

**Ways Back to Our Future - or  
How to Lead a Pleasant Conversation with  
'Mute Witnesses' of Garden History**

**Historic Garden Building Research and  
Substance Analysis in Garden and Land-  
scape Construction in Germany**

Pathways are essential elements in most of our traditional gardens and parks. Prince Hermann of Pückler-Muskau (1785-1871) formulated the crucial criteria for pathway constructions in gardens and parks in early 19th century in his widely published essay 'Hints at Landscape Gardening' („*Andeutungen über Landschaftsgärtnerei*“) from 1834:

- „1. to lead them, that they will reach the best vantage points easily,
  - 2. that they have a pleasant and useful winding,
  - 3. that they only - when they are crossing planes - cut off picturesque shapes and forms,
  - 4. that they won't bend without any hindrance and visible cause,
  - 5. finally, that they have to be built technically sound, always hard, even and dry“
- (Pückler-Muskau, 1834, p.61).

The design and construction of pathways depends on the contemporary stylistic attitude of landscape gardeners - as it is with the building of ponds and water reservoirs. There is a rural landscape design on one hand and a more formal lay out on the other. Both a straight and linear direction or a curved line have to push and draw the visitor and stroller through the garden's most precious parts and serve as their guide to extraordinary landmarks, vistas and *point-de-vues*. But the form itself does not effect the construction principles as much as it does with 'natural' fish ponds or artificial formal water bassins. The construction principles of arranging the specific layers, e.g. the bottom layer which carries and absorbs all loading impacts, the adjustment-layer which equalizes and levels its uneven and rugged surface and the top deck layer which gives the most optical effect of the whole construction, all strata build-up generally stays the same. Even the water repulsive profile and cross-fall does so. 'Only' used materials, thickness of layers and grain size are varying (fig. 1). Differences in construction due to aesthetical motivation can be found in the design of visible parts of the pathways: the edges and the top cover layer (fig.2).

Pathway constructions refer to intensity of usage, of load impact onto the ground and of relief and soil quality more than to style-orientated contemporary aesthetics. This investigation takes a close look at the development of landscape construction techniques related to pathways which started in central Europe some 250 years ago. Footpaths and pathways for driving are analysed separately. There were no further separate investigation aspects on bridle-paths due to very rare historic literature related to this topic. The restoration of historic bridle-paths plays a very small role in garden monument preservation, too.

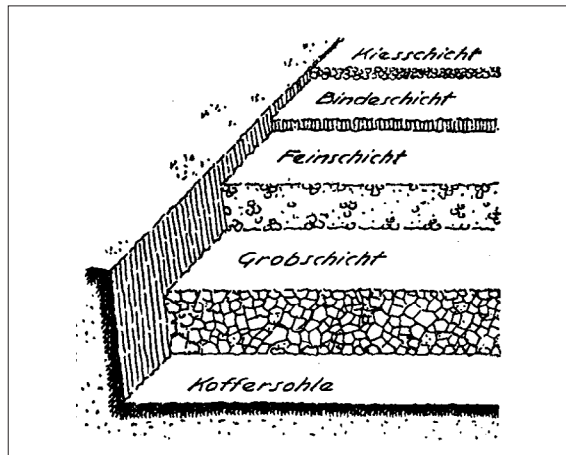


figure 1: Construction principles of a regular stratification for gravel pathways with specific grain size-adjustment to bottom layer, coherence layer and top fine gravel cover. This layer arrangement is very common in landscape construction literature at beginning of 20th century in Europe; from: SCHATZ, 1953, p.53, table 20.

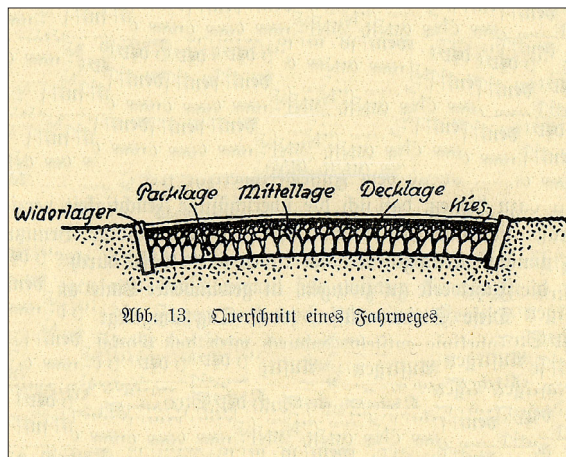


figure 2: Profile of a historic driving pathway with sub-base and edge stones under yield stress. The section shows a park drive with stone edges, a bottom sub-base of packed stones, an adjustment-layer made with rough gravel and a top layering with fine gravel/ loam-granulate. On top of the cover layer this construction has a sandy coating with porphy powder. from GOERTH, 1928, p.29.

