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The Mountain Panorama and Its Significance in the Scottish Context

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Abstract

The panorama is an art form, which grew significantly in importance during the nineteenth century. A summary of this evolution is offered, especially with relation to the Alps. Although some similarities exist between the Alps and the Scottish mountains in their history and growth of mountaineering and tourism, perhaps surprisingly this does not include the tourist panorama. Some examples of Scottish panoramas (and of similar pictorial forms) from the nineteenth and early twentieth centuries are described, but there is no evidence of a demand for their mass production as occurred in the Alps. The nature and significance of more recent panoramic images of Scottish mountains are examined, and their potential value for both visitors and the environment in the future.

Introduction

The magnificent panoramas of artists such as Heinrich Berann, his contemporaries, and worthy predecessors have earned a special place in the archives of mountain exploration and tourism. These images contain not only cleverly generalized topographic features but are also emotionally expressive of the artistry of the creator and the splendour of the landscapes themselves. Colour photography does present a challenge to such works of art but can seldom match them. It has been noted that Berann's panoramas in particular "occupy the misty borderland between photographs, fine art, cartography, and the real world observations of viewers – a fact that only adds to their allure" (Patterson 2000, 136).

The Alps were perhaps the first mountains to inspire serious panorama activity, with publications dating back to the seventeenth century (Solar 1977). Through two hundred years of expanding tourism a huge collection of these works has grown. But has this phenomenon been exclusive to the Alps? Is there a model of the development of mountain tourism, applicable to other moun-

tainous countries such as Scotland, in which similar graphic images have played a part as information sources and in tourist propaganda? Although the major Scottish mountain regions cover barely 10% of the area of the Alps, with summits reaching only one quarter of the altitude, they do have a mountaineering history spanning a time that closely matches that of the European range. But are there any other similarities? Did Scotland share the huge commercial panorama phenomenon? The paper begins with a brief review of the original concept of the "mass-media" panorama, which led to the development of huge specialized galleries, especially in nineteenth-century Europe. This can be viewed as a critical phase in the panorama "industry" and contributed to the emergence of more compact and portable printed versions – the primary focus of this investigation. As the origins of the panorama as a distinct style were strongly associated with Alpine tourism, this paper goes on to seek evidence of similar artistic associations in both the history of Scottish mountaineering, and in the contemporary tourist scene.

The Origins of a Unique Graphic Genre

Panoramic viewing of landscape must be one of the earliest human visual experiences. "In contrast to the forest habitats of most primates, the grassland habitat of *homo sapiens* afforded a more extensive view of the world" (Lewis 1987, 51). Our early ancestors, therefore, would often have had to search the horizon for signs of personal danger, or to select a new direction during travel. While panorama-like graphics may have been created from time to time throughout the history of landscape depiction, it was not until the late eighteenth century that an identifiable genre began to emerge. This important period, referred to in Western Europe as the Enlightenment, when science and reason began to influence the study of both culture and the natural world, can be linked to an increasingly popular desire, especially amongst closeted city-dwellers, to seek open horizon-like visual experiences. Scientific thinkers such as Goethe were writing about their new awareness of the "horizon," which, with the discovery of perspective by fifteenth- and sixteenth-century painters, introduced

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the concept of adventure and discovery beyond the skyline. During his own travels in 1775 Goethe had sketched a "Glimpse of Italy from the top of the Gotthard Pass," and after a climbing trip in the Alps in 1779 he declared that words were "inadequate to describe the nobility and beauty of this view" (Oettermann 1997, 11). Wide vistas had always been accessible from ships at sea, from high points such as cathedral spires, and, later from hot-air balloons. Indeed, in the latter nineteenth century, hundreds of high-level viewing platforms were constructed across the world, and even today structures such as the modern Ferris wheel on the River Thames known as the "London Eye" continue to attract visitors. But in the eighteenth century such locations provided only very occasional opportunities and the next stage for many was to seek the mountaintops themselves. This increased the growth in importance of such visual experiences and promoted the new associated art form of the panorama.

The Enclosed Panorama for Mass Audiences

Some small-scale wide-format (panorama) paintings already existed in the late 1700s (Abbey 1972), but the specific evolutionary path towards the development of large specialized viewing facilities for mass audiences did not begin until the closing decades of that century. There was also an interesting Scottish connection, as the Irish artist Robert Barker (claimed as the originator of the new art form) is believed to have created the first sketches for a large-format panorama in the 1780s after having moved to Edinburgh. The view from Calton Hill (an elevated location east of Edinburgh city centre) inspired him to attempt a huge landscape painting in correct perspective with a viewing angle, at 180 degrees, much more extensive than the mere 46 degrees common in the landscape paintings of that time (Corner 1857). His first full-circle landscape view (ca. eight metres in diameter) was constructed and exhibited in the Archer's Room of what is now called Holyrood Palace (about two kilometres east of Edinburgh Castle). This marked the beginning of what has been referred to as the first true "visual" for mass media (Oettermann 1997). To achieve maximum effect, these panoramas required special display environments, a problem resolved with the design of distinctive rotunda buildings offering comfortable and safe viewing of magnificent landscape paintings of vistas from landmarks in major cities and in the countryside (Oettermann 1987). The first of these impressive constructions, 17 metres high and 26 metres in diameter, appeared in London in 1793, north of Leicester Square (Mitchell 1801). People could leave the busy street, pay their money, and climb a dark staircase onto a platform close to the centre of the panorama (Pragnell 1968). As if by magic, they had entered a new world of wonder – a visual illusion of the great outdoors, which for them could be compared to the immersive experience of an IMAX cinema or a modern planetarium for audiences today.

The Mountain Panorama

Not surprisingly, visitors to these new galleries were anxious for portable souvenirs, and this provides one plausible explanation for the emergence of the smaller panoramic-style engravings (and later, lithographs) that began to appear in the late eighteenth and early nineteenth centuries. Many panoramas, of course, were not just miniatures of the rotunda displays but originated in the smaller format, with subjects from cities and landscapes in many parts of the world (Abbey 1972). But of particular interest is the rapid growth in importance of the mountain panorama, which would eventually embrace both ground-level and high oblique bird's-eye views, which were more map-like in appearance (Patterson 2000). Not only did these graphics provide lowland urban dwellers with easily accessible views of distant environments, they also offered a form of spatial education about the relationships among mountains, ridges, and valleys.

The rapid evolution of the mountain panorama as a commercial artistic form is closely associated with (and indeed was certainly stimulated by) the opening up of the Alps in the late eighteenth and nineteenth centuries. Although this wild region of massive and spectacular peaks and ridges had been feared and avoided by travellers in earlier times, it was destined to become a mecca for earth scientists and topographers. Later it would be recognized as a challenging environment for mountaineers and a favoured destination in the growing fashion of tourism in the grand style.

Cartographic representations of the region already existed in the eighteenth century, but it was not until the early nineteenth century that more useful and reliable topographic maps became available.

During this time (and before the days of the compact camera) another trend also emerged among some travellers: creating their own drawings of the mountainscapes they visited. Each participating group, however, had a different agenda. Artistically inclined earth scientists and map-makers found it useful and sometimes essential to record aspects of the landscape through sketches. Before (and even after) the arrival of photography these people would capture the shapes and character of rock outcrops to familiarize themselves with the topography to be depicted on maps.

