

NEW JERSEY STATE PRISON
Second and Federal Streets
Trenton
Mercer County
New Jersey

HABS No. NJ-874

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

10/13/73

Historic American Buildings Survey
National Park Service
Department of the Interior
Washington, DC 20013-7127

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HISTORIC AMERICAN BUILDINGS SURVEY

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INVENTORY OF PHOTOGRAMMETRIC IMAGES

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LC-HABS-GS01-B-1979-501 VIEW RECORDING WESTERN WALLS OBLIQUELY
Right photograph of pair with 502: overlap 80%
Right photograph of pair with 503: overlap 60%

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Left photograph of pair with 501: overlap 80%
Right photograph of pair with 503: overlap 80%

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Left photograph of pair with 502: overlap 80%

LC-HABS-GS01-B-1979-504 VIEW RECORDING SOUTHERN WALLS OBLIQUELY
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LC-HABS-GS01-B-1979-506 * VIEW RECORDING SOUTHERN WALLS OBLIQUELY
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Left photograph of pair with 507: overlap 76%
Right photograph of pair with 509: overlap 76%

LC-HABS-GS01-B-1979-509 VIEW RECORDING EASTERN WALLS OBLIQUELY
Left photograph of pair with 507: overlap 53%
Left photograph of pair with 508: overlap 76%

LC-HABS-GS01-B-1979-510 VIEW RECORDING NORTHERN WALLS OBLIQUELY
Right photograph of pair with 511: overlap 83%
Right photograph of pair with 512: overlap 65%

LC-HABS-GS01-B-1979-511 VIEW RECORDING NORTHERN WALLS OBLIQUELY
Left photograph of pair with 510: overlap 83%
Right photograph of pair with 512: overlap 82%

LC-HABS-GS01-B-1979-512 VIEW RECORDING NORTHERN WALLS OBLIQUELY
Left photograph of pair with 510: overlap 65%
Left photograph of pair with 511: overlap 82%

PROJECT INFORMATION STATEMENT

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Addendum to:
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Second and Federal Streets
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HISTORIC AMERICAN BUILDINGS SURVEY

Addendum to
NEW JERSEY STATE PRISON

HABS No. NJ-874
(Page 4)

Location: Second and Federal Streets, Trenton, Mercer County, New Jersey

Present Use: Demolished,

Significance: Built between 1833 and 1836, the New Jersey State Prison in Trenton was an extremely significant work of English architect John Haviland, who was known for his designs of prisons. This New Jersey example was the second prison built in the United States on the Pennsylvania penal system of solitary confinement. It was the first building in the United States to exhibit characteristics of Egyptian revival architecture, possibly the first American building to directly influence the architecture of Europe. Technologically, it was perhaps the first American building to utilize a system of hot water heating.

PREFACE

In 1977 the State of New Jersey announced its plans for an essentially new prison facility to be built on the site of the present Penitentiary at Trenton. The scheme called for retention of certain elements of the existing construction -- notably the peripheral walls and guard towers and the exterior walls of the Front House. However, even the remains of the most notable of these, the east or front facade, would be hidden from public view by new construction, and the Front House would be gutted. Furthermore, although the new construction is to be phased, the program calls for the eventual demolition of most of the nineteenth century structures within the walls. Included on the demolition list is the one Pennsylvania system wing, constructed during the 1832-1836 building campaign, that has survived in virtually unaltered condition.

Although no systematic study of the design of the Penitentiary had ever been undertaken, it was generally recognized that the buildings -- especially the earliest of them -- were of considerable historic and architectural significance. Accordingly the New Jersey Office of Historic Preservation recommended that, prior to demolition, a recording be made to the standards of the Historic American Buildings Survey. This report represents a portion of the first phase of that recording. Accompanying it are photographs made to HABS standards by Jack Boucher, and aerial photographs suitable as a basis for photogrammetry, to specifications prepared by Perry Borchers.

In dealing with the history and significance of the Trenton Penitentiary two things quickly became apparent: the overwhelming superiority of the original buildings, designed by John Haviland in the 1830s, to any of the subsequent construction; and the extraordinary complexity of documenting Haviland's work. Because New Jersey's public record-keeping in the nineteenth century was woefully inadequate, the original appearance of the exterior, and to a lesser extent the interior, can only be reconstructed from widely scattered sources.

Original manuscript materials relating to the period of the design and construction of the building could not be located in any New Jersey repository. In the early nineteenth century responsibility for the construction and operation of State facilities was routinely placed in the hands of special appointed commissions. Each commission kept its own records. Although the records of a few of these commissions, such as that for the State House, have been preserved in the State's Archives, most have not. As far as the penitentiary is concerned, oral reports indicate that numerous old records were stored in the garret over the observatory section (center) of the Front House. These were removed during the remodeling carried out in the 1940s. Their disposition is unknown, and it is still possible that Haviland's drawings or other manuscript material will be discovered in either public or private holdings.

However, some of the deliberations and actions of the commission are revealed in their published reports to the legislature. In addition, Haviland's notebooks, deposited at the University of Pennsylvania's

library, are an indispensable, if incomplete, source for information on the development of the design. Fortunately, the Trenton prison was famous in its own time. Officials from other areas came to visit it, and descriptions and illustrations were published in French, English and German, as well as American publications. One crucial document has been preserved from these visits, a letter from the commissioners responsible for the erection of the New York City prison and court known as "The Tombs." This contains the best description yet found of the original appearance of the Trenton prison's most important interior feature, the Egyptian Hall. Fortunately also, despite numerous remodelings, enough of the fabric of the Front House and Haviland's South Wing remains to confirm and supplement the information revealed by the documents.

Subsequent work at the prison was never conceived or executed with the striving for excellence that informed the original program. In general mediocre architects were called upon to design minimal buildings, and planning for utilization of the site was ad hoc. The sequence of later buildings was related well in Harry Elmer Barnes' History of the Penal, Reformatory and Correctional Institutions of the State of New Jersey. Barnes' pioneering work deals with the construction of the prison in a social and penological, rather than an architectural context. Nevertheless, it provides a framework for a building chronology, which is summarized in the following report, with minor corrections in dates, based on discrepancies between Barnes and original source material.

The bulk of the report, however, appropriately deals with Haviland's work. Reassessment in light of what has been found in the course of this study assigns the Trenton prison an even more significant

role in the history of penology and architecture than had previously been assumed. In architectural terms, it is the first full-scale Egyptian Revival building erected in the United States. Many of the motifs and details Haviland invented or developed became part of the standard vocabulary applied to the style in this country. Penologically, although not widely emulated in this country, it became the most influential of American prisons abroad. For these reasons, its fabric deserves more thorough recording than was accomplished in the first phase of this study.

ACKNOWLEDGEMENTS

This project has benefited from the assistance and generosity of many people. At the New Jersey State Prison, Superintendent Gary J. Hilton provided access to all parts of the prison, and recommended many individuals for us to contact. We wish to acknowledge in particular the following present and past employees or wardens of the prison: Howard Yeager; Jack Malkin, Sr.; Edward Hornlein; Alex Tompa; and William Krasnovsky.

The following individuals answered queries and shared insights and facts from their own research: Harold Allen; Robert Bruegmann; Richard G. Carrott; Norman Johnston and Dagoberto Molerio. Patricia Kennedy of the Public Archives of Canada, Dennis J. MacFadden of the New York City Municipal Archives, Richard Reeves of the Free Public Library of Trenton, and William Wright of the New Jersey State Library all provided generous and valuable assistance. The staffs of the University of Pennsylvania Rare Book Library, The Newark Public Library, and the Library Company of Philadelphia assisted as well.

The Somerset County Archaeological and Natural History Society of Taunton, England, deserves thanks from many scholars for having deposited John Haviland's papers with the University of Pennsylvania Library. I appreciate receiving permission to copy material in the papers.

We thank Daisy Fitch, of the Trenton Times, for her article discussing this report. It had immediate, substantial results in bringing

to our attention the existence of one of the prison's original Egyptian columns.

Constance M. Greiff, director of Heritage Studies, has provided sound judgment throughout this undertaking, and discussed many problems and issues relating to the prison and to research. I thank her.

The original impetus for this report derived at least in part from the author's 1976 nomination of the prison for the National Register of Historic Places. This nomination and the research identifying the prison's significance were a product of an inventory of Trenton's historic industrial architecture and engineering structures, executed by the author and Erin Drake, of New York. Co-sponsored by the Historic American Engineering Record, the City of Trenton, and the State, this survey was published by the City of Trenton in 1978 as An Inventory of Historic Engineering and Industrial Sites. Although the nomination of the building to the National Register was not approved at the state level, the attention which the nomination focused on the prison contributed to the decision to commission this study. Thus, this report, executed by Heritage Studies, Inc., should be seen as an indirect result of the federal preservation programs of the Heritage Conservation and Recreation Service.

As institutions that were invested with a specific social charge, penitentiaries fascinated philosophers, and reformers. Their design was an issue of import, for the architecture was considered crucial in effecting the institution's social goals. While the relationship between architecture and social ideals has been studied increasingly in recent years, including attention to the role of prisons,² thorough documentation of this one institution, the New Jersey penitentiary, affords further material for interpretation. In particular, since the Trenton prison was the first building in the United States constructed in a true Egyptian Revival style, the evolution of its design is of special concern. Following Trenton, the style would be used by Haviland at his famous "Tombs," or New York City Halls of Justice and House of Detention, and by Thomas U. Walter at the Debtors' Wing of Moyamensing prison, in Philadelphia.³ Despite Richard Carrott's recent substantial contribution to the study of the Egyptian Revival,⁴ the original inspiration for applying the style to prisons has remained a matter for speculation. Investigation into this building offers the chance to analyze the precise relationship intended between the Egyptian style and the social purpose of the institution.

It is rare that one has the opportunity to study so completely the fate of a building once it was constructed and operating, and no longer simply a design on paper, nor merely a facade on the street. The functionalism of prisons was paramount, since they were planned with well defined goals and strict constraints. Like hospitals, prisons became arenas for innovative, essentially experimental, design. For while

having the greater ultimate responsibility of rehabilitating the criminal and, thereby, of improving society, the prison had the quotidian task of providing a totally serviced living unit for the inmate. There were ample means for determining the success or failure of the building, and there were interested parties to do so. On the one hand, given the social role, the rate of crime and recidivism were clear indication of the system's, and building's, success. On the other hand, the actual operation of the prison -- its security, efficiency, convenience and comfort -- afforded means for judging. In each case, great, and, one must conclude, essentially unrealistic demands were placed on the architecture. The attempt to fulfill these demands, to create an effective social instrument and to establish a totally serviced cell, produced the Trenton prison. Its innovation, quality, and ultimate failure to achieve such goals make it a significant and illuminating monument of nineteenth century architecture.

