retanning/dyeing drums in stainless steel, also used in experimental dyeing departments, give an accurate picture of the 21st century leather industry. CREDIT: WTP

series of articles is also designed to explode the myths about leather, some of which are promoted through spite, others published by respected world organisations such as the FAO, that should know better.

PRODUCTION LINE CONSISTENCY

For the manufacturer, consistency of the leather substrate is the greatest advance of the last decade. While it is proper that the natural, sustainable

quality of genuine leather needs to be kept to the fore, modern production requires that the leather supplied must be of uniform thickness and finish. In times gone by, such consistency relied in large measure on the skill of the operative and the experience of the technicians and chemists.

A change in formula would be logged in a book. Written by hand, it could be difficult to interpret, or easily forgotten or ignored. The computer and the microprocessor changed all

that when they were introduced into the tannery, both by management and machinery manufacturers. It has meant that the arcane methods and guesswork have been removed. The leather produced in one tannery of a group is now identical to the leather produced in another associated tannery in a different country. For the giant footwear brands, it meant that their leather shoes made in China were the same as those made in Vietnam or elsewhere. Such is the ability of modern systems that, in a blind test, a group salesman would not be able to say where a particular leather sample was produced.

A single tannery clearly can reproduce the same consistency and product quality. It has meant that reliable partnerships can be forged between the leather supplier and the user. Chasing consistency has inevitably wrought changes within the structure and layout of the tannery. Machines and processes are now linked in a way that was not previously possible. The application of chemicals and additives is now strictly measured, timed and controlled. Program improvements can be generated as required; the guesswork of yesteryear has been relegated to historical analysis.

While black and brown might still rule the colour palette, the ability of finishers to create a broader spectrum has been infinitely advanced and the innovative controls ensure consistency. The chemical companies have ensured the development of aqueous-based finishes. Emissions are controlled, and waste eliminated. Leather producers and finishers should be seen as partners in progress by the footwear industry.

In the final analysis, the footwear manufacturer wants to be assured of a safe consistent substrate with which to work, that is delivered on time and one that will perform to the demands of the consumer. If the leather that is supplied meets all the requirements of consumer legislation and cannot be damaged by the lobbyists, the parents on the touchline, it allows the manufacturer to concentrate on his responsibilities with greater assurance.

In 2015, the advances made by the leather industry have made this easier to achieve. 