Earlier landscape artists had been influenced by the tendency toward idealistic rather than topographically correct representations, but the new interest in natural science led to the disappearance of such semi-fantasy pictures and the emergence of what were called "geognostic" drawings (Oettermann 1987). These were not created as art but had a purpose, either to illustrate books about geographical regions or to provide previews for travellers. In Imhof's words, "when the [...] first accurate topographical maps were being drawn, the panorama numbered among the most important [...] aids to orientation [...]. Whereas maps provide orientation for

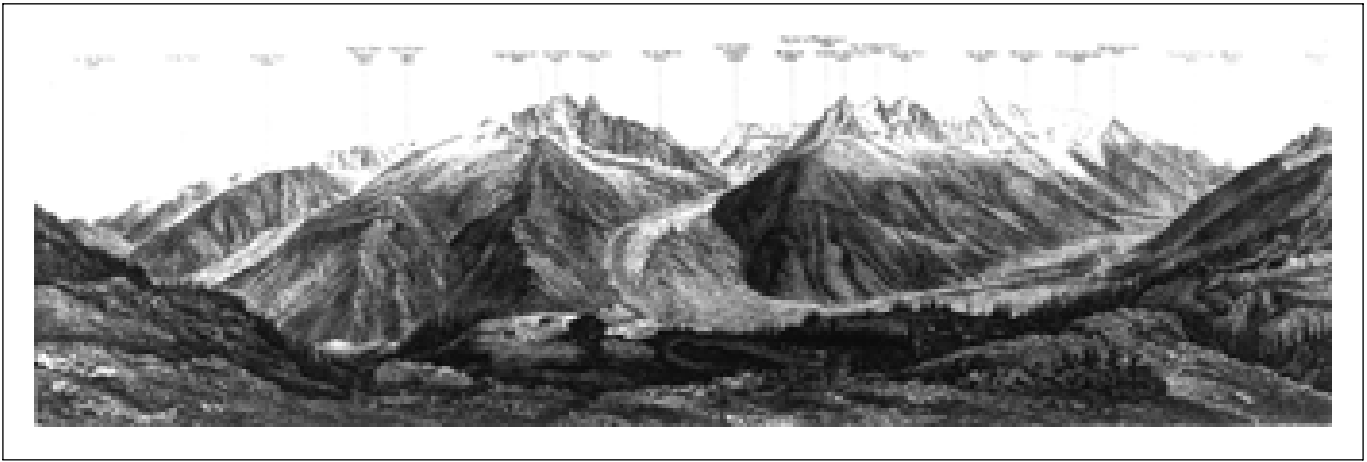


Figure 1. *The Mont Blanc Massif, viewed from La Flégère. (Example of a typical nineteenth-century tourist panorama, as used to illustrate guidebooks of the Alps.)*

every point in the area they cover, panoramas do this for a single location. But while map reading is a skill that must be learned, anyone with a few years of elementary school can understand a panorama” (Imhof 1963, 129). Geognostic drawings also included some innovative designs such as the first horizontal scientific panorama (from the Buet Glacier) by Horace Benedict de Saussure (de Saussure 1776).

From the early nineteenth century, hundreds of mountain panoramas were created. Some came from recognized masters such as Samuel Gottlieb Studer and Hans Conrad Escher, but many others were attempted by enterprising (if sometimes unscrupulous) amateurs using optical (“shortcut”) devices such as the *camera obscura* to help them achieve their artistic effects.

Tourism provided the greatest incentive for mass production of what have been called “folding” panoramas (Hell 2001), so called because of the need to fold them neatly for public sale or inclusion in guidebooks or journals (Figure 1). These were the forerunners of the familiar tourist leaflet of today. Heinrich Keller (1778–1862) typified the entrepreneurial style of that period before photography. In his Zurich business he created tourist souvenir-images, first of the most popular, and later of other mountain regions, as visitors grew in number and changed in character. Serious climbers continued to seek mountaineering challenges, but other visitors merely wanted to experience the panoramic views first-hand, if only from hotel balconies or mountain huts. This led to even greater demands for the artistic work of Keller and his peers, from alpine clubs, tourist hotels, and mountain village communities building up their own local tourist economies. People such as Keller were often totally committed to their business. He, personally, went to great lengths to provide detailed, high-quality images that involved climbing to selected summits and working, sometimes in severe conditions with numb fingers, to construct the preliminary drawings. While the field drawing for smaller projects lasted only a few days, oth-

ers took longer, often measured in weeks of daily slogging up and down a mountain. In one extreme case, Albert Bosshart climbed (and descended) over 3600 metres 50 times between 1906 and 1914 in an attempt to complete a commission for the Swiss Alpine Club. That project was never finished (Hell 2001).

In the early nineteenth century, panoramas were printed mainly in monochrome, but with the development of chromolithography just before 1840, coloured editions became increasingly common through the printing and publishing work of Orell Fussli (Zurich, Switzerland), Kummerly (Berne, Switzerland), and Justus Perthes (Gotha, Germany). Apart from folded leaflets, mountain-club magazines also incorporated panoramas as folded illustrations. The print run for one such magazine increased from 4000 copies in 1872 to 78,000 in 1908. With every hut, pension, inn, hotel, and tourist office demanding these products, the growing number of companies published an enormous number of panoramas between 1850 and 1910 (Hell 2001). The German Alpine Club, for instance, has an archive of over 600 examples, and the graphic efforts of more talented climbers have also been acknowledged (Dreyer 1930). The twentieth-century development of photography, however, had an impact on this graphic enterprise, leaving a smaller group of artists (such as the late Heinrich Berann) to continue the tradition and further refine and develop a unique graphic style that combed aspects of cartography, panoramic accuracy, and undoubted beauty. This narrower commercial activity is still important today.

The Mountain Panorama in Scotland: A Historical Overview

The author’s knowledge and experience of the Alps, with their impressive tradition of panoramic drawings and paintings, encouraged him to seek comparisons with Scotland. This country also contains notable mountain regions that gradually, over the centuries, attracted sci-

entists, mountaineers, and eventually tourists. How did the Scottish experience, physically and historically, compare with that of the Alps? Was everything just scaled down with the mountains themselves, or had there been other differences?

Although some people living far from the Scottish mountains may have regarded their dark, misty interiors with some suspicion, the local inhabitants did not. They had used many of the lower slopes for animal grazing and followed travel routes, dating back into prehistory, through the deep glaciated valleys.

The early history of Scottish mountaineering, like that of the Alps, can also be dated back to the late eighteenth century, with a growth in its popularity as the nineteenth century progressed (Mitchell 1998). Mountaineering clubs were established in the nineteenth century (for example, The Scottish Mountaineering Club and the Cairngorm Club in the late 1880s), but no trace of a true tradition of mountain panorama artistry can be found! However, consideration of both geography and history provides some insight into the possible reasons for this absence. The Alps have a central position, not only in Austria and Switzerland but also within the wider populated region of Europe, offering easy access from all directions. Scotland, on the other hand, is the northern extremity of the British Isles on the geographical periphery of Europe and much less accessible, especially before rail travel in the mid-nineteenth century. The mountains were impressive in a local context (some over 1200 metres) but lacked the classic magnificence of the Alps. Scotland also had a strong tradition of producing mountaineers, and they grew in number into the twentieth century. But it never had the local or surrounding population potential to create the mass tourism experienced in Europe.

Those who explored regions such as the Cairngorms were mainly Scottish or from southern Britain. A notable representative was Queen Victoria who, while not a mountaineer, became familiar with several Scottish summits and may have contributed to the growth of mountain tourism, especially in the Cairngorms, after the middle of the nineteenth century. Many Scottish mountaineers also turned south to the Alps for greater challenges. The more limited numbers of visitors to Scotland were insufficient to support a real commercial market for specialized souvenirs such as those produced by Keller in Zurich, and many of the panoramas and sketches that do survive were often designed for other than the promotion of mountain tourism. The period of more rapid expansion in Scottish mountaineering came later than in the Alps and coincided with the increased availability of black-and-white photography (late nineteenth century) and, after 1909, colour photographs, which have since featured extensively in mountain publications of all kinds.

Despite the differences in purpose, scale, and quantity of pictorial images between Scotland and the Alps, the

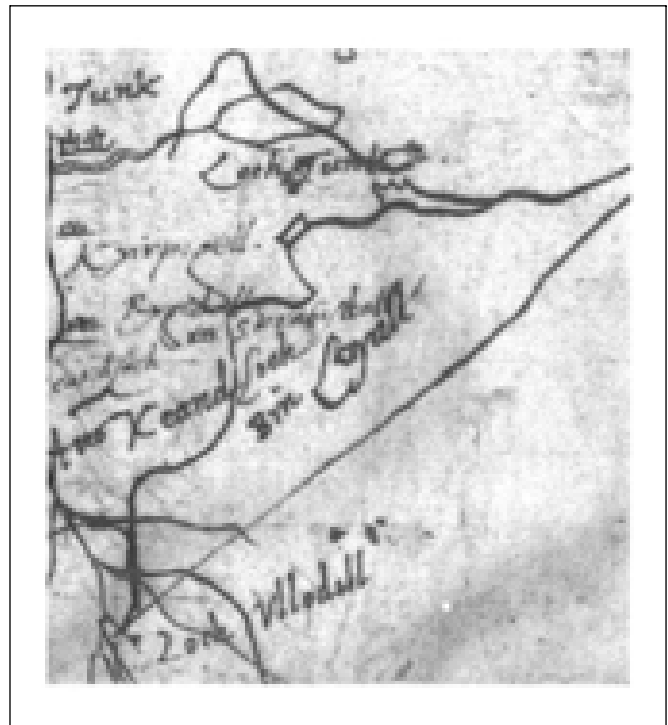


Figure 2. A small portion of one of Pont's manuscript maps (ca. 1590) of the Northern Highlands of Scotland, showing the hill profile (based on the SW to NE diagonal line) of Bin Loyall (Ben Loyall), which lies to the west of Strath Naver, in the county of Sutherland.

history of pictures and panoramas of Scottish mountains includes some interesting examples. The following review makes reference to some significant but more conventional landscape paintings, but its primary focus is not on art. A range of graphic images is identified, which have been used to depict mountain peaks and ranges, and in some cases to offer information and guidance to mountain visitors. Most, however, can be regarded as one-off products or artistic experiments rather than part of an archive of serious tourist publicity or propaganda.