I. SOCIAL INSTRUMENTS

In 1833, when the New Jersey Legislature voted to establish a new state penitentiary, it was responding to highly critical reports on the existing prison, which had been built in 1797 and expanded over the years. Inspired by the example of the Rev. Louis Dwight, of the Boston Prison Discipline Society, the legislative committee on State Prison accounts had investigated the conditions at the old prison. There the committee found the structure so poorly arranged and so obviously deficient that it was impossible to operate the prison with any "good system of penitentiary discipline." As a consequence, the committee unanimously recommended building a new prison.

While this sequence of events may appear unremarkable, in the sense that one might expect sensitive legislators normally to be aware of such prison conditions, in fact, this concern in the 1830's represents a particular development in social thought. For a relatively short period of time in the early nineteenth century, legislatures across the United States were voicing the same concerns as the New Jersey representatives. They investigated conditions of existing prisons; they argued heatedly over the best system of penitentiary "discipline"; and they authorized funds for large, new, essentially experimental prisons. Following the example of England in preceding years, the country attacked the problem of incarceration as a major social and architectural issue.⁵

In England, industrialization, urbanization, and the loss of the traditional form of punishment -- transporting to the colonies in America -- generated new theories about the concept of the prison in the late

eighteenth century. Incarceration, formerly a recourse only some of the time, became a primary sentence for crime. With a materialist philosophy applied to the new social conditions, the notion of reformation, of "reforming" the criminal developed. And with the active overcrowding of existing prisons, reformers sought to improve conditions in the penal institutions. In the United States, as continued immigration, urbanization and industrialization brought about the transformation of society, traditional approaches to crime were also abandoned. In place of local, community-based rituals of punishment, which operated within a society where crime was seen as an inherent part of life, institutions of social order developed to handle problems like crime on a large scale, with a mechanistic approach aimed at "rehabilitating" the inmate, resocializing him.

From the 1810's to the 1830's, design, construction and operation of prisons were major issues throughout the United States. Leading citizens such as Dorothea Dix, Francis Lieber, Matthew Carey, and Edward Livingston studied penal systems and visited prisons. Most states built new penitentiaries at this time: New York, Connecticut, Massachusetts, Pennsylvania, New Jersey, Maryland, Michigan, Ohio and Rhode Island among them.

Prisons were matters of social consequence with a clear role within the society: they testified to the nation's commitment to social justice and to solving the problem of crime. Thus, the New Jersey legislators described the Cherry Hill prison as "one of the noblest and most enduring monuments of human charity."⁶ Consecrating in stone the age's nobility and largess, the new prisons of the 1820's and 1830's rapidly

became the "pride of the nation."⁷ Delegations from countries as widely spread as France, Brazil, Russia, Canada and England travelled through the United States to study the new prisons. Tourists were sure to visit the penitentiaries along with the natural wonders of the new country, and few travel journals of the day neglected to mention the prisons. One contemporary guide book, The North American Tourist, illustrates the fascination with prisons, in its entry on the New York State Prison in Auburn:

The celebrated STATE PRISON may be seen on buying a ticket of the keeper, and the best time is early in the morning, when they are brought out of their cells and arranged in squads, as close as they can squeeze, in Indian file, stepping off and stamping hard with a simultaneous lock-step.... The walls that form the enclosure are thirty-five feet high, four thick, and two thousand feet in extent, or five hundred feet each front.⁸

The committee that supervised the construction of the New Jersey prison wrote that the "improved style" of public buildings in the country in recent years "will enable her ere long, to present architectural monuments equal to those of Europe, or of antiquity."⁹ In a young nation with few historical landmarks of its own, the institutions of the 1820's and 1830's became instant monuments, among the largest buildings constructed in the country and celebrated by native and foreigner alike. That attraction was certainly complex: the prisons grandly symbolized society's, and man's, fallibility; but they as grandly represented the self-satisfaction of enlightened compassion.

The goal of incarceration was not simply to remove the offender from society, but to remove him to a controlled environment where he might

be rehabilitated. As one historian wrote, "Convinced that deviancy was primarily the result of the corruptions pervading the community, and that organizations like the family and the church were not counterbalancing them," the prison reformers believed "that a setting which removed the offender from all temptations and substituted a steady and regular regimen would reform him."¹⁰ Solitary confinement was therefore a major method, isolating the individual. Through solitary confinement, the prisoner was removed from the society at large and from that of the traditional prison, as well, better offering the possibility of penitence and a "fresh" start. This was the approach of the Pennsylvania system of confinement, which traced its origins to Quaker reforms dating back to William Penn. Its major monument was Haviland's Eastern Penitentiary, or Cherry Hill, in Philadelphia, opened in 1829.

Opposed to this model of isolation was the Auburn system, named after the New York State Prison at Auburn (1819-23) where inmates worked in a strictly regulated communal workshop during the day under codes of absolute silence, and then returned to solitary cells at night. Although some writers have dismissed the differences between these two systems as insignificant, Foucault says, "Auburn was society itself reduced to its bare essentials. Cherry Hill was life annihilated and begun again."¹¹ Each system, by "correcting" the behavior of the criminal at the same time that it removed him from society, was both improving the individual and improving society. As Alexis de Tocqueville and Gustave de Beaumont observed, the Americans "have caught the monomanie of the penitentiary system, which to them seems the remedy for all the evils of society."¹²

INTRODUCTION

The New Jersey State Prison in Trenton, built between 1833 and 1836, should be regarded as a major monument of nineteenth-century American architecture. Built to replace the original state prison of 1797, it was designed by John Haviland, an English-trained architect who played a significant role in American building from the 1820's through the 1840's, and who became known as the country's leading architect in the design of jails and penitentiaries. The building was the second penitentiary built by Haviland for solitary confinement on the Pennsylvania system of penal discipline. This controversial reform plan generated great debate in an age when the idea of the penitentiary was a critical social and architectural issue.

The Trenton prison exhibited innovative planning, technology and styling, and Haviland regarded it at the time of its construction as the best of his prisons. In terms of style, it was the first building constructed in the United States to be modelled after ancient Egyptian architecture. In its technology, the prison was possibly the first building in the country to utilize a system of hot water heating. In its planning, the New Jersey State Prison became perhaps the first American building to directly influence the architecture of Europe. Given such varied significance, the Trenton prison becomes a building of great interest historically. In its development one can trace the changing social and architectural ideas of its time.

Prisons were a major concern in the first half of the nineteenth century, a period that one historian has labelled "the age of asylums."¹

As instruments of social control, prison buildings were regarded in a thoroughly practical, functional manner, from the planning to the plumbing to the didactic style. Large complex structures housing hundreds of inmates, the penitentiaries demanded organization and efficient servicing. Those on the Pennsylvania system had especially stringent requirements, for the inmate was confined to his cell (with, if he was lucky, an adjacent exercise yard) twenty-four hours a day for the duration of his term. Adequate light, heat, fresh water, and toilet facilities were requisite. Prisons consequently became a locus for experimentation with new mechanical systems, with air and water heating, indoor plumbing and forced ventilation.

Furthermore, the need for security called for careful organization. Not only was it necessary to arrange the cell blocks in a way that brought light and air to the solitary cells; it was also imperative to provide for easy supervision and security against escape. Perhaps the most infamous response to these needs was the "panopticon" proposed by English philosopher Jeremy Bentham.¹³ This circular building form was intended to provide for total and constant surveillance, and was adaptable, Bentham argued, to any social institution, prison, hospital, factory, school:

Morals reformed -- health preserved -- industry
invigorated -- instruction diffused -- public
burthens lightened -- Economy seated, as it were,
upon a rock -- the gordian knot of the Poor Laws
not cut, but untied -- all by a simple idea in
architecture.¹⁴

Bentham's plan placed the cells around the circumference of the building, and open to the center, where an observation tower was

located. No move could be made without detection, and Bentham believed the totally hierarchical system was, in essence, a simple tool or machine. While the few nineteenth century structures that adopted Bentham's form were short lived -- including William Strickland's Western Penitentiary in Pittsburgh -- the basic idea of central observation became an intrinsic part of Haviland's Philadelphia and Trenton prisons.

The exterior of the prison building was regarded as functionally as these efficient interiors, though not in the sense in which "functional" architecture is generally considered today (or as was foreshadowed by Bentham's utilitarian, stripped-down facade of glass and iron). Late eighteenth-century architectural theory called for every building to have its own distinctive character, which would express its function. Thus, John Soane wrote that

...every building should be conformable to the uses it is intended for, and that it should express clearly its Destination and its Character, marked in the most decided and indisputable manner. The Cathedral and the Church, the Palace of the Sovereign and the dignified Prelate; the Hotel of the Nobleman; the Hall of Justice; the Mansion of the Chief Magistrate; the House of the rich individual; the gay Theatre, and the gloomy Prison; nay even the Warehouse and the Shop, require a different style of architecture in their external appearance....¹⁵

It is interesting that the only buildings for which Soane suggests an intrinsic character are the "gay Theatre" and the "gloomy Prison," for when this theory of architecture parlante was applied to prisons, the demand was for buildings that might appear "depressing by reason of their function.... Misery should be expressed in civil

prisons and the full horror revealed in the more criminal ones...."16

As the Encyclopedia Londinensis wrote in 1826,

The style of architecture of a prison is a matter of no slight importance. It offers an effectual method of exciting the imagination to a most desirable point of abhorrence. Persons, in general, refer their horror of a prison to an instinctive feeling rather than to any accurate knowledge of the privations or inflictions therein endured.... The exterior of a prison should, therefore, be formed in the heavy and somber style, which most forcibly impresses the spectator with gloom and terror. Massive cornices, the absence of windows or other ornaments, small low doors and the whole structure comparatively low, seem to include nearly all the points necessary to produce the desired effect.¹⁷

Such pronouncements and demands for horrific structures were not limited to Europe, for the words of one Philadelphian make it clear that even in the Quaker state there was a concern for a properly awesome, intimidating architecture, and, even, site:

Let a large house, of a construction agreeable to its design, be erected in a remote part of the state. Let the avenue to this house be rendered difficult and gloomy by mountains or morasses. Let its doors be of iron and let the grating, occasioned by an opening and shutting time, be increased by an echo from a neighboring mountain that shall extend and continue a sound that shall deeply pierce the soul.¹⁸

The exterior was thus intended to be as functional and practical as the interior of the building itself, not decorative, but effective.

The prisons were thus buildings invested with a particular social responsibility, by a society actively concerned about its apparent loss of coherence, but firmly confident of its ability to correct its problems. Dedicated to the reordering of society through the reform of the deviant individual, the prisons were both idealistic and coercive enterprises.

