Liberating Linoleum

MELVIN DRUMMOND

The common experience one has of linoleum is the taking up of it and being confronted by newspapers and periodicals, placed there at an earlier time to underlay it. The work in hand is soon forgotten as one becomes engrossed in this unforeseen time-capsule. When undertaking research, the reverse occurs: periodicals and papers have to be removed, layer by layer, to uncover the appropriate facts - in this instance, those pertaining to linoleum.

The layers which confronted this writer were engrossing and perhaps the details too often detained him from his task.

A CHEQUERED (AND VARIOUSLY PATTERNED) BACKGROUND

The precursor of linoleum was known as Floor Oil Cloth and was recorded in 1636 as a patent for 'Painting with oyle cullers upon woollen-cloath ...'. Products combining various mixtures of oils and resins followed and in 1751 India rubber or gum elastic was incorporated as an essential ingredient. Three years later, Nathan Smith established a factory at Knightsbridge, England, manufacturing oilcloth. His merchandise, consisted of a melted mixture of resin, pitch, Spanish brown, beeswax and linseed oil which was applied to a canvas base, rolled out under pressure and the pattern stencilled or printed by hand to its surface. Printing from wooden blocks had occurred by 1780 and in America the manufacture of oilcloth had commenced by 1807. In Philadelphia, a manufacturer of oilcloth, Isaac Macauley, was granted a patent in 1825 for an improvement in its manufacture.

In England, linoleum was one step closer when Elijah Galloway, in 1844, incorporated heat-softened India rubber and gutta percha with cork dust and rolled it into sheets marketed as 'kamptulicon'. At first simply cemented down, it was later rolled on to a backing of canvas. It was being manufactured in Bristol around 1845 but it proved costly owing to the high price of rubber.
However, in 1860 Frederick Walton invented a process which entailed the oxidization of linseed oil and produced a cheaper rubber-like substitute. He named this product 'linoleum'. 'I made up the coined word from "linum", flax, and "oleum", oil, that is linseed oil - the basis of the "cement"...' He built the first factory for linoleum production at Staines in 1864 and in the early 1900s invented a straight line inlay machine.

MANUFACTURE

Floor Oil Cloth

The first step was the preparation of the foundation. The fabric base, which could be jute, burlap, canvas or sailcloth, would be drawn through troughs of size by rollers, which pressed out the surplus from the cloth as it passed between them. This sized surface was rubbed smooth and made even, then covered with a paint mixture of ochre pigment, linseed oil and benzine. To ensure a uniformity of thickness, the superfluous paint was scraped off, and once dry, the coating again rubbed smooth. This process was repeated several times, depending on the required quality (thickness) of the cloth and finally the pattern was printed on this surface. Oilcloth for purposes other than flooring were also made, in a lighter weight.

Linoleum

As with oilcloth, a surface layer was deposited on to a backing. The two main ingredients of this deposit were cork and linseed oil, to which were added smaller quantities of Kauri gum, resin and pigments of various kinds.

The cork was broken up, roughly crushed and gradually reduced in size, finally passing through a grinding mill where it was broken down to a fine dust and stored for later use. Next, was the preparation of the 'cement' to bind the cork. Its chief ingredient was oxidized linseed oil, which was made by coating a fabric (often light cotton 'scrim') with a thin film of linseed oil and allowing it to solidify by oxidation in the air. Fresh oil was applied daily over the scrim base, for a period of months, until a thickness of 13-25 mm was achieved. Termed a 'skin', it was cut from the
fabric and ground between rollers. The cement made from this ground skin, was next combined with the resin and Kauri gum until the whole mass was homogenous. Finally, the previously prepared cork dust and cement were thoroughly mixed together. Sometimes other fillers, such as wood flour, were also introduced. If the linoleum was to be plain, colouring pigment was added at this stage and the mixture was then rolled on to its fibrous backing, passing between rollers to ensure a coating of even thickness. It was then dried and stored in readiness for the pattern to be applied.

PRINTING

This differed very little for floor oilcloth and linoleum. Wooden blocks, for both hand and machine printing, were carved in relief and a separate block was required for each colour in the design. The original method, involving the use of hand block or stencil, allowed only a small area to be printed at a time, whereas with the introduction of machine printing, the blocks extended to the full width of the cloth. This meant that more yardage could be produced, which in turn reduced the cost of the goods.

In printing, the fabric passed over a flat table, under rising and falling blocks, with an arrangement of troughs and rollers spreading the coloured ink required on to the blocks. The surface descended to make its impression, then rose to allow the cloth to be moved on. Re-inked, the block repeated the process, until all the colours in the pattern were printed. The completed piece was then taken to the drying room and when dry and hard, was varnished, trimmed and rolled.