Scottish Mountain Panoramas: Yesterday and Today

THE EARLY YEARS

Two precursors of Scottish mountain panoramas are cartographic by association. The first was from Timothy Pont, a major contributor to Scottish mapping in the late sixteenth century (Stone 1989). A unique feature of some of his field-sketched maps was the inclusion of what may be called "hill profiles." These map lines can sometimes be confused with rivers, but they represent distinct outlines of mountains sketched as seen from positions in the valleys (for example, Bin Loyall in the far north of Scotland, Figure 2), and occasionally from higher vantage points. Over 300 have been identified but were never more than curiosities and did not feature in any later printed versions of Pont's work.

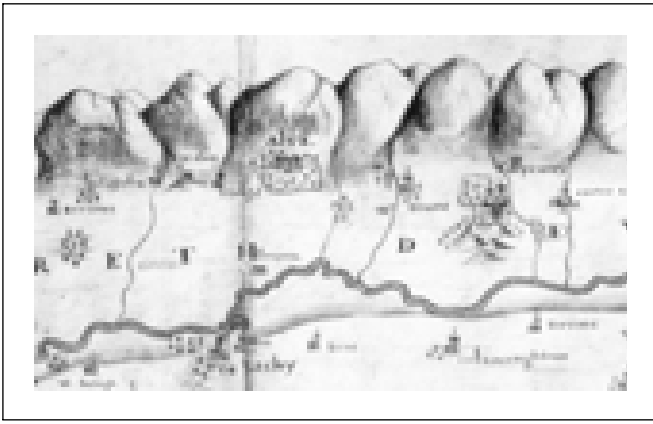


Figure 3. A portion of the a hand-coloured manuscript map of Strath Devon and the district between the Ochil Hills and the Forth, in Scotland (John Adair, 1682). This section is a north-looking panorama-like view of the Ochil Hills with the settlements of Alva and Tillycutry (Tillicoultry) on their lower slopes.

The second early example is associated with the development of cartographic hill representation in late fifteenth- and sixteenth-century Europe, when more realistic, if still planimetrically suspect, images began to appear. Beautiful European examples are the sixteenth-century maps of Tuscany by Leonardo da Vinci (Popham 1953), where hills are delineated in oblique, bird's-eye-view style. This method of relief representation continued into the next century and was employed by John Adair in his 1681 hand-coloured, manuscript map of Strath Devon, and the district between the Ochil Hills and the Forth, in Scotland. This north-looking view, although part of the map rather than drawn as a landscape panorama, does bear some resemblance to that genre,

with streams emerging from the valleys, and woods and settlements scattered around (Figure 3).

THE NINETEENTH AND EARLY TWENTIETH CENTURIES

While not created for a mass audience, a notable early collection of Scottish mountain art was the limited-edition *Scenery of the Grampian Mountains* by George Fennell Robson (Robson 1819). This large-format volume contains 40 fine coloured etchings that are impressively authentic in their portrayal, but do reflect some of the idealism of pre-geognostic art (Figure 4). The monochrome version of the book reveals the full detail of the original etching, much of which is lost in the colour print. Another fine series of small-format monochrome mountain engravings was produced by Sir Thomas Dick Lauder for a paper in the *Transactions of the Royal Society of Edinburgh* (Lauder 1818). They portray glacial valleys, with their old glacial lake shorelines known as the Parallel Roads of Glen Roy, in a region northeast of Fort William on the west coast of Scotland (Figure 5). However, despite the quality of both art and craftsmanship, these two sets of images had a more limited purpose and the more restricted angular field of view common to most landscape paintings, and thus do not meet the primary criteria of this review.

One of the first true panoramas of a Scottish mountain landscape is dated 1820 and entitled "A View of the Grampian Mountains, from the Summit of Benclach, the Highest of the Ochil Hills, a Station in the Trigonometrical Survey of Great Britain, Situated 28 miles North West from Edinburgh" (see Figure 7). The work was delineated and published by J. Gardner, who was employed as a colour sergeant, Royal Engineers, on the Trigonometrical Survey. This large production contains two images. The lower is simply an outline of the horizon and nearer

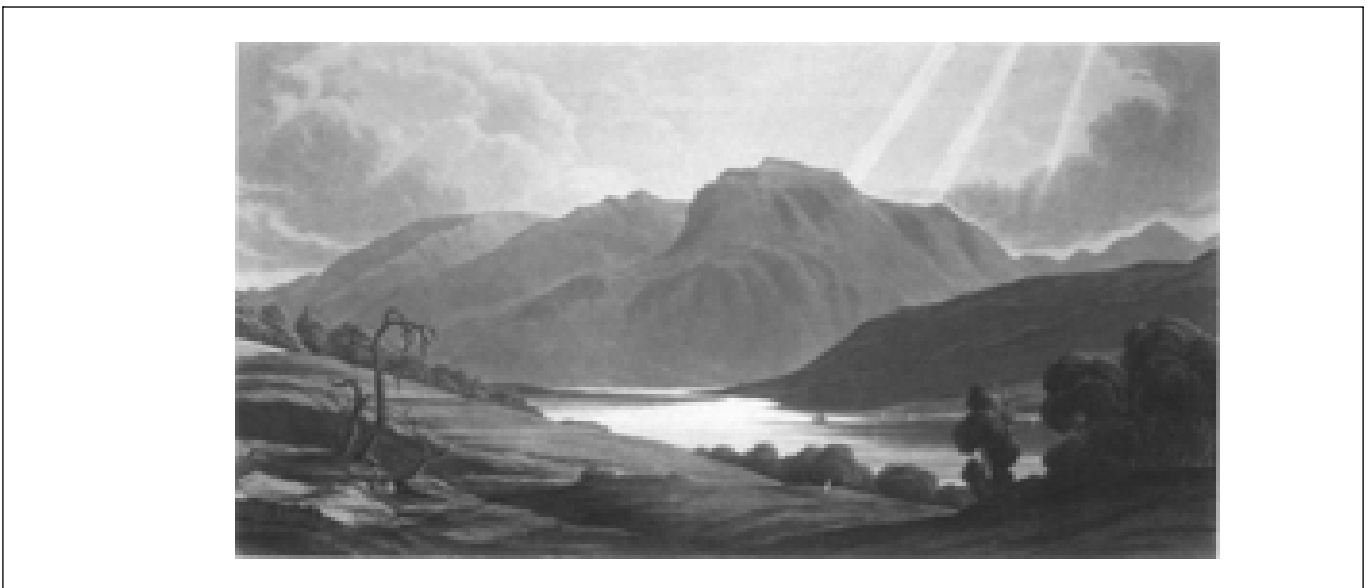


Figure 4. Ben Nevis and Loch Eil, from the west-northwest: one of the paintings by George Fennell Robson from his book *Scenery of the Grampian Mountains*, 1819.