II. THE NEW JERSEY STATE PENITENTIARY

In its reports to the New Jersey Legislature from 1830 to 1833, the joint committee to settle the accounts of the State Prison described not simply an uneconomical situation at the old prison, but an at times ludicrous lack of organization and convenience.¹⁹ The guard room was placed in a position where the guards could not oversee the prison. The subordinate officers were not located in a position where they could be supervised. The sentinel's box was "not well designed" for watching. The work shops, where the prisoners spent the day, were "scattered about, without form or unity of design." All in all, the architecture of the prison was found to be responsible for operational and disciplinary problems. "In a prison thus constructed," wrote the committee, "there can be no discipline."²⁰ Riots were said to be frequent and hard to prevent, and escapes were common. In terms of finances, the original subject of the committee's investigation, there was little hope for an improved situation, as the committee reported:

Your committee are satisfied that from the mal-construction of the prison-building, its inadaptedness to the purposes of a rigid and wholesome police, and the constantly recurring necessity for additions and repairs, the State may look in vain for any paramount improvement in the annual exhibits.²¹

The building was simply

an incongruous pile, without order or arrangement, heaped together from time to time, according to various and conflicting plans, upon which can be instituted no good system of penitentiary discipline.²²

As a consequence, the prison contributed more "to the increase than the diminution of crime, to the obduracy than to the reformation of the offender...."²³

By 1834, however, the tone of the Committee's report had changed. In January of 1833, the Legislature had passed an act to establish a new prison. John Haviland had been hired as the architect, and, with still two more years to go before the new prison's actual occupancy, the Committee could write:

Official functionaries, appointed for the purpose of examining and inspecting the various prisons of the United States and elsewhere, from England, France, Canada, and some of the States, have visited the New Penitentiary, and all unite in giving it a preference, as well in usefulness and simplicity of design, as in workmanship, over all which had previously been examined.²⁴

Having finally won the support of the Legislature for a new penitentiary, with funding derived from revenues from the newly operating Delaware and Raritan Canal Company and the Camden and Amboy Rail Road Company,²⁵ the Committee found itself constructing a building that was immediately famous for its design and projected discipline. In place of the "incongruous pile, without order or arrangement, heaped together from time to time, according to various and conflicting plans," the committee now found a clearly organized structure, geometrically arranged with wings radiating from a central hub, planned to accommodate future expansion without disrupting the operation of the institution, and specifically tailored to operate under one particular "disciplinary" system.

The actual progress from the demands for a new prison to the construction of Haviland's building was by no means simple, however.

Based on the Committee's 1830 report, one might not have anticipated the final building. At that time the committee members recommended building a new prison following not the Pennsylvania system of Haviland, but the Auburn system. Under the guidance of Louis Dwight, Secretary of the Boston Prison Discipline Society, the committee unanimously recommended a building "on the general plan of those at Auburn, in New York, and at Wethersfield, in Connecticut."²⁶ Rev. Dwight had not only counselled the Committee in preparation of its report; through him the Prison Discipline Society had donated \$271 for moral and religious instruction at the old prison.²⁷

Despite the Committee's unanimous recommendation for the construction of a new prison, and the governor's support of this proposal, no progress was made, and by the next year the committee was evidently not so unanimous. John Haviland's daybook for that year records, after a July entry, "Made a design and estimate for the new Prison at New Jersey for committee thru S. R. Wood."²⁸ The committee must have simply been investigating the alternatives, for in the November report of 1831 the members did not advocate any particular system, Pennsylvania or Auburn, but simply reiterated the need for a new prison:

The erection of a new State Prison has so often heretofore been pressed upon the attention of the Legislature, and public sentiment has been so strongly expressed in its favor, that your committee would with diffidence expect that they could present any additional inducement on this subject. They, however, feel it to be their duty to keep alive the impression, and do unanimously recommend that measures be immediately taken for the erection of a new State Prison....²⁹

The only new element in the committee's argument was the emphasis on the potential profitability of such an undertaking, for the committee argued that by taking advantage of the "water power about to be created" in the vicinity of the old prison -- presumably the Delaware and Raritan Canal, then under construction -- the prison would not only pay its own way, but would soon become "a source of permanent revenue to the State."³⁰ Since the only expedient means of making use of water power for manufacturing purposes would be in the establishment of mills or congregate workshops, the committee was most probably still thinking of an Auburn system at this point. Not only were Auburn prisons oriented to this type of labor, but also they were noted for their lower cost. The committee's estimate of \$30,000 for a new prison appears so impossibly low that a prison on the Pennsylvania plan, with its large individual cells, would have been out of the question. However, the fact that the committee did not specifically recommend an Auburn prison, as it had the year before, but simply a new prison, may suggest that Haviland's proposal had won some supporters.

The following year was a decisive one, perhaps in part due to the worsening of conditions in the old prison. In his annual report in October of 1832, Governor Peter Vroom noted that there were 128 prisoners in the old building, overcrowding it so much that pardons were freely given "upon the ground of absolute necessity": the prison could hold no more convicts.³¹ Furthermore, an escape attempt in August had left one prisoner dead and one seriously wounded.³² Given such specific impetus, the committee must have made further investigations and visits,

for in early October Haviland wrote Thomas Perrine, the Keeper of the old New Jersey prison, thanking him for his help in influencing the committee to select him as its architect.³³ This letter, recorded in a draft in Haviland's day books, informed Perrine that the architect had heard from Samuel Wood, the Keeper of the Eastern Penitentiary (where Haviland was still working on the second set of cell blocks), that he had been chosen "as architect of your contemplated new Penitentiary."

Without minutes of the Committee meetings or other correspondence, we can only speculate that, over the course of 1832, the committee investigated Haviland's work in Pennsylvania more thoroughly, and decided that he was the best architect for the job. We cannot doubt that Samuel Wood, the original intermediary between Haviland and the committee according to the architect's 1831 note in his day books, would have praised Haviland highly to the New Jersey legislators. Having worked with Haviland on the Eastern Penitentiary, where the prison had been in operation since 1829, with continued construction thereafter, Wood undoubtedly knew him well. Although we do not know what he reported to the inquiring committee members from Trenton, his recommendation two years later to the committee for the construction of the Tombs, in New York, is recorded. Wood wrote that Haviland

can give you a better plan than any other man in this or any other country. I know this is strong language, but I am well satisfied and do sincerely believe that he knows more about building prisons and penitentiaries than any other architect living. He is a man of much taste regularly educated in his profession and has for the last twelve years paid special attention to this subject.³⁴

Such a recommendation could not have gone without notice, had the New

Jersey legislators been the recipients of a similar one.

Nevertheless, even if the legislative committee had been convinced by October of 1832 that Haviland was the architect for the job, as Haviland's letter suggests, there had not yet been any legislative action. Only in late October was a special committee on the construction of a state prison established, replacing the former committee on the accounts of the state prison. There must have been a strong recommendation from one committee to the other for Haviland, for between October and January some committee members travelled to Philadelphia to tour the Eastern Penitentiary. This visit apparently resolved any remaining doubts, since in January of 1833 the Commissioners submitted their report calling for a new state prison, and included with it plans, specifications, and a model for a new prison, by Haviland. Haviland's proposal, dated January 12, was for a "solitary prison" on the Pennsylvania system, "conformable with your request." On February 13 the Legislature passed the act calling for a new state penitentiary, and on February 22, 1833, the cornerstone was laid.

The committee's choice of Haviland as the architect of the new prison was undoubtedly closely related to its selection of the Pennsylvania system of solitary confinement for the new prison, for the two were inseparable. The Pennsylvania system was represented by the Eastern Penitentiary, in Philadelphia, and Haviland, as its architect was as well known as the building. Although his many prison designs over the course of his career led to his being known primarily as an "architectural specialist,"³⁵ simply by building Eastern Penitentiary

he had won a secure place for himself as one of the world's foremost prison architects. With such attention focussed on the design of prisons during these years, and with the Philadelphia reformers being such active propagandists, it was perhaps not surprising that the New Jersey committee would seriously consider the architect of so near and so well known an institution.

Haviland's work with prisons by 1833 dated back more than a decade. His initial prison design was made in 1819 for the Philadelphia County Prison, and two years later he designed the Eastern Penitentiary. However, his sympathy for the problem of the prison may date to his early career before immigrating to the United States. From 1811 to 1815, Haviland was apprenticed to James Elmes, an architect who taught and wrote widely, who discussed prisons among many other topics in his various books and who, in 1817, published a small tract on the subject of prison design, Notes on the Improvement of Prisons.³⁶ Although this occurred two years after Haviland left Elmes' office, Haviland probably knew of Elmes' interest in the subject.

Haviland also may have been sensitive to the idea of prison architecture as a result of his brief stay in Russia in 1815, where he visited his Russian uncle, Count Mordinoff.³⁷ Mordinoff had been a friend of the British prison reformer, John Howard, and was with Howard at his death in the Crimea in 1789. This event must have still been meaningful twenty years later, for one of Haviland's first independent designs was for a memorial to John Howard in the Crimea. One might attribute this project to Mordinoff's continuing regard for the reformer.

Whatever the source of Haviland's interest in the problem of prison design, he studied the subject with determination. He continually refined the prison at Cherry Hill, over the course of its construction, as the Pennsylvania Journal of Prison Discipline and Philanthropy, the Pennsylvania system's publication, noted:

From the first block erected to the seventh and last, there is a regular succession of changes for the better. Perhaps in no building in the world can there be seen such an example of architectural improvements. Each block represents the stage of experience which had been reached at the date of its construction.³⁸

Samuel Wood, warden at Cherry Hill, vouched for Haviland's seriousness in analyzing the problem of prison design when he wrote that Haviland

associates and consults with those who have great practical experience in prison discipline and has embodied in his plans views which no Architect can have as an artist alone....³⁹

Haviland evidently approached the subject as a specialized one requiring such consultation with experts.

At the New Jersey Prison, Haviland's concerns were manifest. Haviland planned a building that was intended to provide reasonably comfortable, well-serviced cells for the inmates, convenient and secure arrangements for the administration of the prison, and an orderly organization planned to accommodate expansion. Learning from his experience in building Eastern Penitentiary, he wrote that in the New Jersey prison "the most approved features of our building have been adopted and its imperfections avoided."⁴⁰

Since the commencement of our extensive Eastern State Penitentiary much valuable experience has been obtained and considerable improvements made in the desired properties of security, ventilation, light, warming, and supervision of the cells, and location of the operative offices of the institution.⁴¹

"You have in the plan before you," he wrote in 1833, "a more perfect Prison...."⁴² Soon he would be able to write that the New Jersey Prison was "the most worthy of imitation as possessing with simplicity and economy the most desired properties of an institution better calculated to carry the system into effect than my former erections."⁴³

III. ORDER AND ARRANGEMENT

The plan of the New Jersey State Prison, wings radiating in a semi-circle from a central hub attached to the administration building, would be its most influential aspect. A development from the complete circle of radiating cell blocks at Eastern Penitentiary, the New Jersey plan improved the organization of the separate parts of the building, and became the prototype for prisons throughout the world in the nineteenth century.⁴⁴ It was regarded by Haviland as a major improvement on the simpler plan of Eastern Penitentiary.⁴⁵

Derived from English and French precedents, Haviland's radiating prison plans brought together a variety of elements that had existed previously, but had never been given a strict organization or unity.⁴⁶ Four-part, Greek Cross plans had provided a model for prisons with wings radiating from a central hub and prisons with large blocks arranged radially around a center had also been built. By changing the size of the pieces, Haviland was able to accommodate a series of wings, and, to provide for the expansion of an institution. Thus, at Eastern Penitentiary, Haviland's accepted plan called for the eventual construction of seven radiating arms of cell blocks. With only three blocks built in the 1820's, the prison had, in effect, a master plan that provided for the construction of four more blocks, as needed, in the 1830's. The relative

independence of these pieces within the larger organization allowed for changes to be made from one block to another, so that the prison accommodated not only expansion, but also continual innovation and improvement of the original model. If we recall the New Jersey committee's criticism of the old prison in Trenton, the importance of this planning for the future becomes clear. Attacking the old prison for being "without order or arrangement, heaped together from time to time."⁴⁷ the committee surely admired a plan that could accept future extensions without creating a disorderly, inefficient layout.

