Appendix 4
ANALYTICAL PROCEDURES: Text

The analyses underlying the proposals made in Chapter 5 and Appendix 2 involved certain processes that require explanation and clarification. All were initially undertaken as hand-drawn geometries as part of the process of examination, conceptualisation and testing, and with the exception of that for *Incident in a Bullfight*, all the analyses involved the subsequent use of computer-generated three-dimensional modelling to produce perspectival views as the final means to assess proposal concepts, facilitate identification, and resolve viewpoints. In contrast to hand-drawn perspectives which usually required a viewpoint selection for assessment purposes, the computer-generated modelling enabled various viewpoints and the resultant views to be easily compared.

The modelling was constructed with information established from archival and photographic records, and, where available, site measurements. Although limited by the discrepancies and contradictions of the archival information the modelling was able to produce views of reasonable accuracy when checked against contemporary photographs.[1] It also produced views which could be assessed against the imagery of the painting in terms of position, size and perspective, by means of overlay line drawings made from the paintings.

The use of such overlays was seen as a means to assist with identification and to provide insights into Manet's spatial manipulations rather than an attempt to recreate any sense of Manet's artistic endeavours or to diminish a work to a simple matching exercise. Nevertheless, an overlay line drawing made from the reproduced image of a painting is quite obviously an arbitrary and reductive description of that work, and the use of such drawings for comparison with perspective views was only made within their acknowledged limitations. Rather than providing any confirmation of a proposal, the comparative use of the line drawings provided points of interest which were then considered in greater detail with a reproduction of the work. In practice, and particularly

when the perspectives were rendered with surfaces and not used as line drawings, the technique proved to be an effective means to confirm or suggest spatial implications of the painting under consideration, and indeed to reveal possible aspects not previously identified or understood. Unfortunately it also provided the ready means to make convenient, but false, identifications from the accidental correlation of shapes and lines. In the form in which the perspectives and overlays are presented as illustrations in this document they convey only the initial comparison and provide no evidence of that subsequent examination of the work itself.

Although the positions of elements in the line drawings were not adjusted to make a coincidence more exact, circumstances arose in which it was seen that the initial line drawing had been created without taking into account an aspect highlighted by the perspective. Conversely, other situations also arose in which, because of uncertainty about the physical information set into the model, the overlay provided some clarity, and the model itself was adjusted where deemed appropriate. Such situations are noted in the text of the relevant case study.

The modelling was also used in testing and demonstrating the two principal spatial strategies proposed to have been used by Manet, the offset viewpoint one-point perspective and the collaged composite image, with perspective views displaying rendered surfaces and seamless composite images. The rendering potential of the three-dimensional modelling programs was restricted as deemed appropriate for the purposes of conveying the concepts, analyses, and proposals.

Aspects of the detailed analyses carried out for Manet's *Incident in a Bullfight*, *View of the 1876 Exposition Universelle*, *The Burial*, *The Railway*, *Masked Ball at the Opera*, *A Bar at the Folies-Bergère*, and Caillebotte's *Dans un café* are discussed below:

a) *Incident in a Bullfight*

Incident in a Bullfight was the only Manet work for which a virtual site could not be constructed as a means of refining the analysis of the two extant paintings, *The Bullfight* and *The Dead Toreador*. The initial examination had established that too many variables and contradictions existed for a cohesive space to be constructed. Rather,

principles of perspective and shadow projection were applied with hand-drawn geometries to analyse the form and space of the elements seen in the upper left corner of *The Dead Toreador* X-radiograph. The resolution of these elements had seemed crucial in any attempt to further connect the two existing canvases and resolve the original composition.

b) *View of the 1867 Exposition Universelle* and *The Burial*

As two paintings depicting, in part, cityscape views of Paris at approximately the same time, both *View of the 1867 Exposition Universelle* and *The Burial* presented many common areas for research and analysis. The approaches taken with each work have differed, however, with the general site of the major viewpoint(s) and the direction of view(s) for View *of the 1867 Exposition Universelle* previously known, and those for *The Burial* uncertain, at best.

Nonetheless both paintings involved views of Paris and information of the topography and relevant buildings and landmarks was established in the computer modelling to facilitate the analysis of such a complex spatial organisation. The information gathered and co-ordinated included extensive topographical details, the published dimensions of the relevant churches, public and private buildings, bridges, and monuments, as well as calculated dimensions from photographs. Although the contours and point-levels for Paris of 1967 have been used,[2] the basic topography was considered to have changed little and, more importantly, the levels at which buildings shown in the painting still existed were able to be accurately plotted. The compilation of the information has not been without its problems. Major discrepancies, particularly with regard to the positions and alignments of streets in some areas of Paris, existed between contemporary maps, such as the 1870 Nouveau Plan de Paris by Chaix,[3] and the map of 1967. As the configuration of many of the streets and the position of landmark buildings had not changed in that time, the problem obviously lay in the maps. The more recent plan, with its accurate grid, has been used to provide the framework for the co-ordinated information used for the computer-generated modelling, and those areas which no longer existed in 1967, such as around the colline de Chaillot, have been integrated as accurately

as possible. Additionally, the published measurements of the heights of many of the various buildings and monuments of Paris were either non-existent or not available in any co-ordinated form from any institution and, when found, were at times contradictory or simply did not relate to photographic evidence. In those situations the information assessed to be the most reliable has been used. Notwithstanding these problems, the accuracy of the complex three-dimensional information was able to be checked against a number of contemporary photographs and, in balance, considered more than adequate for the purposes of the analysis.