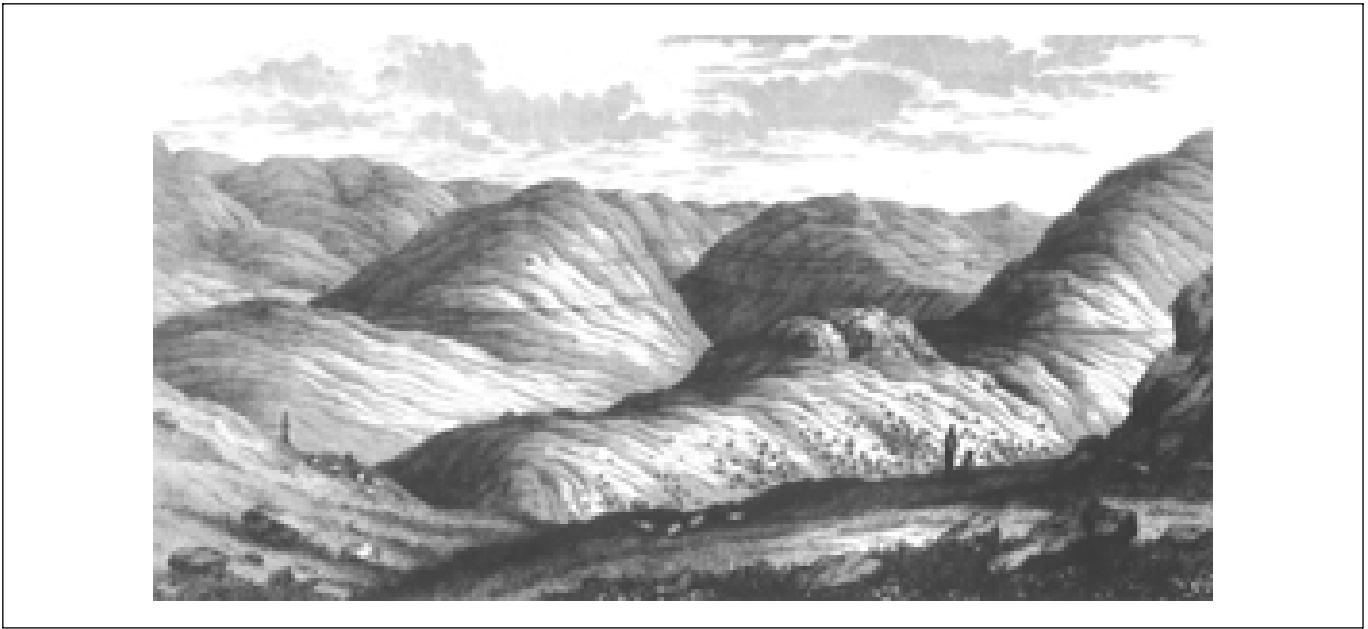


Figure 5. An illustration from the paper “Parallel Roads of Glen Roy” (1818) by Sir Thomas Dick Lauder.

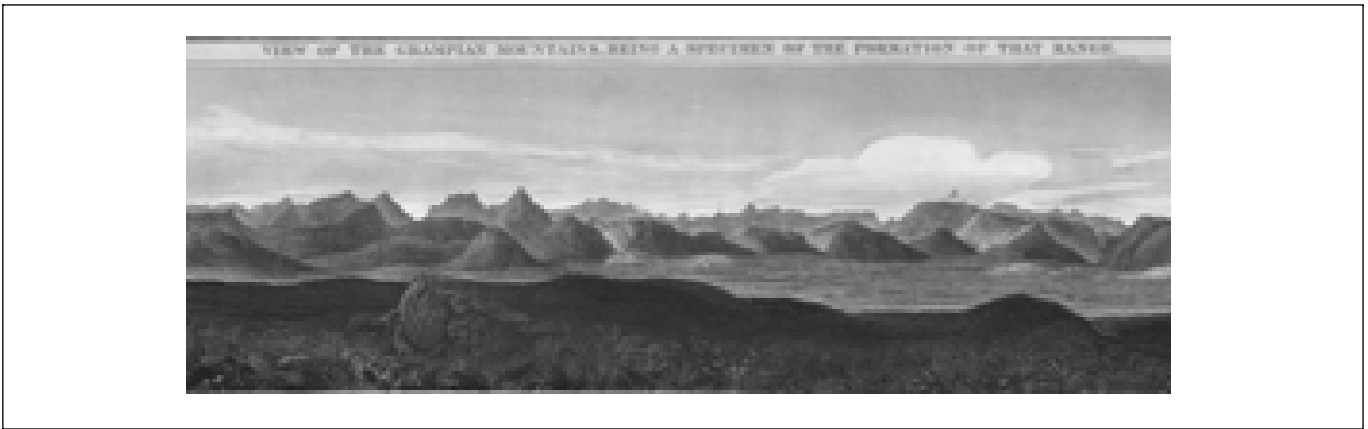


Figure 6. An illustration from Thomson’s Atlas of Scotland, 1832, showing a panorama of the Grampian Mountains, viewed from the south.

hills, containing the names of mountains and peaks, and includes what is stated as “85 degrees of the horizon,” although the true angle of view might be greater. The upper and main panorama is a coloured aquatint, which, although lacking intricate detail, gives a realistic impression of the landscape with good depth effects through use of the artistic technique of atmospheric perspective. Although there is no evidence of snow, the season depicted (perhaps close to 1 January, the date on the panorama) looks cold with all the valley settlements (for example, the town of Crieff near the centre) belching smoke from domestic chimneys. A small and what appears to be a considerably modified version of this panorama also appears in Thomson’s atlas (Thomson 1832) as “a specimen of the formation of [...]” rather than an accurate portrayal of the Grampian Mountain range

(Figure 6). A more recent edition of the original Gardner panorama was published in 1875 by J.A. Knipe, who was author of the *Geological Map of the British Isles*. It seems to be more directed at a Victorian tourist audience and carries additional text about how the hill viewpoint can be reached, and some details of the local geology (Figure 7).

Although colours are more restricted (browns and greys) than in Gardner’s original, the sky has a more elaborate cloud composition. The distant hill outlines are also clearer, with impressions of sun lighting up the valleys. The simple panorama profile, with hill names, also appears below the main picture. Other mountain panoramas and sketches produced in the late nineteenth century may never have progressed beyond original drawings such as the “View from the Top of

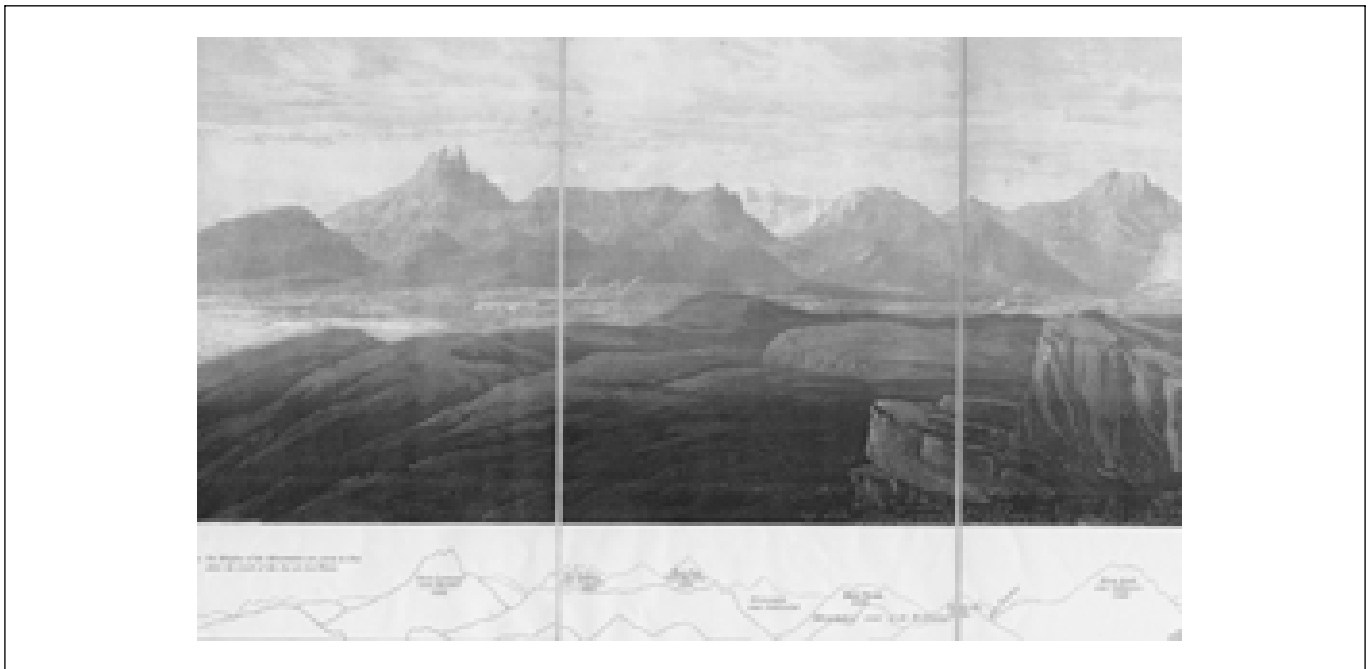


Figure 7. The western portion of J. Knipe's edition (1875) of the original panorama by J. Gardner (1820), showing "A View of the Grampian Mountains from the Summit of Benclach [...]" The section with the original hill profiles appears below the main image.