In settling on a radiating plan as the preferred form for the large penitentiaries, Haviland was primarily concerned with the ease of supervision and communication that such an organization might provide. With a hub as the center and the undifferentiated, cellular blocks radiating from that center, one person could easily oversee the entire prison. Central corridors in each of the cell blocks provided for an unimpeded view from the central "observatory," and from the roof or second floor of the observatory it was possible to see into the yards as well. Although this concern for easy supervision -- and clearly apparent hierarchy -- can be traced to Jeremy Bentham's "Panopticon" proposals, Haviland's designs replaced the circular plan of the panopticon, which had cells around the circumference of the circle and a central structure for supervision, with the radiating wings of cell blocks. He wrote of such an arrangement:

In attempting to unite convenience, strength, and economy, with other desirable objects in this Prison, I have maturely studied various geometrical figures, but could not find one so advantageous for the accomplishments of these properties as the one I have adopted;

it appears to me to be a form, the best calculated for watching, convenience, economy, and ventilation; the disposition of the seven blocks of cells and their yards verging to the center of the observatory give the whole many valuable localities, as the centre of the observatory below commands a view down the centre of the passage of each Building,...but if the cells had been formed on the outside of this octangular or any other figure, it would have screened any prisoner in attempting to scale the exterior wall, it would not have been capable of extension if desired at any future time as the present figure is; and have rather obstructed than promoted ventilation, but this arrangement admits the fresh air from every point, it is compact, would be found convenient; and save much labor in its superintendence as it tends to the centre where the business of the Prison is transacted....⁴⁸

Haviland's accomplishment at Eastern Penitentiary -- which was also its weakness -- was to isolate the central building for supervisory purposes.⁴⁹ He had originally planned to include the domestic functions here as well, but when he reserved the central hub for observatory purposes above all else, keeping only a reservoir for the plumbing here along with the guards' rooms, he achieved a clearly structured system for surveillance. However, he also created problems in convenience and communication, for in clearing out the central hub of other functions, he had relegated these services to a separate front house, which was built into the outside wall surrounding the prison. The administration of the prison, and its necessary services, were thus cut off from the cell blocks themselves. Laundry, food, visitors and administrators had to travel from the front house, outside to the prison yard, and across the yard to the "center" building, in order to enter the cell blocks.

Thus, Eastern Penitentiary's plan was less than functional, even if it was an expressive shape for the prison, in terms of its imagery. As the plan and axonometric of the prison show, the building

appears almost to be a machine's gear or a wheel: it is an inward oriented, exclusive, formal organization which suggests the independence of the prison from society as a whole, and the mechanical idealism that underlay its origins and development. However, entering and leaving and servicing such an isolated, pure geometric form was a problem, as architects throughout history have known. No one part of the wheel was differentiated from the others, and the special functions had to be simply excluded from the system, and placed in another building altogether.

At Trenton, Haviland solved the problems. By cutting the circular radial form in half, he created an impure form that he then attached to an administrative block linked to the surrounding walls. This front house, holding domestic and service rooms, along with administration, became the main entry to the prison itself. Its back section housed the semi-circular observatory, from which five cell blocks radiated in a semi-circle. Haviland thereby overcame the problem of communication between the offices and cell blocks, removed the potential security hazard in the crossing of the open yard necessary at Eastern Penitentiary, and solved the problem of accommodating a complex institution, capable of expansion. His solution might be seen as a combination of an incomplete radiating system, its hub, the main building, and the outer wall, in place of the juxtapositions of two separate systems at Philadelphia.

Haviland outlined this improvement in an 1834 letter to Edward Livingston, the Minister to France and an active proponent of the

Pennsylvania system. The architect enclosed a sketch with his letter, and noted that the drawing would show the "material improvement to this plan in the connection between the warden's office and the observatory or rooms of supervision, cooking, etc."⁵⁰ A comment he made to the legislative committee noted another improvement in the plan, perhaps in response to the committee's 1830 report that, due to the physical organization of the old prison, the subordinate officers are not subordinate.⁵¹ He wrote that the plan "affords many desired conveniences in the watching and superintendence of the deputy keepers as much as to the prisoners."⁵² This concern with a hierarchy of supervision, or observation, recalls Bentham's structure of inspection, with the public becoming the final inspectors of the inspectors. The plan of the building was, in essence, a tool for supervision.

The semi-circular organization of Trenton appeared in Haviland's sketchbooks at various times over the years, and though most entries are undated and unlabelled, it is nevertheless clear that he was continually testing and refining such an organization. In 1831, the year Haviland submitted his first, unknown proposal to New Jersey, he also prepared plans for the Philadelphia County Prison (Moyamensing).⁵³ One of the two alternatives proposed for Moyamensing was a semi-circular radial arrangement with attached front house, as at Trenton. He had not yet settled on a preferred form, for on the two pages of sketches for this project are a proposal for a prison composed of two double-loaded parallel ranges of cells, one small sketch for a T-shaped block, and two sketches of semi-circular, radiating wings, one surrounded by a

semi-circular wall, the other by a rectangular wall.⁵⁴ The more finished plan of this radial alternative which appears two pages later shows the development of this organization, with an observatory appearing at the hub (the earlier parti sketches had not depicted this). Since the two ranges that are parallel with the facade of the front house have end towers, Haviland seems to have been using these two front ranges of cell blocks to form the front perimeter wall of the prison, in order to save the expense of an extra prison wall parallel to these blocks in front. Such an arrangement, while less expensive, would also be less secure, for the prisoners on the outside wall in these two wings would have immediate access to the street were they able to break through the cell-block walls.

A more developed version of such a semi-circular radiating scheme, and probably for the Philadelphia prison also,⁵⁵ indicates further refinements in the plan, refinements which ultimately contributed to the Trenton Prison scheme, since Haviland's radial alternative was not chosen for Moyamensing.⁵⁶ Other refinements such as rounded corners on the cell blocks and tapering entrances to the wings are sketched in roughly on this plan. In fact, since Haviland's Philadelphia alternatives were from July of 1831, about the same time as his first submission to New Jersey, perhaps he had proffered a radial scheme for Trenton as well. While neither of these variations for the Philadelphia County Prison was constructed, they provided the basic foundation for Haviland's Trenton design.

An unidentified plan in Haviland's second daybook appears to be the first version of the New Jersey prison, showing a marked development from the Moyamensing alternative.⁵⁷ On the same 8" x 13" page

there is a plan of the entire complex, partly hard-lined and partly sketched, a rough sketch plan of the front house at a larger scale, a more exact drawing of the front house and observatory at a yet larger scale, and a very roughly sketched, faint drawing of an elevation for the building.

Here, for the first time, there is a corridor running all the way into the center, or observatory, from the front entry, providing for direct communication from the front entrance to the center of the building -- valuable for servicing, visitors, and the delivery of prisoners. One of the sketches shows columns along this corridor, suggesting its embellishment as an entrance hall. The front house has rooms along either side of this central hall, with walkways on each side, apparently up a half-flight of stairs from the level of the street. The yard is semi-octagonal, with towers indicated at each of the corners.

The final version of this Trenton plan was based on these sketches, and is best represented in the versions published in the foreign reports. William Crawford illustrated a plan of the prison, dated January 1834, in his Report on the Penitentiaries of the United States, of that year, for the House of Commons in England.⁵⁸ In 1837, the French report on the penitentiaries in the United States, executed by Demetz and Blouet, published a version that featured slight changes from Crawford's and which seems to have been closest to an "as built" condition.⁵⁹ These plans were provided by Haviland and thus represent his intentions clearly.

The final organization was clear and concise, a combination of entry, front house, surrounding wall, observatory, and cell blocks.

Projecting from the wall on either side of the entrance were the pylons, each containing a square vaulted room on first and second floors. The public front of the prison and the only rooms overlooking the street, these spaces were allocated for the warden's and inspectors' offices on the first floor, while on the second at least one may have served the warden's private use.

Between these pylons was the recessed entrance with four round columns on a podium. Stairs in the right and left hand bays led to the pedestrian entrances to the prison, the left one for the warden and the right one for the prisoners, according to the notes on Crawford's plan. In the center, between the raised platforms, a passage led into the prison through an iron gate, into the entrance hall with its columns on each side on the raised base. To the left, the keeper's double parlour and private stairs; to the right, the clerk's office, and the other rooms associated with the reception of the prisoners: "receiving" room, "preparing" room, "bathing" room, and "dressing" room. The committee from New York, which was investigating Haviland's work in preparation for the Tombs competition, described this layout:

The main building is rectangular in front and circular in rear. That part in front of the center of the circle -- devoted the one half to the private apartments of the Warden -- the other to the offices of the establishment. These parts are separated by a Hall the width of the Portico -- the carriage way runs down almost its entire length -- flanked on each side with a row of Egyptian columns standing on the level of the floor of the Portico. The carriage drives into this portico and delivers its prisoners at the Warden's office. His description or written portrait is there taken. He then passes through a rear door onto a small room where he is stripped and washed. From thence he is passed naked through a door on the left into a small

room say five or six feet square and there clothed in prison dress and blindfolded. Thence through a door into the semi-circle and off to his cell.⁶⁰

At the rear of the front house, before the observatory, were the kitchen and balcony. Staircases led to storage area in the basement, the cistern, and the "steam engine," the pump used to raise water to the second floor reservoir, and to heat the prison.