When building ways in gardens and parks for driving or walking the width of usable surface is important, too. Besides the aspects of appropriate use and optical impression also costs for building and availability of durable substance are crucial criteria of construction techniques. Of course pathways should be at any time comfortable to walk on, so this aim is important for building principles, too.

All this factors can be found by adequate analysis techniques at any built construction when looking at its basic Vitruvian components of *firmitas* (construction), *utilitas* (conception) and *venustas* (composition) which always show a different intensity in each case. For example the quality of building materials and quality of processing or application in bottom layers or construction of edges give many references to the pecuniary circumstances and (propagandistic) intention of the building owner. The analysis of building substances can also bring unique information about material provenance, building phases, planning failures or processing defects, too.

Unfortunately there are many historic outdoor spaces in Germany as witnesses of their time which are in bad condition due to reduced maintenance efforts. Often there is no maintenance schedule or instruction for sensible maintenance intervals. The more basic research results help to build up a garden monument building research profession as a single discipline of garden monument preservation in Germany and other European countries, the more there is a need for an adequate recording and documentation methodology for applied restoration works on original monumental building substance.

In case of traditional and monumental house and building substance this task will be provided by long established historic building recording procedures. In Germany there was no equivalent research profession in garden and landscape building research until mid-nineties. First initial steps were done in the late eighties by the 'Department of Garden and Landscape Construction' at Technical University of Berlin which executed several landscape construction documentations of cultural historic landscapes and recordings of built cultural historic landscape elements (CHLE) in traditional open spaces. The German Research Association (Deutsche Forschungsgemeinschaft DFG) furthered projects on 'Cultural Historic Landscape Elements in Brandenburg (CHLE) - Historic Drainage Systems of Oderbruch' and 'Cultural Historic Landscape Elements in Brandenburg (CHLE) - Walls and Specific Masonry as Historic Open Space Structures', which both were completed in 1998. After this initial investigations a new basic rese-

arch upon Cultural Historic Landscape Elements (CHLE) was strengthened in Germany. The research project 'Recording and Analysis of Historic Construction Principles for Cultural Landscape Pathways and Water Reservoirs' continues this research approach.

Many of the bright illustrated new publications and research project documentations with attractive main titles are only presentations of specific mature gardens, historic garden monuments or parts of cultural landscape which show small villages along the route, public sights, historic monuments, give information on popular garden events or extraordinary plantings. This investigation here is focussed on the construction of pathways only: the physical body of ways, construction techniques and build-up characteristics, relief and ground modelling for line direction, drainage methods and applied maintenance practice.

The project aims at complete documentation of experiences in recording and documentary work on historic pathway substance (drives, footpaths, bridle-paths) which were gained by the executing institutions of garden monument preservation over the recent years. A methodological comparison of all relevant - even archaeological and geo-physical - recording methods related to historic pathways (and water reservoirs) shall bring more detailed information about improved, specific and generally applicable methods. This is more a technical-constructive-orientated view than a antiquaric one. It is not only the examination of the existing building substance but the documentation of the past and future survival of the resources. Reading the historic changes in construction, conception and also composition is not only literally but has to be practised and executed on the historic relics.

The investigation has two main aspects of methodology:

At first there is a close look at historic resources like contemporary literature, handbooks, (education) manuals, textbooks, historic plans and drawings and other theoretical essays of profession to have a general view of historic construction techniques and usage of appropriate building substance. This will be supported by a survey of general resources like building reports, landscape architectural building registers, autobiographic essays, office registers, collections of postcards, photographic documentations, catalogues of tree nurseries and material suppliers, tree commendations, military archives, parish-egisters, building documents, private and public archives to get an impression of contemporary knowledge and construction comprehension.

The analysis of widely published manuals or books on garden constructions shows if there was a specific technology available and soundly executable to build certain constructions at any time and place. Also it reveals who published first his know-how and who followed or even improved this theory by practical argumentation or empirical statements. Landscape gardeners often copied details of road constructions and stratification from famous civil engineers like the British Telford (1802) or the Scotsman John Loudon McAdam (1756-1836) who published respectful manuals in 1816 until 1819 as *'Remarks (or Observations) on the Present System of Roadmaking'* and *'Practical Essay in the Scientific Repair and Preservation of Public Roads'*. Road construction technology coming from France, Great Britain or Scotland was adapted and scaled down to be functionally applied to gardens and parks.