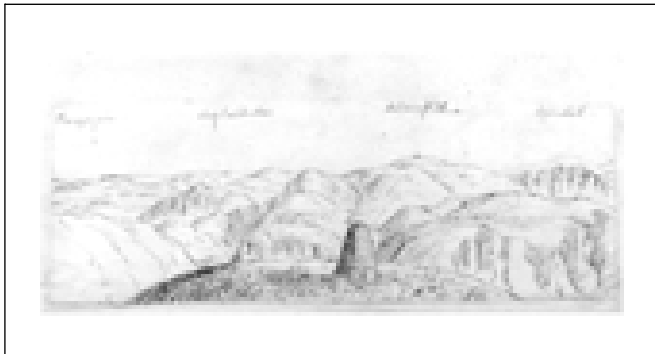


Figure 8. "View from the Top of Cairngorm," a pencil drawing from a sketchbook by Sir Thomas Dick Lauder (1830).

Cairngorm" from the sketchbook of Sir Thomas Dick Lauder, 1830 (Figure 8). However, a few simple coloured high-level panoramas were created for publication and almost certainly for mountain travellers. An important example is the aquatint of the view from the Observatory on the summit of Ben Nevis (Britain's highest mountain). The hills are shown crisply in profile, enhanced with delicate vignetted shades of purple, blue, pink, and yellow (Figure 9). It was produced and published by R.S. Shearer and Son, Stirling, and printed by W. & A.K. Johnstone, Edinburgh, in 1895.

Unlike the previously described illustrations, this work obviously found a market and was revised and republished in 1935, and again in 1977 and 1980, as one of a series of detailed blackline tourist panorama profiles of

British mountains, by Chris Jesty (Parry and Perkins 1996). Two other mountaineering-related publications appeared during this period in the late-nineteenth and early-twentieth centuries when The Scottish Mountaineering Club and The Cairngorm Club were flourishing. The first, from the summit of Ben Muich Dhui (Ben Macdhui), outlined by Alex Copeland for the Cairngorm Club in the early 1900s, is a 100-degree view, 5.4 metres long, in pastel shades spanning a region from due east of the viewpoint to the south-southwest (Figure 10).

The second, "Panoramic and Contour View of the Grampian Range" (1914), from a lowland point south of the town of Grantown-on-Spey, seems to have been a pencil drawing and was printed in monochrome only. It has an interesting design comprising (as the main panorama) an elaborate curved drawing representing a horizon of about 180 degrees, with the centre pointing due south. It is quite elaborate, even showing details of foreground hilltops, trees, and bushes (Figure 11). A smaller horizontal outline version of the mountain profiles is located near the bottom of the image. This publication is attributed to a list of compilers, the best-known being A. Inkson McConnochie, a founder member of the Cairngorm Club. Both this and the view from Ben Macdhui are richly supported with location names.

Most of the few remaining published panoramic drawings of this period are merely small pen or pencil sketches in volumes of the Scottish Mountaineering Club guides, and often constructed to explain photo-panoramas, which began to appear in these publications from about 1913 (Figure 12). What may have been one of the earliest

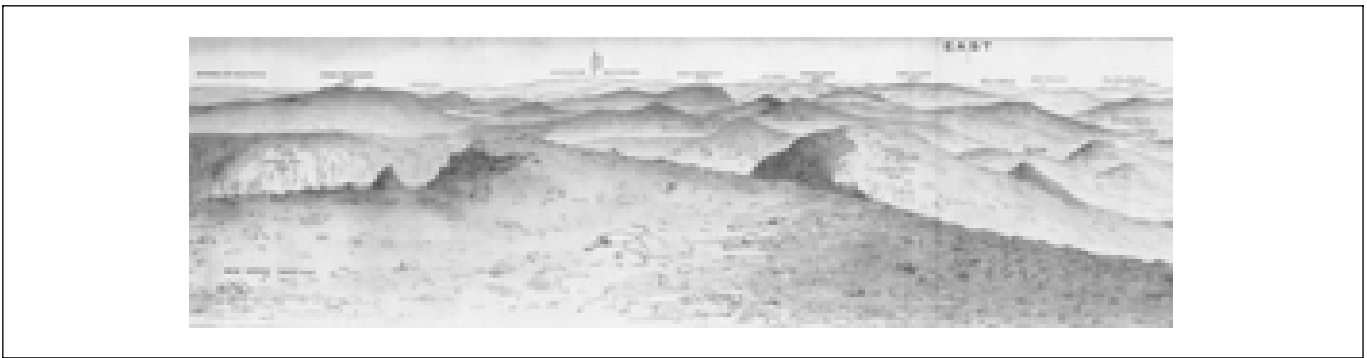


Figure 9. Part of the panoramic view from the Observatory on the summit of Ben Nevis, 1895.

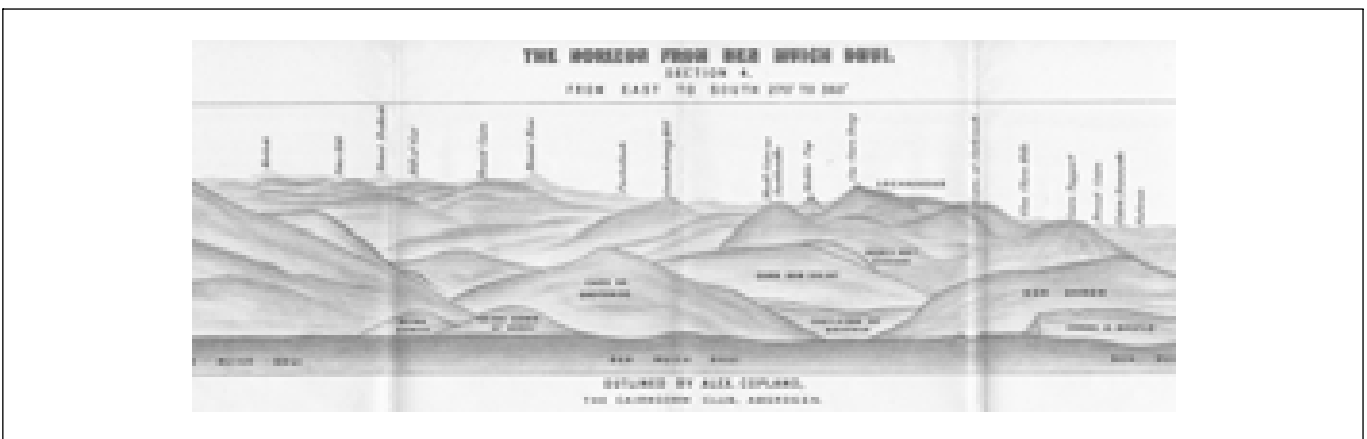


Figure 10. A small southeastern section of the 5.4 metre-long panorama entitled “The Horizon from Ben Muich Dhui” (early twentieth century) by Alex Copland.

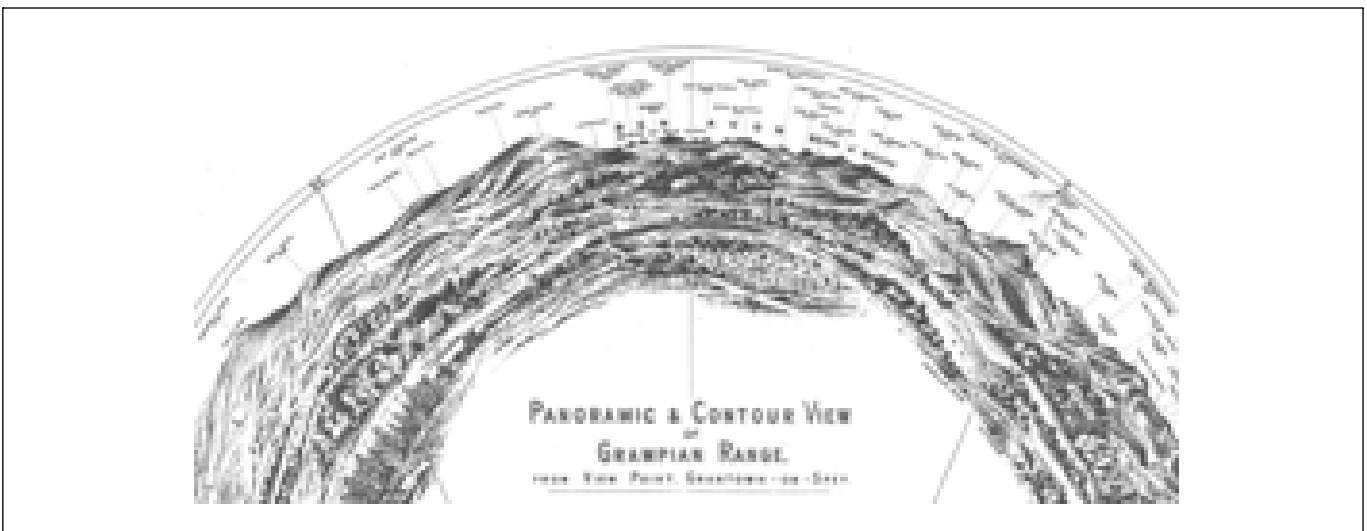


Figure 11. Upper section of the “Panoramic and Contour View of Grampian Range from View Point Grantown-on-Spey” (1914). The horizontal panorama of the hill outlines lies in the lower section of the sheet (not illustrated here).