IV. THE WELL-SERVICED CELL

While this coherent, radiating plan provided for the clear organization and ease of supervision within the prison, and established a scheme for future expansion, the essence of the Pennsylvania System lay not in the central seat of control, the observatory, but in the cell. It was the individual solitary cell -- the isolated arena of penitence -- on which the system depended. Since the regimen consisted of "separate" confinement by day and by night, the inmate never left the four walls of the cell (or, in Eastern Penitentiary, the small exercise yard adjacent to the cell). This single room was the only space the prisoner saw, twenty-four hours a day. He ate there, slept there, worked there and prayed there, from the time of his incarceration until his departure from the prison. The reform which had generated these solitary cells was aimed at eliminating the intercourse among prisoners that had made other prisons "schools" for vice, by isolating each person with only his conscience to confront, and improving the actual physical conditions of prison life. The cell, thus, had to be a reasonably comfortable well-serviced room that could provide warmth, ventilation, light, an operable plumbing system, and facilities for work. Rarely before had such demands been made on the architecture of a single room.

Solitary confinement within a separate cell was seen as a means of separating prisoners from an immoral society, and of providing them with the means for self-contemplation and reflection. As one defender of the system wrote of the prisoners before their incarceration:

We find them living a hurried and thoughtless life of hourly excitement, and shuddering at the possibility of a pause which could let in (to them the demon) reflection. We see them wanting the ordinary comforts of clothing and cleanliness, without home save that afforded by chance companionship. We find them in the brothel and the gin-shop, giving up to all manner of excesses, indulging in every extreme of vice, self-degraded and brutal. We see them corrupted and corrupting, initiating new candidates in the race of misery, and dragging them in their own vortex to a death of infamy and horror.⁶¹

He then described the reformer's response to this condition, and the place of the prison:

Where do we place them, and how do we treat them? They are taken to the bath and cleansed of outward pollution, they are new clad in warm and comfortable garments, they are placed in an apartment infinitely superior to what they have been accustomed, they are given employment to enable them to live by their own industry, they are addressed in the language of kindness, interest is shown in their present and future welfare, they are advised and urged to think of their former course and to avoid it, they are lifted gently from their state of humiliation....⁶²

The cell was thus the major physical tool for reformation, accompanied by the active work of the "moral instructor" and warden. It was to be like the cell of the monk, a place for cleansing of inward pollution, just as the bath cleansed the outward pollution. It separated the individual from a debased and dangerous society, and controlled completely his activity. It was both place of rehabilitation, and the "minimal dwelling."

Such a cell might seem the simplest problem possible -- its "architecture" being simply its enclosing walls. But at this time, before the advent of mechanical consultants and traditions of servicing, the architect was faced with finding the most efficient and effective

means of servicing the cell, without losing the paramount goals of security and total isolation of one prisoner from the rest. Thus Haviland could write in 1835 about the apparently simple problem of the design of the cell:

I thought myself near to perfection in the construction of the cell fifteen years past but in every succeeding year have gleaned from experience some new and valued property in its ventilation, light, warming, watering and security.⁶³

The cells were located in the radiating wings of the prison, two of which were built under Haviland's direction, the other three planned to be built when needed. In the architect's words, the "block of cells" was a

two story fire proof building forty eight feet wide by two hundred and twenty nine feet in length, containing eighty eight cells and eight work shops, radiating by a covered passage to the Observatory in the center building.⁶⁴

The cells were barrel vaulted, as was the two-story central corridor which ran down the center of the block. In this sky-lit hall, the second floor of cells was recessed over the first to provide space for a narrow balcony over the projecting part of the first-floor cells. The setback of the second tier of cells, while providing more light throughout the central corridor by eliminating the cantilevered balconies of Eastern Penitentiary, also provided for cells of different sizes. This was seen as necessary in order to accommodate the different sizes of looms and other equipment with which the convicts worked, as Haviland wrote to Edward Livingston in 1834, when he proposed that this same idea could lead to a two, three, or even four story block if necessary, with "the desirable variation of sizes".⁶⁵ At Trenton, the cells in the lower

block measured $7\frac{1}{2}' \times 15'$ in the upper story they were $7\frac{1}{2}' \times 13'$ in South Hall and $7\frac{1}{2}' \times 12'$ in North Hall.

While the two-story corridor of the cell block was quite brightly lit through the skylights placed in its roof, this light did not penetrate to the cells themselves, since there were two solid doors between the hall and the cell. The only light available to the cell, then, was that provided by the windows or skylights, depending on whether the cell was on the first or second floor. In the first cell block built, number "two" today, or North Hall, a break in the outer wall over the first floor provided a slight set-back in the wall of the second-floor cell, so that a small skylight could allow light into the cell from above. In South Hall, however, Haviland created a window instead of this skylight, so that the break in the wall was eliminated and the second-floor cell thereby extended slightly. The openings were framed in cast iron, and measured about thirty inches in length by six inches in width. Obviously, they were designed with the intent of preventing escape, while admitting adequate light. The glass was fixed in place, and not operable.

That both Haviland and Dorothea Dix (who visited the prison often in the mid-1840's) described the cells as "well lighted" suggests that in general they were considered to have enough light (and suggests how low the earlier standards must have been).⁶⁶ Artificial lighting was provided by oil lamps in the early years, as evident in an 1838 inventory of the prison, which included "120 tin lamps" and "lamp oil (110 gal.)."⁶⁷

Water was supplied to each cell from a central reservoir above the observatory, which was supplied from a well below. A steam engine supplied the power to pump the water to the reservoir, from where it was fed to the cell blocks by pipes running along the corridor walls. "Hydrants" in each cell were operated by the prisoners for water. (The 1838 inventory listed 320 tin cups, and 197 tin basins.)⁶⁸

The reservoir also was connected to the prison's sewer system, for it provided the water to flush the waste pipes. Each cell was furnished with a cast iron toilet, located in an outside corner, with water filling it to a certain level. These toilets were flushed simultaneously in a flushing of the entire system, novel enough to be described in an 1844 publication: "These pipes are cleaned by water, about 15,000 gallons being daily used for that purpose."⁶⁹ Valves for flushing were located in the end cells nearest the reservoir. (The prison physician complained in 1838 that the flushing of the system vitiated the air of these cells, and of the central hall, and recommended the re-location of the valves to the outside of the building.)⁷⁰

Ventilation was provided for primarily through the use of ventilating shafts and openings in the cells. Built into the inner wall of the second floor cell was a shaft that fed up through the wall, where it was joined by an opening at the ceiling of the second-floor cell, from where it continued through the ceiling of the central hall, up to the outside.⁷¹ In addition, shafts were cut through the outside walls of the cells at floor level. In the first block built, North Hall, it was found that these floor level ventilators provided a means for the inmates to

communicate with one another, for the ventilators of the second floor cells pierced the wall about the same place where the skylights to the lower cells were located. Therefore, the system was changed, along with the change in the section of the wall, in the south wing, where the ventilator shaft for the second-floor cell dropped down within the outside wall to vent to the outside below range of the first floor openings. Although one writer described these cells in 1838 as "well ventilated", Dorothea Dix wrote that they were "only tolerably ventilated".⁷² In response to pressure from the physician, in 1841 the fixed windows were opened, in order to improve ventilation. The doctor recorded that "in proportion to the change of air, have the prisoners improved in health."⁷³

To heat the prison, Haviland utilized a hot water system, making the prison probably the first building in the country designed for such a system.⁷⁴ Although an experimental hot air system had been installed at Eastern Penitentiary after some initial delays, its inadequacy led Haviland to look for an alternative. In 1831, Angier Marsh Perkins, son of Jacob Perkins, an ex-Philadelphian living in London, patented the Perkins' Hot Water Heating system. Developed from the experiments of the senior Perkins, this technique utilized a continuous small-bore pipe about 3/4 inches in diameter, with a coil of the pipe in the fire box. Circulation was effected by the heating process, which increased both the heat and the pressure in the pipe near the fire box. First used in 1831 or 1832, the Perkins system was introduced into John Soane's house at that time. In July of 1832, the Franklin Institute Journal in Philadelphia carried a discussion of the system, undoubtedly bringing it to Haviland's

attention.⁷⁵ While early central heating systems are only now beginning to be studied, it appears that the next use of this system -- and the first large-scale application of it -- was in 1835 at the British Museum. Haviland's system at Trenton went into operation the next year. (One scholar reported that the system was not brought to the United States until around 1840.)⁷⁶

Haviland wrote that the system was adapted to use in buildings of the "class and magnitude" of prisons and hospitals, large, extended buildings whose heating systems "of necessity require its agent to traverse in an horizontal direction."⁷⁷ He was so optimistic of its possibilities that he attempted to obtain an American distributorship for the system. In a letter discussing his prison designs in 1834, Haviland wrote that "The recent discovery of warming the cells by warm water is attended with considerably more economy and better calculated to prevent intercourse."⁷⁸ His order for the New Jersey prison's system is recorded in his day book:

Ordered of Mark Richards, Esq^r for the New Jersey Penitentiary the following Bill of Warming Pipes and other parts of the apparatus:

2000 feet of plain pipes in section
8 safety valves
8 coils or 1000 (?) feet to make them.

Ap 25 1835⁷⁹

Several years later, Haviland would write of this system that its

great economy in fuel and supervision, security against accidents from fire, and what still more desirable its salubrious effect on the lungs, give it a decided preference in its present application to any other means of warming....⁸⁰

The system at the prison was described in 1844, somewhat incorrectly by that time, as follows:

The prison is warmed by tubes of hot water, passing through the cells. In the coldest weather, the cells can thus be warmed to a temperature of 65°.81

(The fate of this system in operation is discussed in the chapter on the prison after 1836.)

The basic cell, then, was supplied with fresh water, a "privy," hot water heating, and ventilating shafts. Illuminated by sunlight during the day, it had an oil lamp for night. A further account of its furnishings is provided from an 1838 inventory of the prison.⁸² Each cell had a bible, a clothes bag, a bucket (presumably for dinner, which was handed in through a small six-inch square opening in the door). The prisoner was supplied with a broom to clean the cell, a spoon, a fork, tin can, tin cup, tin basin, and shaving equipment. The bunk, suspended from the wall, was hung up out of the way during the day. A cotton loom, spinning wheel, shoe bench or other work instrument provided for the only occupation within the cell, save for the reading of the requisite Bible. The floors were of wood, the walls, plastered. It was a "minimal dwelling."

V. PYLONS AND LOTUS BUDS

While Haviland's approach to the planning and mechanics of the prison was practical and functional (treating the building like a corrective machine), the architectural style of the prison appears, superficially, anything but utilitarian. Modelling the building in an ancient Egyptian style, Haviland created a somber, expressive structure which dealt with the emotions aroused by incarceration rather than with the efficiency of planning or the humanity of reform. The style was intended to express the purpose of the building, however, and thus, was, in fact, as utilitarian as the plan itself, as discussed in the Introduction. It was a didactic, "instructive" instrument, not merely a sublime expression.