The second part of this investigation concentrates on the real analysis of historic building construction all over Germany. Results from the first theoretical research are compared with monumental substance to show differences or conformity in construction design and principles (*fig.3*). Historic pathways serve also as 'auto-indicators', too because they give broad information about their genesis, year of erection and construction development. But this details can only be seen or read when the spectator knows and recognizes specific construction or building characteristics to supply information. So recording usually starts with an adequate measuring (general and detailed) of the specific historic object to initiate questions and give first answers. Every recorded detail is starting point of new directions for inquiry - new answers produce more questions. This is like a *'stimulated dialogue'* which - once started and continuously documented - can be continued at any time and can be observed by other interested scientists and academic researchers with cross-discipline profession. Very often this leads to soliloquy, then historic buildings talk to themselves after they put away their initial retention and caution because they do not often meet interested people who come up with attention. They have seen a lot of the past. And they will talk about themselves, say almost anything of their historic existence when they find someone who knows to ask and knows to listen. For the first time this research project develops a specific methodology for recordings and documentations of the special cultural garden and outdoor relics in Germany. A selection of traditional historic garden monuments helped to improve the process of investigation. Several answers on single historic substance were provided even

without an further inquiry.

The main part of this investigation were building construction recordings and documentations at certain intervalls and seasons. This process was linked with specific research on contemporary literature. Many authorized excavations in historic pathway substance were necessary to get precise profiles of layer arrangements and correct information about building materials. It is essential to get the correct detail information of material and building substance to provide high quality results and sustainable statements. This will be the basics for further investigations and research work on historic garden and landscape construction topics. Documentary and recording work on the site takes a lot of time because most of the historic gardens and parks have a protective status. This makes a close co-operation with the institutions of garden monument preservation necessary. They have to give their okay in any case of digging, excavation or drilling.

Any interference into historic substance has - if legitimate - to be coordinated and prepared by intensive analysis of existing documentary material. Often there are more available resources which are very specific to the object: contemporary plans, registers, historic maps, historic and recent recordings, drawings, functional and design sketches, drafts, blueprints, decorating designs of other professions, presentation plans, building specifications, building permits and other available building authorities' documents, detailed plans for construction and planting, pictures, historical town overviews, paintings, copperplates, engravings, prints, photographs, ae-



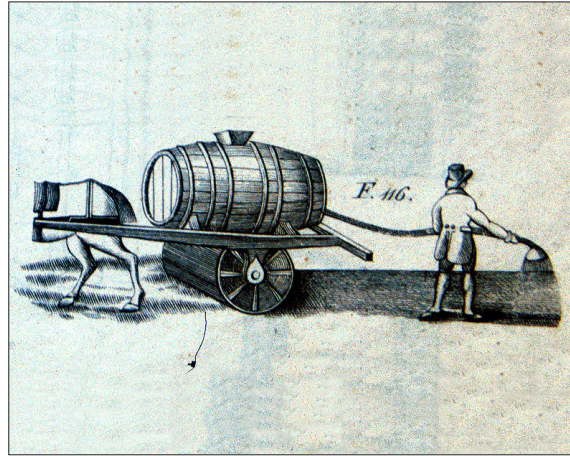
*figure 3: Restoration of a historic footpath in Babelsberg Park near Potsdam. The picture shows the curved line direction which is marked by iron nails and white bands during adjustment of the interlayer's surface. All material like the recovered original edges of 'Bernburger lime stone' were recorded, photographically documented and were part of a comparative investigation with historic landscape construction theory in relevant manuals. photo: TU Berlin, October 2001.*



rial surveys and pictures, cards, reports, essays, letters of users, of owners, diary information of visitors, novels, articles in newspapers, construction diaries, charges, bills, calculations, invoices of building material suppliers, correspondence of the building owners, appointment contracts and suggestions of changes by the garden designer or planting lists.

Existing practical experience in recording and restoring historic pathways given by the institutions of garden monument preservation were evaluated to provide more information for profession and research. But there is more than a close connection between these two aspects of investigation: Improvement of methodology for documentary purposes provides more information about historic construction techniques and know-how of specific usage of material. Simultaneously new statements and results of research on historic construction principles and material lead to a more efficient way of applying recently developed recording and documentary methods. There are multiple opportunities of application for the special results of investigation. New information can be used when recordings and documentations of historic objects are planned or have to be executed. They can also give helpful orientation when further specific methods of investigation and new instruments have to be developed. Adequate maintenance instructions for periodical use can adopt crucial criteria and basic considerations provided by this garden and landscape construction research (*fig. 4*).

New aspects of a 'culture of restoration' are presented when historic rebuilding, restoration and reconstruction actions are analysed within tem-



*figure 4: Horses were dragging a heavy water drum to maintain the cover layer of historic pathways. This happened not only in dry summer times. All dusty or loose (graveled) surfaces were watered intensively first. The heavy iron roller put new pressure onto the construction for more grain density and tension.*  
from: LOUDON, 1823/ 1824, figure 116.

porary distance to prevent new failures and bad developments in future.

Almost the entire substance of examined relics of the past is threatened by human or weather destruction, unnoticed decay and shows tendencies to vanish from our cultural remembrance. Exact knowledge and comprehension of necessary aspects of stabilization and reconstruction are important elements of a nation-wide cultural research policy in historic garden and cultural landscape building construction research, to experience our future via dialogues with our past - because if you do not have any memory, you do not have anyone to talk to in the future.

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