In such modelling, the forms and details of the buildings and landmarks have not been developed, except where considered necessary, to enable them to be seen in the generated views as quasi-replicas of the paintings and, although constructed as accurately as possible, do not go beyond the level required for the analysis. Forms of churches, for example, have generally been limited to those elements of relevance, such as spires, towers and upper roofs, which would enable an analysis of their shapes and relative lateral positions and heights when identified in a view to be made. In order to indicate the overlap of other buildings which have not been specifically shown, the fabric of the buildings spread across Paris at the time has been nominally shown with blocks projected vertically above the ground contours to heights of 10, 15, 20, or 30 metres as deemed appropriate for the location. Main avenues and boulevards have been used to establish the pattern of these building blocks, with smaller streets generally shown around the two main viewpoint areas.

With a number of views in both paintings proposed to be from aerial balloons, the degree of accuracy used in establishing their positions needs clarification. When a view was ascertained to involve only one building or element of interest, a viewpoint which could produce the relevant view was not easily limited to one specific point in space, as judgement was required to assess the comparative perspective of the view and the overlay when the viewpoint was moved along the selected centre line of vision. When a view involved two buildings or elements the position of one specific point in space for a

viewpoint was more easily determined particularly if the buildings were not approximately aligned. And when three or more elements were involved the viewpoints could usually be positioned with some accuracy as their spatial separation provided very clear checks of both lateral and vertical displacements. Even in these latter circumstances, the position determined for a viewpoint was, however, only as accurate as the information used to establish the modelling. Nonetheless, when the patterns of the various types of viewpoints were assessed in *The Burial* the positions of those viewpoints which used only one element in a view could be seen to easily fit into the line of positions established by those which used two or more elements in a view. Thus, although there is a degree of flexibility in the positions of some of the viewpoints, the proposed flight path passes through the possible positions of all of the viewpoints.

c) *The Railway*

The initial hand-drawn spatial analysis undertaken in 1996 had been mainly concerned with the confirmation of the identifications of the viewpoint(s), sightline(s), and background buildings at No.2 and No.4 rue de Saint-Pétersbourg, and the realisation that the depicted view included a window to Manet's own studio at No.4. The computer-generated modelling was used to confirm initial assessments of the view of the upper right background being from a floor level above the rear garden at No. 58 rue de Rome, and of its adjusted scale, but the understanding of the offset spatial shaping in the foreground view of the garden and the relationship of the study sketches to the view across the railway cutting was only achieved with analysis from the modelling.

d) *Masked Ball at the Opera*

The computer-generated modelling provided the means to readily compare different views from different viewpoints in the virtual re-construction of the corridor and balcony.

e) *A Bar at the Folies-Bergère*

Although the proposals for the views within the interior of the Folies-Bergère theatre and Manet's studio, together with the composite image of the Final Painting, had been

established in principle with hand-drawn geometries, the modelling proved invaluable in the virtual reconstruction of the space and in the detailed resolution of the various views.

f) *Dans un café*

All of the spatial analysis and the subsequent proposal for single- and double-reflections in Caillebotte's *Dans un café* was established with hand-drawn geometries before this writer had contemplated the use of computer modelling. Nevertheless, the modelling facilitated the virtual re-construction of the unknown space and to enable the arrangement of the two men seated at the table to be better understood.

The computer modelling work was carried out by Mark Jacques, of Sydney, New South Wales, and Darren McKimm, of East Maitland, New South Wales, using a number of different software programs, including: *Microstation 6.1*; *Autocad R14*; *3DStudio MAX R2*; and, *Poser*.[4] Initial analyses with Mark Jacques concentrated on the work of Gustave Caillebotte, including *Le Pont de l'Europe*, *Rue de Paris; Temps de pluie*, and *Dans un café* – with the analysis of the latter included, in part, in Appendix 2. Of the Manet analyses, Mark Jacques produced the modelling for *The Railway*, *Masked Ball at the Opera*, and *A Bar at the Folies-Bergère*. Darren McKimm produced the modelling for *View of the 1867 Exposition Universelle* and *The Burial*, and assisted with the process of generating the views on *The Railway* and *Masked Ball at the Opera*. Although the assistance of Mark Jacques and Darren McKimm is noted in the Acknowledgments, the exceptional quality of their work must also be noted here.

Appendix 4

ANALYTICAL PROCEDURES: Notes

DISSERTATION: Volume 2, p.36

NOTES

1. Such was the accuracy of the processed information that it enabled a landmark to be accurately positioned before it was known what it actually was. One large dome-like shape which appeared on the skyline in three panoramic photographs was thought to be the 'dome' adjacent to the dome of Val-de-Grâce in *The Burial*. By means of the intersection of three sight lines the computer modelling was able to establish that the unknown object was at the southern end of the courtyard of the Institut des Sourds-muets in Rue Saint-Jacques. Research of that very locale showed it to have been the then-famous elm tree, the Orme de Sully (see Chapter 5(C)).
2. *Atlas Géologique de la Ville de Paris*, E. Gérard, Inspection Générale des Carrières, Préfecture de la Seine, Paris, 1925 (rev., P. Tissier, 1967). Cartes et Plans, Bibliothèque nationale de France, Paris.
3. *Nouveau Plan de Paris: divisé en 20 arrondissements*, A. Chaix & Cie., 1870. Bibliothèque historique de la Ville de Paris, Paris.
4. When using the *Microstation* and *3DStudio Max* programs, the selection of the viewpoints for the analysed views, both as painted images and photographs, had been made by a process of trial and error. On literally the last day before the printing of the dissertation, it came to the attention of this writer that in June, 2001, a computer software program had been released which incorporated a facility that could automatically establish the spatial co-ordinates of the viewpoint for a perspectival image, such as a photograph, or the view of a minimum number of four known points in space. Such a facility has the potential to make analyses as undertaken here to be less time-consuming and more accurate.