Inlaid (or Mosaic) Linoleum

The design on inlaid linoleum extends all the way through to the backing. It was created by cutting the required shapes, by means of dies, from sheets of coloured linoleum pulp. These pieces were then arranged side by side on the backing in the desired configuration. The whole piece was passed under a heavy heated plate and pressure applied which literally welded the parts into a whole. A similar process used pulp in granular form sprinkled through a series of stencils (one for each of the required
Inlaid linoleum patterns from Nairn's Inlaid Linoleum Catalogue, 1929, showing the range of complexity from simple geometric to quite intricate patterns. (M. Drummond collection)
colours) on to the backing. This too was submitted to pressure and heat to become a solid sheet.

More expensive than printed linoleum due to the intricacies of the processes involved, inlaid patterns had the advantage of the design not wearing off or being obliterated, disappearing only when the backing wore through. The designs, due to the nature of these processes, were much simpler and usually of tile patterns in a limited number of colours.

Other Pattern Processes

'Mottling' was produced by mixing several batches of different colours, then calendering the mixture into sheets between rollers, pressing it directly on to the backing material. 'Marbling' was achieved by blending several calendered sheets and re-calendering them between rollers to adhere them to the backing. 'Embossing' was another technique which simulated joints around tiles used in the patterns.

THE ALLURE OF LINOLEUM

Although Frederick Walton was 'oftentimes greatly depressed with the fact that the oilcloth people ridiculed the idea that linoleum could ever take the place of their fabric ...' by the late nineteenth century it had won a place in the hearts and on the floors of the masses.

Its many attributes - flexibility, durability, serviceability and practicality - were most desirable to the Victorians and Edwardians. It was easy to clean and low in cost, and these features held their appeal well into the late 1950s.

The Woman's Book of 1911, one of the many popular compendia of household lore, extolled the virtues of linoleum '... the outlay being most moderate - that to those with inelastic purses - is a very important consideration ... It is certainly the most hygienic floor covering for a bedroom ... and ... bathrooms and nurseries also would be suitable places [for its use].
Two American mail order catalogues (Sears Roebuck, 1902, and Montgomery Ward, 1922) continued to offer floor oilcloths as widths and rugs in '... handsome pattern, heavy weight and lustrous colour'. However, far outnumbering the advertisements for oilcloth were those for linoleum. These were made for each store respectively, under its own designer's instructions and often marketed under its own name (such as Ward-o-leum). Allegedly equal to the goods produced by the best foreign (English) makers, they were offered at less than half the price of those imported. Available from one to four yard (0.9-3.6m) in width, they ranged in price according to their quality. Their smooth, waterproof surfaces prevented '... gathering of dust or germs ...' and the patterns did not '... readily shown dusty footprints.'

MAINTENANCE

A further section of The Woman's Book devoted a chapter to the laying of linoleum, with the warning that '... much washing and scrubbing is bad for ordinary linoleum [and that] ... it should be swept every day and only washed when necessary'.

Other sample books and catalogues promoted allied products for linoleum and its maintenance. Advertisements for cements (Hold-Tite), for laying the cloth, revivers (Lino-Lustre: 'used for bringing out the colours of the patterns bright and clear, rendering it easier to wash the cloth') and also varnishes that '... will delay the first appearing wear generally seen in front of the door, stove or sink and which is an eyesore to all housewives'. Brass seam bindings, edgings and tacks were all procurable and indispensable accessories.

LIMITLESS LINOLEUM

Manufacturers catered for every contingency. Made at first in one yard widths only, linoleum was eventually available in a multitude of widths and made for a variety of purposes. Body cloth was used for large areas, and runners were made especially for stairs and passages. The choice of three qualities - termed A, B and C - was offered to purchasers, and a further category (Special Quality) was available for stairways and other heavy duty
Marbled patterns from Nairn's Inlaid Linoleum Catalogue, 1929.
(M. Drummond collection)
areas. Body cloths came plain or printed, passage and stair cloths were bordered, with plain or printed centres. Separate borders for plain or printed cloths were also available and recommended not only for appearance and effect, but to aid in fitting. These were in 6, 7 1/2, 9, 12 and 18 inch (150 to 450mm) widths.

Billiard table mats were recommended to be in extra thick cloth for 'where the wear and tear is very great' and usually 6 feet x 12 feet (1.8 x 3.6) in dimension, plain centred with a decorative border. Patterned runners were also used around billiard tables. One sample book shows an appropriate border of crossed billiard cues and balls. In this thematic vein another book shows a design for a nursery - a pattern of nursery rhyme characters. Another popular item was the linoleum mat - for baths, washstands, coal scuttles, sewing machines and toilets. These could be purchased in a range of sizes, from 18 to 54 inch (0.45 to 1.35m) squares, with many variables in between. All were available in plains with borders and patterns with matching borders.