It is this Egyptian style that has attracted the attention of architectural historians in the twentieth century, when several writers have discussed or illustrated the Trenton prison's "battered" facade in studies of Egyptian Revival architecture.⁸³ Other writers, however, have omitted the building altogether from their studies of the style, and most have failed to assign it its proper date or place in relation to later Egyptian Revival buildings.⁸⁴ It is only with the recent publication of Carrott that the implication has been made that the Trenton penitentiary was, in fact, the first true Egyptian Revival building in the country.⁸⁵

Carrott wrote that "The actual emergence of the Egyptian mode as an independent style of its own occurs in the work of John Haviland, who is the Egyptian Revival architect par excellence." The "mature phase" of the Egyptian Revival, Carrott noted was "ushered in by Haviland's design for the New Jersey State Penitentiary."⁸⁶

Haviland's priority in actually constructing a building in the Egyptian style was asserted in his 1868 report:⁸⁷

The architectural character of the exterior is Egyptian, the example is taken from one of their best specimens, which has been faithfully copied in all its proportions and character, from Napoleon's Egypt, by Pauckoucke (sic), and is the first specimen ever executed in America.⁸⁸

Cemetery gates and obeliskshad been erected as monuments, and Egyptian details had been used by Latrobe, Mills, Godefroy, and Strickland, but no other building had been constructed that could be called truly Egyptian in its style.

While concerns for an appropriate style for the prisons had led to many castellated "Gothic" penitentiaries, such as Haviland's Eastern Penitentiary, the choice of Egyptian for the Trenton prison was apparently as unprecedented as its use in the United States for any building. As historians have noted, the application of Egyptian elements to architecture developed in the eighteenth century as architects looked to more distant and more exotic sources for their designs. Although books had been published on Egyptian architecture or artifacts in the latter part of the eighteenth century, it was not until Napoleon's excursion through Egypt in 1798, accompanied by a retinue of architects, archeologists, and artists, that architecturally correct renditions of Egyptian architecture were first made accessible through publication. The research of this team was published in/^ahuge, multi-volume series from 1809 to 1828, Description de l'Egypte, with the second edition (the Panckouke to which Haviland referred) beginning in 1828.⁸⁹

Great interest in Egypt typified the first decades of the century. Journals and newspapers carried articles on excavations, and the decipherment of the Rosetta stone attracted great attention. Between

1800 and 1830, according to Carrott, thirty-three travel books on Egypt were available in the United States, one half of these published in the 1820's.⁹⁰ Collections of Egyptian art were displayed in Cincinnati and in Baltimore in 1827 and 1832, and an "Egyptian Hall" was established in Cincinnati about 1819, though there was little "Egyptian" about it. Towns like Cairo and Memphis were established, along the Mississippi (the "American Nile"), and not far from Trenton, "New Egypt," New Jersey was founded. The fascination was sometimes an almost feeble romanticism, evident in such works as a poem published in one of the Trenton newspapers in 1836, "The Burial in the Desert," set "In the shadow of the Pyramid...."

This attention to things Egyptian may have brought the architecture of Egypt to Haviland's mind as he developed his designs in the 1830's, though he was surely familiar with Egyptian architecture much earlier through his training under the historically minded Elmes. Elmes had discussed Egyptian architecture in various publications, such as his Lectures on Architecture, and even wrote of Ledoux's prison project for Aix that it "savors something of the Egyptians" (despite the lack of any actual Egyptian elements in the building).⁹¹ Elmes himself, in fact, appears to have designed an Egyptoid courthouse in the early century, although he would later write about Egyptian architecture:

After all, the Egyptian style is monotonous, sombre, heavy, and unfit for modern adoption.... What makes an excellent parlour in Egypt would be a delightful coal cellar in England.⁹²

In 1829, the Philadelphia-based American Quarterly Review featured a long article on the architecture of Egypt, which undoubtedly brought the subject to the attention of many Americans.⁹³ The article was a review of the second edition of Napoleon's Description de l'Egypte and also of Quatremere de Quincy's De l'Architecture Etyptienne, an 1803 publication of the author's dissertation of 1785, illustrated with primitive 18th century etchings. This thorough, scholarly appraisal of Egyptian architecture indicates that someone had made a careful analysis of the publications on Egyptian architecture (with the journal based in Philadelphia, the anonymous author was perhaps a Philadelphian). Clearly the magazine judged that there was sufficient interest or importance in the subject to devote so much space to it.

Another article of a few years later, on the subject of prisons, suggests a possible relationship between the design of prisons and Egyptian architecture. In 1833, G. W. Smith, of Philadelphia, published A Defense of the System of Solitary Confinement.⁹⁴ This was originally presented in 1829, and was undoubtedly familiar to Haviland, who would have known Smith through the Society for Alleviating the Miseries of Public Prisons, Smith's publisher and Haviland's supporter. Smith's history of imprisonment ended with a detailed approbative description of Haviland's Eastern Penitentiary. Of some interest is Smith's description of gruesome Egyptian methods of punishment:

As a means of more effectual seclusion from society and the prevention of further injury by prisoners during the period of incarceration, and as a mode of inflicting vindictive punishment, it (solitary confinement) has been partially practised in almost every nation from the remotest ages. The Egyptians were accustomed to bury alive in the dark, narrow and secluded cells of some of

their vast and secure edifices, which at once served for prisons and for tombs, certain offenders against their laws. These unhappy victims, from the hour when they were immured, until the tedious period when death released them from their lingering misery, never beheld the light of day, never inhaled the fresh air of heaven, and never again beheld the face of man, or heard the consoling accents of his voice.⁹⁵

Although this torturous practice was far removed from the beneficial, salutary incarceration sought by the Quakers and the Philadelphia Society for Alleviating the Miseries of Public Prisons, one cannot help but wonder whether the inhumanity of the Egyptians was not somehow accepted and approved by the reformers as an image -- an image which might assist the rehabilitation process inside the prison by literally scaring away potential criminals with an "awesome" building. In this regard, Smith's comments on the facade of the Eastern Penitentiary are relevant, for he noted with evident approval that the design imparted a "grave, severe, and awful character to the external aspect of this building."⁹⁶ He continued: "The effect which it produces on the imagination of every passing spectator is peculiarly impressive, solemn, and instructive."⁹⁷

Thus, at the same time that Egypt and Egyptian architecture were current topics in the 1820's and 1830's, Smith's description of the horrific Egyptian may possibly have had some effect on Haviland's thoughts about prison style. Haviland may have found here confirmation of the link first suggested by Elmes between the monolithic, expressive Egyptian architecture and the function of imprisonment. In a strange conflation of goals and ideals, the humanitarian, reform-minded purposes of the Pennsylvanians were first effected in a thoroughly mechanistic, functional manner, and then cloaked in an intimidating, somber, "instructive" style,

suggestive not merely of "medieval" punishments, but of "Egyptian" tortures. Deterrence thus accompanied reform, as the New Jersey Commissioners wrote:

The prevention of crime is effected by deterring men from its commission, and by the reformation of the offender. If the plan and discipline of a prison recommended by your committee (Haviland's proposal) make any approach to these great results, we shall feel amply rewarded....⁹⁸

Although Carrott argues that the Egyptian style was applied to prisons to represent the "enlightened" system of penal reform -- Egypt being the land of wisdom -- one suspects that the "awful" connotations were of greater importance.⁹⁹

The evolution of Haviland's Egyptian Revival design is difficult to study due to the loss of the original drawings. He had made designs of the prison in 1831, again in 1833 in January, and there may have possibly been another set in 1832, when Haviland wrote to Thomas Perrine, the keeper of the prison, that he understood he had been selected as architect. Based on available documentation, and on Haviland's other projects, it is possible to speculate about his development of the design, and to conclude that Haviland's early proposals were most probably not in the final Egyptian style.

When Haviland submitted his model, plan and estimate in January of 1833, shortly before the legislature finally authorized the construction of a new prison, he described his project as "avoiding useless ornament, and employing members best calculated to perfect the desired properties of the institution."¹⁰⁰ Neither he nor the committee mentioned the style of the building, which the committee described as "plain, simple

and economical."¹⁰¹ While the words of both architect and committee are perhaps what one would expect, considering the need to win the support of a penurious and probably skeptical Legislature, neither of these summary descriptions could have been describing an obviously ornate or decorated proposal. Moreover, neither phrase seems adequate for the description of an Egyptian styled building -- for what would have been the first use of the style that the legislators would have seen. Given the fact that there had been no Egyptian Revival buildings constructed in the United States in 1833, it would seem unlikely that Haviland or the committee would have presented a proposal for a prison in the Egyptian style without some explanation or comment.

Although we do not know the exact appearance of Haviland's proposal of January 1833, nor of the earlier version, we do know that certain changes were introduced in the construction of the building over the course of 1833. These changes entailed the elaboration of the building, and the account of them from the Commissioners' report contains some suggestions of the original design. Discussed in both the committee's and architect's reports in October 1833, these changes entailed 1) the enlargement and improvement of the front house; 2) an improvement in the corner towers; and 3) a change in materials, from rough, rock-faced stone to "fine cut and hammered stone, in many places exposed to view...."¹⁰² Since the front house and towers are the main places where the Egyptian ornament appears, the change in the wall material from rock-faced stone to smooth stone may suggest a change from something cruder, such as the blocky Gothic of Eastern Penitentiary, to the finer stonework of an

Egyptian Style, described in the American Quarterly Review:

It is impossible to find in any buildings surfaces better dressed, columns better rounded, angles more sharp, or more tasteful and graceful curves.¹⁰³

However, a Gothic or Castellated prison might not have been described by the committee as "plain, simple and economical" nor by Haviland as "avoiding useless ornament." Haviland's Gothic front house at Eastern Penitentiary had, in fact, been criticized for its ornamentation, and was castigated as more suited as a "dwelling for a nabob."¹⁰⁴ One might expect Haviland to try to avoid such criticism with a more economical, less ostentatious front house, especially given the New Jersey Legislature's long-standing refusal to approve any expenses for a new prison.

Thus, perhaps Haviland's original proposal was neither the Gothic of Cherry Hill nor the Egyptian which it finally became. His proposed prison illustrated in his book of 1833, a new edition of Owen Biddle's Young Carpenter's Assistant, may provide a clue.¹⁰⁵ Here Haviland depicts an austere, stripped classical building with a largely blank, rusticated wall surrounding it. A round-arched entry leads into the structure, through the heavy wall with its horizontal courses of rustication. The only breaks in this wall are narrow vertical slits occurring regularly, such as were included in the Trenton prison wall, where they became "battered," upward tapering slits. The building itself in this publication is a plain, three-story structure, articulated with corner quoins and topped with a simple pediment. More narrow slit-windows appear on the face of this building, and an oculus appears in the pediment.