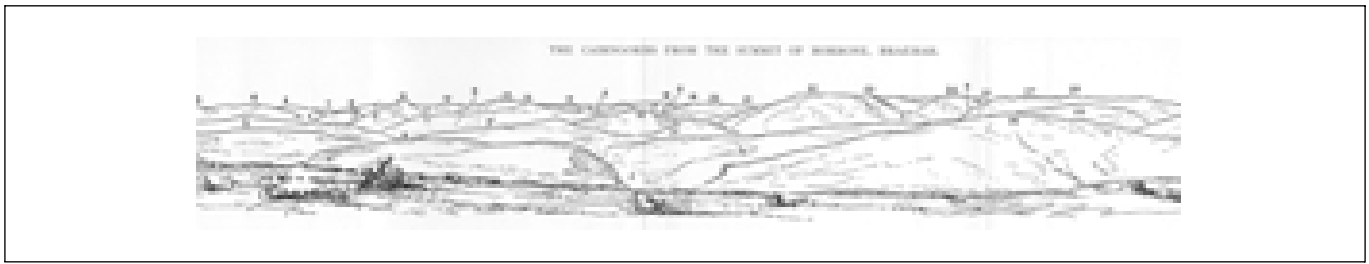


Figure 12. Part of an outline panorama of the Cairngorm Mountains from the summit of Morrone, Braemar, by Henry Dugan. This was used as an illustration in *The Scottish Mountaineering Club guide to the Cairngorms*, 1928 (and in later editions). Numbers refer to peaks also shown on an accompanying photo-panorama, and named in a key.

of these (“The Cairngorm Mountains as Seen from Aviemore Railway Station”) is described by the teacher and mountaineer Caleb Cash in a technical account of its construction in the journal *The Geographical Teacher* (Cash 1904). Another related form was the “mountain indicator,” a flat circular or rectangular polished stone slab, located at the summits of some mountains, with the names (and sometimes simplified profiles) of the distant peaks as viewed from there.

This review confirms that the mass-produced graphic panorama, so characteristic of Alpine tourism, played virtually no part in the historical development of Scottish mountaineering. Some of the pictorial examples described in this paper were incidental to that history, although they may have been studied by visitors already committed to travelling the region. From the eighteenth century, the Alps were explored and later exploited not only by locals but also by visitors from elsewhere in Europe. Some of the earliest to embark on what was called the Grand Tour were British noblemen and cultured gentlemen who had both the available time and the disposable income for such adventures. Early mountaineers from Britain and elsewhere were also drawn to the region, and thus the Alpine tourist experience had been international from the early days.

Scotland, on the other hand, was different. Its mountains were explored and developed for mountaineering and later tourism primarily by local, national enthusiasts. The historical process was, therefore, culturally quite different – national rather than international. Although Scotland’s early climbers loved their own mountains, some were also notably active in the Alps and formed part of the foreign invasion referred to above. Indeed, it was a Scottish climber, S.T. Speer, who was first to climb the Mittlehorn, in the 1840s, from Grindelwald in the Bernese Oberland!

But what of recent years? Have things changed? Has the growth in leisure time and in Scottish home-based tourism over recent decades stimulated any new commercial enterprise in this special form of mountain illustration?

TOWARDS THE END OF THE LAST MILLENNIUM

One main link with the early years of the twentieth century
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ry was Chris Jesty, an artist who participated in fieldwork marathons associated with the Alpine products of Keller and Bosshart. His work comprised carefully constructed if much simpler black-and-white profiles from British peaks. However, his work and the unique (but mostly non-panoramic) graphic images of Alfred Wainwright concentrated largely on English and Welsh mountains (see <http://www.visitcumbria.com/wainwrgt.htm>). More recent products relating to Scotland are in two categories. The first represents a continuation of the more traditional artistic genre, and the second is the successful application of newer digital terrain-modelling procedures.

Paintings

Some painted panoramas of selected areas of Scotland have been produced by this author. Cairngorm Mountain (Figure 13) is original artwork, but others, including *The Whisky Trail* (1986) (Figure 14), and the most recent example, *Central Scotland* (1999) (Figure 15), are published editions. The influence of the Austrian panorama artist Heinrich Berann is evident in this work (Wood 2001). However, the much more substantial enterprise of K.G. & S. Gage of Gloucester (Gage 2001) must be given greatest acknowledgement. Their initial inspiration, in the mid-1970s, was also acquired during travels in the Alps when they encountered the panoramas of Berann and his contemporaries. However, these works were judged more critically and believed to be too stylized and more suited for helping visitors interpret the landscape than guide them through it. As a result, instead of importing an Alpine style for the British market, the Gages – who were both skilled technical illustrators of aircraft manuals – devised a method of creating high-oblique panorama-like perspective images with realistic landscape details painted on the surface. Walkers could use the products both as a reference and in conjunction with the Ordnance Survey 1:50,000 scale leisure map series. The first three of these “aerial panoramic maps” were completed in evenings and over weekends while the Gages were both still fully employed as illustrators. But market success was so great that the new company, Contour Designs, was established by 1980 and is still flourishing today. Its work has obvious tourist applications, but has also found uses in school teaching and for illustrating



Figure 13. Part of a panorama of the Cairngorm Mountains (centred on Cairngorm summit) by the author (using considerable artistic licence!) (1977).



Figure 14. Part of the panorama map The Seagram Whisky Trail, by the author (1986). The view is looking to the west with the Cairngorm Mountains on the horizon.



Figure 15. Upper section of a panoramic map, by the author, of Central Scotland from the south. Loch Voil and Loch Earn are in the middle foreground, with Loch Tay in the upper right (2nd edition, 1999).



Figure 16. A central detail of the aerial panoramic map Ben Nevis and Glencoe, Lochaber, by Contour Designs, Gloucester (1980).

published texts and television programs. Although based in England with the whole of the UK as a market, this company has produced at least eight fine “maps” of major Scottish mountain regions (Figure 16) which are without competition in this field.

Digital Methods

Digital terrain modelling has also been inspired by the need for mountain depiction (for example, Wood and

Goodwin 1995; Wood and McCrorie 1993), but only two Scottish enterprises have developed the method commercially. The earliest investigations were made by Jonathan de Ferranti, who designed a simple but effective method of creating full or partial panoramas from major viewpoints, mainly mountain summits. These images are created from Ordnance Survey digital data (based on the 1:50,000 map series). The resulting “Viewfinders” are in the form of multiple overlapping profiles

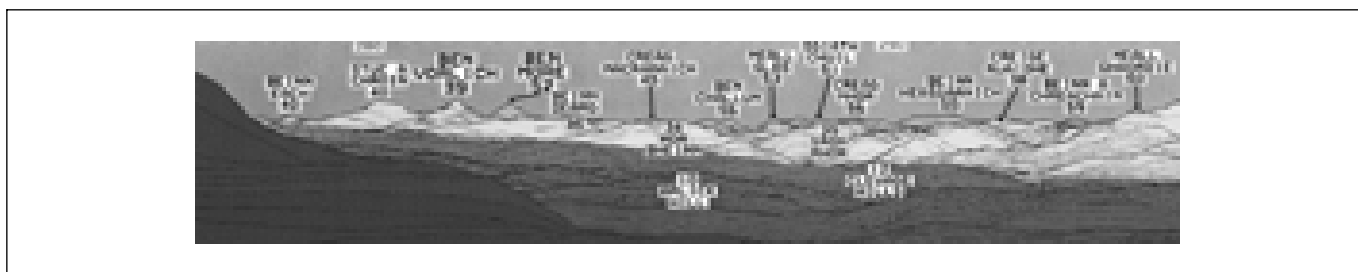


Figure 17. West-to-northwest section of one of the “Viewfinder” panoramas from East Lomond Hill, by J. de Ferranti.

with colour tints of yellow and green to enhance the effect of distance. They offer very detailed and specific information about what can be seen in clear weather (Figure 17). Over 1000 Viewfinders have been created, and 200 are available for purchase from stock, most of which are of Scottish mountainscapes (see <http://www.sol.co.uk/v/viewfinder/>).