An exclusive noiseless linoleum from the Corticine Floor Covering Company was '... very thick and admirably adapted for Reading rooms, Churches, Chapels or any other purpose where noise is an objection ...'.

An American company produced a plain linoleum that was used extensively in warships - hence the name 'Battleship' linoleum - and was available in brown, black, grey or green. This heavyweight linoleum was also used in institutions. 'Greenwich' and 'Duroleum' were brand names of other similar heavyweight linoleums.

PATTERN AND DESIGN

The prime purpose of oilcloths and linoleums was to offer cheap floor covering. They were made initially in a variety of finishes, emulating more expensive and complex floor treatments. Patterns duplicated tile designs, carpets, marble and timber finishes and all of them gained a market and ready acceptance at every social level.
Two tapestry patterns from Nairn's Inlaid Linoleum Catalogue, 1929.
(M. Drummond collection)
A lengthy dissertation on the design of oilcloth and linoleum published in 1905 suggests that the successful designer should be able to produce three classes of designs.11

(1) designs that are good floor covering, pleasing in form, and harmonious in the theory of design, to suit the public that is educated and knows what a design should be;

(2) where elaborate floral devices in bunches or strewn in garlands form the principal theme in loud and contrasting colours, that a certain number of uneducated people can best get their money's worth in noise and brilliancy; and

(3) a class of design for the great middle class that knows these florid and ostentatious designs are in bad taste; but that does not feel itself equal to the appreciation of the first lot and therefore must be content with simple, inoffensive patterns, whose main virtues lie in the fact that even though one cannot say they are good, he cannot say they are very bad.

Linoleum Pattern Books

Sample books of the 1880s display a diversity of styles, from the simplest diaper patterns in two or three colours, to elaborate floral and tile patterns printed in six to eight colours. A choice of colourways is included for many of the designs "... in order that the public may not be confined to one scheme of colouring"12 and while none of the books show the same patterns, a similarity in designs and colourations is evident, as are their influences and sources. Some of the designs acknowledge their source, possibly to vouch for their authenticity, though the inclusion of the word 'adapted' allowed some artistic leeway. An example of this is a pattern entitled 'Italica Mosaic Pavement - Ruins of Italica Roman Colony in Spain, 208 BC'. 13

The designs of the linoleums were generally shown actual size, except the mats and borders. All designs were given a number, and, in some pattern books, to order one was asked to quote a telegraphic code name. Names with geographical association such as Tintagel, Cluny, Dublin, Inverlocky and Balmoral were used to identify catalogue patterns.
Inlaid linoleum patterns No 81 and No 93 from *Nairn's Inlaid Linoleum Catalogue*, 1929.
(M. Drummond collection)
Although titled as for a specific year, pattern books carried several years of designs at a time. The best selling and popular patterns remained and continued to be produced; poor sellers were withdrawn from the books and market, and new designs added.

'It is a well known fact in the trade, that whenever a given pattern attains an unusual sale, all the enterprising manufacturers will copy it, making but slight modifications in order to each get his share of the trade.'

The Corticine catalogue of 1886 in its 63 pages of full size patterns, shows only three parquet and one wood design. Hendry, Whyte & Stacham (Highest Award and Medal at Calcutta Exhibition 1884) in its forty page catalogue shows only two parquetry patterns. One may conclude from this that the popularity of parquetry was on the wane and that the preponderance of floral, tile and geometric patterns represents a then current predilection of the purchasing public.

LINOLEUM LINGERS

By 1905, there were 27 factories manufacturing linoleum and oilcloth in the United States of America and some 50 companies in Europe (30 in the United Kingdom, 10 in Germany, a few in France and Russia and one in Italy).

Linoleum production reached its peak in the late 1940s and while still popular in the 1950s, its inevitable decline began with the development of new materials, such as sheet vinyl and rubber. Changing tastes have dictated other floor finishes and the linoleums that continue to be produced are the 'timeless' marble and mottled finishes.

To quote linoleum's inventor, Frederick Walton, in closing:

However, I claim to have done a useful work. Every householder can vouch for the utility and sanitary value of linoleum and many housewives will, I hope, bless my memory in the future, although my name may be forgotten.
Two parquetry patterns from *Nairn's Inlaid Linoleum Catalogue*, 1929. The first shows a pattern at full size and the second shows a pattern at one sixth full size in order to gain an appreciation of the effect of a full roll of linoleum.

(M. Drummond collection)
The transition in the 1950s and 60s from linoleum to vinyl tiles is demonstrated in this advertisement from *Best Australian Houses*, published by the Royal Victorian Institute of Architects in 1961.
REFERENCES


3. ibid, p.32.


10. ibid.


12. ibid, ch.9, p.11.


14. *International Correspondence Schools*, op. cit., ch.9, p.9.

15. Walton, op. cit., p.36.