Almost brutally simple, articulated to look unadorned, such a building might well appeal to the penurious legislators, and would certainly not require the kind of justification or explanation that one would expect to accompany a proposal as innovative and even outrageous as an "Egyptian" building. In fact, were one asked the style of the building, it would be difficult to answer simply, for it is clearly classical, but not really Greek nor Renaissance. A sketch for a larger building of similar style appeared below one of Haviland's 1831 plans for the Philadelphia County Prison, and, since he first worked on the New Jersey Prison at this time, this plain classical style may have been in his mind.¹⁰⁶ The Philadelphia proposal showed a long facade composed of rusticated base below a plain wall with corner quoins and slit windows. Less effective in its massing than the 1833 published prison, due to its long low front house, this 1831 sketch might be combined with the published one to give an indication of the New Jersey proposal. With a more compact two-story front house, and a large center entranceway, as built at Trenton, the New Jersey project might have had the dominant center pavilion of the published project, balanced against the long side walls and end towers of the Philadelphia sketch.

The only suggestion from Haviland himself of this early New Jersey proposal appears in a small, faint, lightly drawn pencil sketch that is on the same page as the sketch plans for the prison in his day-books. This drawing reveals little about detail, and only a rough outline of mass. It does not appear to be Egyptian, but there is little to suggest another style either, except for what appear to be pilasters

breaking the prison wall at regular intervals, with some small protrusions above. Whatever the idea embodied in this faint drawing, it may not have even survived to the final proposal, for it appears with the parti sketches almost as an afterthought.

The first time that the style of the prison was mentioned in the annual reports of architect and committee was not until January of 1836, the first reports following the construction of the Front House. It was over the course of 1835 that the exterior of the Front House was essentially finished; as Haviland reported:

The cut stone work of the colonade, vestibule and porches of the principal entrance, stair-way, steps, &c. have been all cut and nearly set complete.¹⁰⁷

Thus, for the first time, the actual appearance of the building would have been apparent. This was Haviland's last report, his services being dropped in 1836, and was a defensive committee report.

The committee tries to explain the cost overrun of the project, arguing that it is difficult to make correct estimates since there are so many incidental expenses and "so many improvements suggested during the progress of the work, combining strength, comfort and ornament, and adding to the cost."¹⁰⁸ Furthermore, the members write,

With regard to those parts appertaining to the main front building, which are purely ornamental, they have not been adopted without due consideration, and if an explanation and apology were wanting for the expenditure of so much on external decorations, it might be found in the support and encouragement which a liberal and enlightened legislature have hitherto given, and the spirit and discernment of a people who have importuned us not to be behind the age in great public improvements.¹⁰⁹

Given these attempts to flatter both legislature and public, and the openly defensive posture of the statement, one senses that the final product was something of a surprise: more ornamental and costly than that "plain, simple and economical" project which the committee had presented to the legislature in 1833.

Haviland's own statement at this time offers further support for the argument that the Egyptian style was a change made only after the original approval by the legislature. Here, for the first time in the annual reports (or anywhere else yet found), the style of the building is mentioned. (Reports had been made previously in October of 1833 and 1834.) Haviland wrote:

The architectural character of the exterior is Egyptian, the example is taken from one of their best specimens, which has been faithfully copied in all its proportions and character, from Napoleon's Egypt, by Pauckoucke (sic), and is the first specimen ever executed in America. Its extremely bold and simple members, added to its novel and pleasing proportions, render it a very appropriate style for this class of building, which harmonizes with the complexion of our free stone and has been executed with very little cost.¹¹⁰

Thus, one speculates that the legislators must have thought they were getting quite a different building in January of 1833, and, when Haviland changed the project over the course of its construction, he may not have advertised the exact nature of the newly proposed appearance. The choice of the new style must have been that change discussed by the committee in its report of October, 1833, mentioned above, when the committee noted that Haviland's new estimate was thirty-four thousand dollars over the original.¹¹¹ (The comparison was between a new estimate of \$100,000 for the project including two blocks with

only 168 cells and an original estimate of \$150,000 for the whole extended prison, including five blocks and 300 cells.)¹¹² It is in this report that the committee commented on the changes in the project: the improvements in the towers and enlargement of the front house, and the change in finish of the stonework. At the same time, the committee discussed the purchase of additional land, a plot of ground between the prison and the Delaware and Raritan Canal. The committee argued that this property was valuable for its supply of sand, and also to guarantee that no buildings would be constructed there in the future that might obstruct the free circulation of air. Then the committee made what reads as the major claim for purchasing this land:

Great state buildings, designed for great state purposes, should not be cramped and hemmed in by surrounding buildings. We have now a free and unimpeded view from the canal, which may be improved, and add both to the beauty and convenience of the institution.¹¹³

Thus, while there is no mention of style yet, there is clearly a concern for a monumental appearance, for "great state buildings." In his report of this same year, Haviland noted that the improvements in the front house involved finishing the entrance "in a more decorative manner corresponding with its character and magnitude."¹¹⁴ Not until the next year, though, does the committee offer more specifics about the new design in writing. The 1834 report records that

It will be ornamented by a Portico and Columns, and surmounted by a Belfrey, twenty feet high above the roof, and is generally admired as a beautiful specimen of architecture.¹¹⁵

All of which suggests that once Haviland had obtained the commission, based on his reputation and a schematic plan, drawing and model, and a perhaps conservatively low estimate, he then developed the project. After studying the site he proposed purchasing the land in front of the prison, and also, at this point, developed his scheme for an Egyptian style building. The committee obviously had grand images in mind when it discussed the new proposal, and one imagines Haviland conferring with the committee members on his weekly visits to Trenton, convincing them of the importance of the project not just as a prison, but as a public monument; of the need to impress New Jersey's sister states; of the necessity for an architecture suitably grand and monumental; of the propriety of the Egyptian style. The committee, thus convinced, went to the legislature for more money. However, we find that the members left the drawings in the state library at that time, rather than taking them into the legislative chamber with them, for in their report they noted the changes in general terms,

as will be manifest by a comparison of the original, with the draft of the present building, lodged in the library, for the inspection of those who may be desirous of examining them.¹¹⁶

Thus, over the course of 1833, Haviland reworked the design, as the walls of the building went up, and developed his Egyptian style prison -- the first such building in the country. He convinced the committee members of its validity, and may also have convinced them of the value of a certain reticence in describing the building, as they went after additional funding. Even in the winter of 1833, however, the final appearance may not have been settled. For Haviland could have settled on the battered

prison walls in 1833, as they started going up, and then only finalized the decorative exterior ornament -- down to the hieroglyphics -- in the next two years as they were executed. (One factor contributing to the lack of any known extant drawings for the prison may be these changes and development during construction. Perhaps no finished presentation drawings existed for the final version.)

* * *

Whatever the possible shock of the legislators upon seeing the final building, the Egyptian prison was a dramatic, effective, and accomplished work of architecture. The elements of Egyptian design were creatively worked into the facade and interior hall, with a combination of literal and improvisational detail. The overall effect of the battered walls and small openings was that of strength and security, with an intimation of authority. The effect was that admired by James Elmes, Haviland's teacher, in London's Newgate prison, by George Dance:

the exterior of which is without doubt the most appropriate and correct design in the metropolis, or perhaps in Europe; for, no one viewing this edifice can possibly mistake it for anything but a gaol, the openings as small as convenient, and the whole external aspect made as gloomy and melancholy as possible.¹¹⁷

Here, however, there was the association with Egypt, besides the form of the building alone, to impress the passer-by.

Surrounded by battered walls twenty feet high, the prison presented a formidable appearance. The walls were unbroken expanses of local Ewing sandstone, smoothly dressed coursed ashlar on the east front wall and roughly finished random ashlar on the other three elevations. This stone appears to have an almost pinkish brown color when

clean, not quite so somber as its present, dirty state suggests. These walls were topped by the gorge and roll cornice taken from Egyptian architecture with a stone coping on the east wall and shingled coping on the other three. Narrow vertical slits interrupted the length of the wall at regular intervals. While these recesses may have been intended originally as windows into the yard -- and take the same form as the windows in the front house facade -- they were built as niches rather than openings, their only role being to articulate the long expanses of wall, to offer a regular rhythm of vertical elements in opposition to the long horizontal of the walls.

At the center of the east elevation, the front house broke through the surrounding wall, an austere dramatic ensemble. On each side, a two-story pavilion rose with battered walls. Enormous torus moldings articulated the corners of these pavilions, and continued down the faces as well to create two pilaster-like forms on each tower. Breaks in the Egyptian cornice further established these "pilasters" as the primary vertical elements of the pavilions. Between the projecting pavilions was a colonnade of four squat columns, placed in front of the two-story facade of the main building itself. These columns, carved of the same sandstone as the rest of the building, were directly derived from the columns at the temple of Amenophis III, on the Elephantine Island, as Roos pointed out.¹¹⁸ Illustrated in Description de l'Egypte, each column features bundled shafts of large round sections, a large base with carved leaf motifs, a closed bud capital with alternating cup-like buds and sharp vertical arrises, and a neat rectangular

abacus with incised hieroglyphics. Engaged columns with the same detail, but square rather than round in section, interrupted the wall behind each of these columns.

Stairs in the left and right-hand bays led to a platform on which the columns rested, and to pedestrian entrances to the building as discussed under organization. In the center, on street level, between the raised platforms on each side, was the carriage entrance. The opening was spanned by a magnificent corbelled arch, its form suggesting that of a stepped pyramid, but reversed, in that the pyramidal form was void, and the outline, solid stone. Above, a "lunette" of a similar stepped pyramidal form occupied the center of the second floor wall of the front house, flanked on either side by a window of the narrow, tapering type. Above this, a winged solar disc interrupted the cove of the cornice, and, above the hipped roof of the entire building, a cupola topped off the entire composition.

The cupola sat on a long narrow platform which ran the length of the hipped roof front house. Above a gorge and roll cornice, the platform must have been intended to make the roof, a strictly non-Egyptian element, appear less like a traditional hipped roof and more like an Egyptoid form. At its front sat the cupola, again a non-Nilotic element which might have been mistaken for a Greek Revival belfry except for its trim. A strangely scalloped pattern ornamented the louvers of the openings, which were surrounded by bold torus moldings. At the top of each of the eight faces was a small winged solar disc, and on top of the roof was an obelisk, rising from a base of leaves. The platform behind

this cupola may have held skylights, bringing light into the full-height hall within the front house.

These details and elements reveal the various ways that Haviland attacked the problem of adapting an Egyptian style for a contemporary building. Free rather than strictly archaeological in his approach, he was nevertheless "correct" with certain details, and "in the spirit" of the original with others. On the one hand, he did not create a fantastic, playful interpretation of the style, an Egyptian "Gothick," so to speak. Such a "Rococo" Egyptian, in the words of Carrott, might be found in eighteenth century designs, primarily adopted for furniture and decorative work. On the other hand, though, he did not limit his design to a "correct", archaeological or imitative composition. Unlike the Gothic Revivalists after Pugin, or the Greek Revivalists who designed according to the letter of antiquity rather than the spirit, Haviland freely interpreted and created in order to create his "Egyptian" building.