The final example of Scottish innovation in this field is from Kevin Woolley’s company, Geomatics, based at Lochearnhead in Central Scotland (see <http://www.geomatics.com/>). He has developed the program Genesis II for photorealistic rendering of GISystem data, and Landscape Explorer, which renders maps in real time 3-D. Genesis II, which is intended for real-world modelling, works from digital terrain files, which can be imported directly from ESRI (Environmental Systems Research Institute) ArcView, MapInfo, and other GISystem software. The photorealistic rendering function utilizes vector data for rivers, roads, hedges, and forests, derived from topographic databases, and provides control over base surface, lighting, atmosphere, camera/target, and water definition. Other features are also available such as multiple terrain layering and control over vegetation and ecology. Despite its huge potential for panorama construction and its relative ease of use, it has not yet been developed commercially for tourist publicity in Scotland. Only one example of its application can be seen on the Geomatics-sponsored website called “The Virtual Scotland Project” (see <http://www.virtualscotland.org/>), which includes geographically accurate panoramas created with Genesis II.

The first exercise was from the summit of Ben Lomond, northwest of Glasgow (Figure 18, Figure 19). This panorama can be viewed on the website with interactive facilities for panning and zooming. It was generated from the Ordnance Survey data (based on 1:50,000 scale) extending outwards for over 30 kilometres from the summit and thus giving an authentic impression of a natural horizon. This and a correction facility for the curvature of the Earth provides an impressively realistic effect. The screen image is limited to the rendered panorama, but printed poster versions of the north, south, east, and west sections, with useful labelling of hilltops, is available for on-line purchase.

One other mountain-related application of Genesis II software can be found in a special CD-ROM published by

the Scottish Mountaineering Club, *The Munros: The Definitive CD-ROM*. The Munros are the 284 separate Scottish mountain summits over 3000 feet (915 metres), first listed by Hugh T. Munro in 1891 (Munro 1891). As hillwalking and -climbing grew in popularity in the second half of the twentieth century, the fashion of “Munro-bagging” (the climbing and checking off each summit on Munro’s list) also grew. This led to many related publications, including the second edition of this CD-ROM, which contains a wealth of information, maps, landscape photographs, and interactive photo-panoramas. Also incorporated in a few of the mountain region illustrations are animated clips (with descriptive sound commentaries) of what are called virtual mountain flights, created by Kevin Woolley of Geomatics. Only a few of the summits so far have been treated in this way, but the intention is to extend the coverage to the whole mountain area.

Conclusion

Scottish Mountains have inspired some people over the last two centuries to create artistic paintings, panoramas, and sketches to record and express their personal responses to the landscapes. But these never reached the scale of production or focused purpose that existed in the Alps. The powerful surge of philosophical, artistic, and entrepreneurial activity of the Enlightenment in Europe, and thereafter, led to a dramatic increase in panorama viewing in rotunda galleries and also in the publication of smaller-format images. But these movements and activities had no significant impact on the human exploration and exploitation of Scottish mountains. During the period of expansive tourist development in the nineteenth century, the number of visitors to Scottish mountains was small in comparison with that in the burgeoning economy of the Alps. Visitors to Scottish mountains seemed broadly satisfied with the guidebooks and maps available to them, and a specific demand for specialized pictorial souvenirs never developed.

Serious mountaineering and related activities for more general tourists form only part of the wide range of outdoor pursuits currently available, and the moderate supply of media items and published information appears to meet the needs of the relevant markets. Bombarded as we are today with graphics – printed and on-screen – the mountain panorama may have lost some of its wider ap-

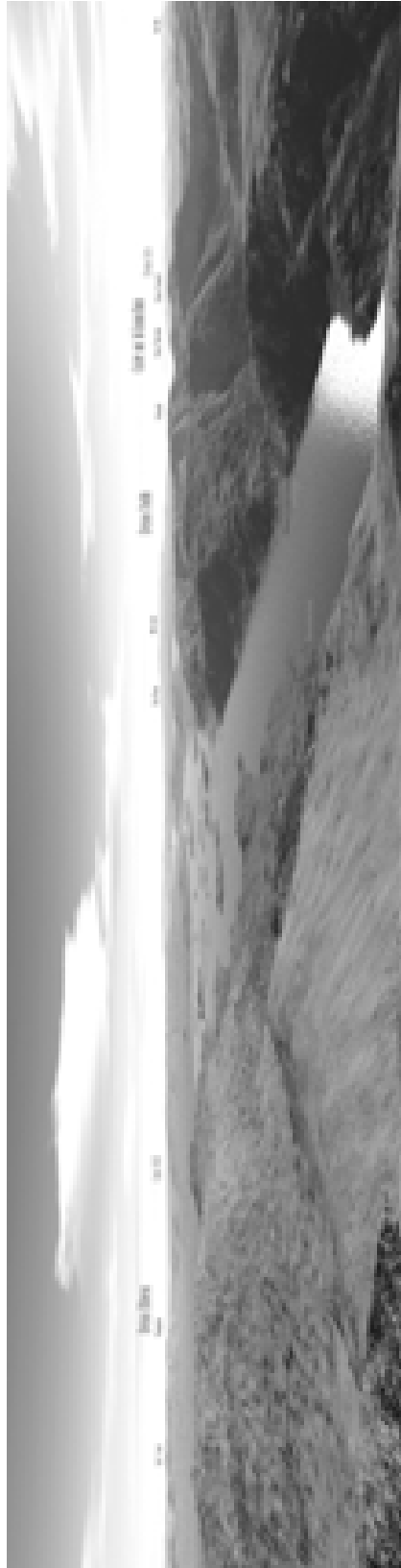


Figure 18. View from Ben Lomond looking south over Loch Lomond. A digital terrain model created using Kevin Woolley's Geomatics Software (see <http://www.virtualscotland.org/>).

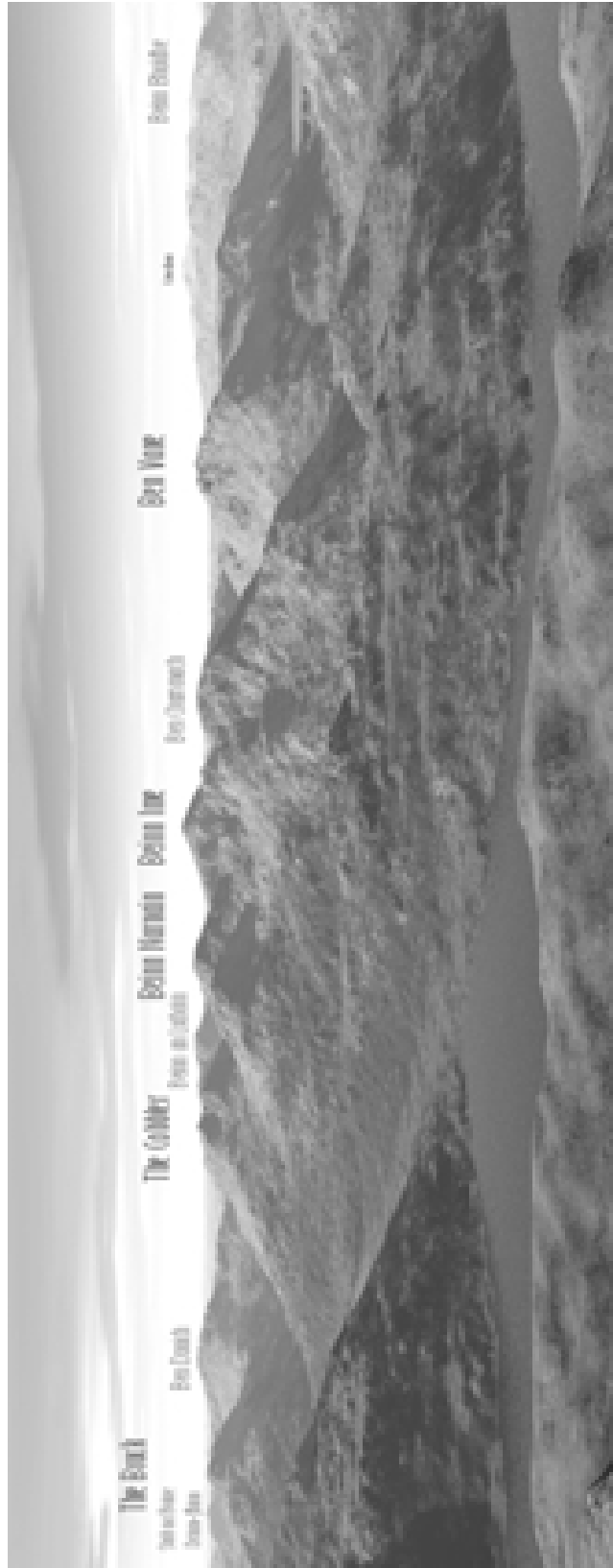


Figure 19. Part of the Ben Lomond digital panorama, looking northwest over the Loch Lomond Regional Park (see <http://www.virtualscotland.org/>).

peal. Nevertheless, well-designed and accurate panoramas are still appreciated by many tourists, mountain enthusiasts, and map aficionados. The recent examples (manual and digital) identified in this paper indicate the gentle continuation of a tradition of artistic work. Today the need to protect the wilderness environment is as important as the desire to encourage tourism within it. As competent map-reading is still the skill of the few, Imhof's words of 1963, quoted above, remain valid. Panoramas – now enriched by the computer animation and interactive facilities of today – can continue to help educate the public to read and appreciate the landscape, and it is hoped that opportunities for more imaginative applications will yet develop in the near future.

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References

- Abbey, J.R. 1972. *Life in England in Aquatint and Lithography 1770–1860*. Folklstone: Dawsons of Pall Mall.
- Cash, C.G. 1904. "How to Make a Panorama: With a Reduction of that from Aviemore Station." *The Geographical Teacher* 8, 2/4: 174–5.
- Corner, G.R. 1857. *The Panorama: With Memoirs of Its Inventor, Robert Barker, and His Son, the Later Henry Aston Barker*. London: J. & W. Robins.
- de Saussure, H-B. 1776. *Voyages dans les Alpes*. Neuchâtel: Samuel Iauche.
- Dreyer, A. 1930. *Karten – und Rundichtenverzeichnis der Alpenvereinsbücherei*. Munich: Gesellschaft Alpinear Bucherfreunde.
- Gage, K.G. 2001. Personal communication.
- Hell, B. 2001. *Catalogue* for the exhibition Mountains All Round: Folding Panoramas or the Quest to See All. Innsbruck: Alpenverein Museum.
- Imhof, E. 1963. Zurich Kartenkünstler und Panoramazeichner. In *Zurich, Vorhof der Alpen*. Festgabe zum hundertjährigen Bestehen der Section Uto SAC. Zurich: D. Fussli, Zurich.
- Lauder, T.D. 1818. "Parallel Roads of Glen Roy." *Transactions of the Royal Society of Edinburgh* 9/1.
- Lewis, G.M. 1987. "The Origins of Cartography." In *History of Cartography*, eds. J.B. Harley and D. Woodward. Vol. 1. London: University of Chicago Press.
- Mitchell, I. R. 1998. *Scotland's Mountains before the Mountaineers*. Edinburgh: Luath Press.
- Mitchell, R. 1801. *Plans and Views in Perspective, with Descriptions of Buildings Erected in England and Scotland, and also an Essay, to Elucidate the Grecian, Roman and Gothic Architecture, Accompanied with Designs*. London: Wilson & Co.
- Munro, H.T. 1891. "Tables Giving All the Scottish Mountains Exceeding 3000 Feet in Height." *Scottish Mountaineering Club Journal* 1/6.
- Oettermann, S. 1997. *The Panorama: History of a Mass Medium*. New York: Zone Books.
- Popham, A.E. 1953. *The Drawings of Leonardo da Vinci*. London: The Reprint Society.
- Parry, R.B., and C.R. Perkins. 1996. *Mapping the UK*. London: Bowker Saur.
- Patterson, T. 2000. A View from on High: Heinrich Berann's Panoramas and Landscape Visualization Techniques for the U.S. National Park Service. In *High Mountain Cartography 2000*, ed. M. Buchroithner. Proceedings of the Second Symposium of the Commission on Mountain Cartography of the International Cartographic Association, Alpine Centre Rudolfshutte, Austria. Institute for Cartography, Dresden University of Technology and the German Cartographic Society.
- Pragnell, H.J. 1968. *The London Panoramas of Robert Barker and Thomas Girtin circa 1800*. London: Topographical Society.
- Robson, G.F. 1819. *Scenery of the Grampian Mountains*. London: Author.
- Solar, G. 1977. "Drei Glarner Hochgebirgspanoramen von 1655." *Jahrbuch des Historischen Vereins Glarus* 66.
- Stone, J.C. 1989. *The Pont Manuscript Maps of Scotland*. Tring, UK: Map Collector Publications Ltd.
- Thomson, J. 1832. *The Atlas of Scotland*. Edinburgh: J. Thomson and Co.
- Wood, M. 2001. Heinrich Berann: An Encounter with Magic. In *Kartographie 2001 – Multidisziplinär und Multidimensional*. Beiträge zum 50. Deutschen Kartographentag, Herbert Wichmann Verlag, Heidelberg, 363–69.
- Wood, M., and J.H. Goodwin. 1995. Digital Terrain Models in Tourism: An Investigation into the Development and Use of Computer-Generated Views for Route-Finding in Mountain Areas. Proceedings of the Seventeenth International Conference in Cartography, Barcelona, Catalunya.
- Wood, M., and I. McCrorie. 1993. Panorama Maps: An Old Magic on a New Digital Plane. Proceedings of the Sixteenth International Conference in Cartography, Köln, Germany.

Résumé Le panorama est une forme d'art qui a significativement prit de l'importance durant le 19e siècle. Un résumé de cette évolution est proposé ici, et traite plus particulièrement des Alpes. Il existe des similarités entre les Alpes et les montagnes écossaises en ce qui concerne leur histoire et l'augmentation du tourisme et des activités de montagne. Cependant, il n'y a aucune similitude concernant les panoramas touristiques. En effet, même s'il existe en Ecosse quelques exemples de panoramas ou de formes picturales comparables au 19e et au début du 20e siècle, il n'existe aucune preuve évidente de leur fab-

rication en série, comme dans les Alpes. La nature et la signification de panoramas écossais plus récents sont analysés ici, ainsi que leur valeur potentielle pour les utilisateurs et l'environnement futur.

Zusammenfassung Das Panorama ist eine Kunstform, deren Bedeutung signifikant während des 19. Jahrhunderts zunahm. Eine Zusammenfassung dieser Entwicklung wird angeboten, speziell in Bezug auf die Europäischen Alpen. Obwohl gewisse Ähnlichkeiten zwischen den Alpen und den Schottischen Bergen in Bezug auf die Geschichte sowie des Bergsteiger- und Tourismuszuwachs bestehen, beinhaltet dies nicht – vielleicht überraschenderweise – das Tourismuspanorama. Einige schottische Panorama-Beispiele (und ähnliche Darstellungsweisen) vom 19. bis zum frühen 20. Jahrhundert werden beschrieben, jedoch besteht kein Beweis des Bedarfs für deren Massenproduktion wie es in den Alpen vorkommt. Die Art und Bedeutung jüngster Panoramabilder der Schottischen Berge werden beleuchtet, sowie

deren potentieller Wert für den Nutzer und für die zukünftige Entwicklung.

Resumen La representación de panoramas es una forma de arte. Su importancia creció significativamente durante el siglo XIX. El artículo ofrece un resumen de su evolución, especialmente en las representaciones de los Alpes Europeos. Aunque existen algunas similitudes entre los Alpes y las montañas de Escocia respecto a la historia y al auge del montañismo y del turismo, sorprendentemente, no se incluye entre estas similitudes la representación de panoramas turísticos. A partir del siglo XIX y principios del XX se conocen algunos ejemplos de panoramas escoceses (y de otras formas pictóricas semejantes), pero no hay evidencias de una demanda para su producción masiva como ocurrió en los Alpes. El artículo examina la naturaleza e importancia de las representaciones panorámicas de las montañas de Escocia que se realizan actualmente, así como su valor potencial para visitantes y medio ambiente en el futuro.