Haviland's approach to the problem of an Egyptian design suggests the definition of the concept of imitation that James Elmes gave in his lectures. It is what one would expect from Haviland, who never created merely "correct" buildings during his influential career as a Greek Revival architect in Philadelphia. In Elmes' words,

By imitation I do not mean that servile counterfeiting of an original, so much the character of some of our modern Greeks, who copy the very fractions of lines and profiles instead of composing in the same spirit, by parallel images and examples, sometimes more refined, but never below their type, which distinguishes true genius, cultivated and improved by practice and study, from the common bed of lineal copyists of modules, of minutes, and of lines. 119

Thus, we see Haviland being archaeologically correct in the more ornamental parts of the building, the colonnade, the cornice, the solar disc, and even the hieroglyphics. But in other parts, for which there were no archaeological precedents, Haviland invented elements which have a distinct "Egyptian" air. The two projecting pavilions thus recall Egyptian pylons, with an entry between them, and yet they are also the traditional classical projecting pavilions such as one finds on his Blight House of 1828, for instance. This relationship to classical traditions is further suggested by the moldings: rather than running the large round torus moldings around the sides of these pylons only, as the Egyptians would have done, Haviland created tapering "pilasters" by running the moldings back down around narrow vertical sections of the wall. The facade's narrow windows taper upward also, like the niches in the surrounding prison wall, with each stone corbelled slightly over the one below it. Such a tapering window motif looks as if it must be Egyptian, even though no precedents for such an opening exist. A possible model for the form reveals the freedom with which Haviland approached the non-historical elements. For one of the plates in Description de l'Egypte reveals the section of a sepulchre in a pyramid of Memphis to be corbelled and tapered in this same way.¹²⁰ Haviland took the narrow vertical slit windows from his earlier prison project, and, in trying to find a means of rendering them "Egyptian", may have found a parallel form from Egyptian architecture which could be adapted for use as a narrow window.

A similar process must have brought about the facade's central element, the stepped pyramidal "lunette" and the similar corbelled arch

over the entry below it. Again, scholars have found no precedents for these forms in Egyptian architecture, but have found possible precedent in Egyptoid fireplace designs by Piranesi, where corbelled brackets framing the opening give a somewhat similar appearance.¹²¹ However, here again one suspects that a freer interpretation was involved. In designing a central lunette-like form on the wall above the entry, Haviland may have simply stumbled on the essentially triangular, stepped form as an Egyptian-like element, recalled from the triangular openings over doors in the pyramids, on the one hand, and from the stepped pyramid itself as the basic "Egyptian" form, on the other.¹²² Illustrations of both these features were available, and a familiarity with them could have led the architect to create a totally new element with no archaeological correctness whatsoever, but which is immediately identified by all as "Egyptian." (Another possible source for this pyramidal form over the door between the two lateral walls of the pavilions could be the triangular opening above the door at the Treasury of Atreus. Published in the 1830 supplementary volume of Antiquities of Athens, this form is not stepped, but simply pyramidal, with the ends of the succeeding courses of stone cut at a diagonal.¹²³ It is interesting that the text accompanying this plate compares this triangular relieving arch to similar forms in the entrances to the pyramids in Egypt.¹²⁴)

The interior hall of the prison must have been a dramatic space, an "Egyptian Hall."¹²⁵ Flanked on each side by the forty-inch high raised platforms supporting Egyptian columns, the main section of the hall was at the level of the street, and was paved with cobblestones. Rising from the platform, the five columns on each side supported an

entablature and second-floor balcony, and, above the columns, an upper tier of piers to the ceiling. Light entered the narrow, vertical space from the pyramidal window at the front of the building, and also from skylights in the roof. There may have been skylights in the flat roof deck as well, bringing further light into the space.

Beyond the front hall, the Egyptian motif was minimal, and the detail of the building tended to the utilitarian. Woodwork in the front house appears to have been somewhat crude and heavily scaled -- perhaps, in large part, a product of inmate labor and therefore necessarily simpler than the stone work, which was executed by skilled masons.¹²⁶ In the observatory, four cast iron columns supported the second floor, with its heavy load of reservoir, and were fluted Doric columns rather than Egyptian. Within the two original cell blocks, the cast iron balustrade for the stair and second-floor balcony had an unusual, proto-Ionic columnar form, with Aeolic volutes and a high wrapping base of long thin leaves. (Similar balusters may have been used in the cell blocks in Eastern Penitentiary that Haviland was building at this time.)

The front hall itself, unfortunately not known to be recorded in any photographs or drawings despite its survival through the 1930's, must have been an interior space of great drama and power. While its arrangement is evocative of the hypostyle halls of Egyptian temples, it is probably derived from the tradition of the "Egyptian Hall" dating back to Vitruvius. Nourished by Palladio and the English Palladians, the concept was still current in the nineteenth century. In Joseph Gwilt's 1826 translation of Vitruvius' Ten Books of Architecture, the description

of the Egyptian oecus or hall was compared to that of the Corinthian hall:

There is this difference between the Corinthian and Egyptian oecus. The former has a single order of columns, standing either on a podium or on the ground, and over it architraves and cornices, either of wood or plaster, and a semi-circular ceiling above the cornice. In the Egyptian oecus, over the lower columns is an architrave, from which to the surrounding wall is a boarded and paved floor, so as to form a passage round it in the open air. Then perpendicularly over the architrave of the lower columns, columns one fourth smaller are placed. Above their architraves and cornices they are decorated with ceilings, and windows are placed between the upper columns. Thus they have the appearance of basilicae, rather than of Corinthian triclinia.¹²⁷

Palladio provided further material for the design of the Egyptian Hall, besides establishing a more specific connection between Egyptian architecture and the basilica as hall of justice and, perhaps, by extrapolation, the prison. Issac Ware's 1738 translation of Palladio provides not only an illustration of a two-tier hall, but also this interesting note:

The following design is of the Egyptian halls, which resembled Basilica's very much, (that is, places where justice was administer'd)....¹²⁸

Interestingly, when Haviland's design for the Tombs was made public in New York in 1835 -- the Tombs being his second Egyptian Revival design -- a reporter described the new project as "a basilike, or house of detention."¹²⁹

Thus, it seems probable that Haviland's interior hall at Trenton, with its double tier of columns, its second-floor balcony, and its windows connecting the second floor rooms to the open space, was not only a reference to the traditional idea dating back to Vitruvius, but a purposeful reference to the alleged relationship between the Egyptian

Hall and the basilica, which was described by Palladio as the place where justice was administered. While most speculation on the original inspiration for Haviland's design naturally centers on the exterior of the Egyptian Revival building, this interior hall may, in fact, have provided the initial connection between Egyptian architecture and the penitentiary. Although Vitruvius' and Palladio's "Egyptian Halls" have no particularly Egyptoid characteristics, Haviland's historical interest may well have carried him from the design of the interior columniated hall to the study of Egyptian Halls, and from there to the analysis of Egyptian precedents for the building's style itself.

VI. THE EXPERIMENT

While the Trenton prison was acclaimed at the time of its construction as the best of the nation's new penitentiaries, and was visited by scores of travellers from the U.S. and abroad, the building's subsequent history barely fulfilled the dreams of the commissioners, legislators, or architect. Unpredicted situations or conditions naturally arose over the years, necessitating changes, but the basic fact of the prison's early history was that it was still, essentially, an experiment when it was constructed. Proponents of the rival Pennsylvania and Auburn systems made great claims for each's strength and for the other's weakness, but, at the time of the construction of the New Jersey prison, the Eastern State Penitentiary was the only existing facility planned for solitary confinement. As we have seen, Haviland made numerous changes and improvements between Eastern Penitentiary and the New Jersey Penitentiary, changes which were of necessity, experimental.

The experiment was closely watched, not only by the advocates of the rival system, but also by the inspectors appointed to oversee the prison, by the warden, doctor, and "moral instructor" of the prison, and by the visitors who came to observe the system in action. Rarely does one encounter as thorough a documentation of a building's operation. The problems were recorded, the health of the inmates studied, and the effectiveness of the system analyzed.

The institution which Haviland assumed to be a perfectly functioning operation, to be housed in a clearly organized building,

was naturally dependent on the direction of its members for successful operation. As the quality, intentions and ideals of the prison's keepers and the inspectors varied, so did the operation of the institution. Thus, we find, in the years following Haviland's building, changes which called into question not simply the structure itself, but also, ultimately, the penological system. As Rothman observed, after the grand visions of the 1820's and 1830's, all too often, the ideals of reformation and reconciliation were replaced by the fact of incarceration.¹³⁰

At the same time, of course, the architecture was essential in any "successful" operation of the prison. As the Pennsylvania Journal of Prison Discipline and Philanthropy noted,

We must remember that however wise and humane may be the system of discipline, the success of its administration depends very much on the science and judgment of the architect.¹³¹

The architect had to provide an organization and mechanical system that worked. Even were this achieved, however, there remained the question of whether the system itself worked.

Solitary confinement placed tremendous demands on the building, and on the prisoners. According to the theorists of the Pennsylvania system, incarceration was not actually "solitary" but "separate". The intent, they argued, was not to remove the inmate from all human contact altogether, but to remove him from "evil" society. There was to be a steady stream of visitors who might help the inmate reform -- "proper" visitors such as ministers, teachers, and other generous, concerned volunteers. Reformation was based upon an enlightened diet of bible instruction, philosophical discussion, and noble sentiments.

Yet it was much easier to put money into brick and stone, than to allocate funds for such essential educational operations -- especially after the money had already been spent on construction. Thus, in 1837, the second year of operation, the Inspectors sought funding for a prison library:

...we respectfully hope, that where tens of thousands have been lavished upon exterior decorations for the noble edifice, in which these unfortunate and misguided men are incarcerated; a sufficient amount of their own earnings will be cheerfully appropriated to afford them such moral and religious culture...¹³²

The funds for such purposes tended to be slow in coming -- easy to postpone for the next legislature. Volunteers played a necessary role, most notably Dorothea Dix, who was responsible for raising money to expand the library, and to hire an instructor in 1845. Since Dix was such a well-known reformer, the keeper's report for 1845 is of interest. He wrote that

Among those that have labored for the amelioration of our prisoners, I must not omit to mention Miss Dix, a name endeared to all who feel interested for the afflicted or unfortunate. The lady visited the greater part of the prisoners in their cells, and finding that our library was insufficient, she determined on supplying this deficiency, and the prisoners are now enjoying the addition of about five hundred volumes to the prison library, furnished by the personal efforts of this lady, with funds contributed principally by some of our own most esteemed citizens in the eastern part of the state, to whom she applied. But not content with this, she next devoted her efforts to benefit that most unfortunate class among our prisoners, those that could not read. Of these there were then in the building about forty-eight.¹³³

Visitors were not always so beneficial, though, when there were visitors at all. Thus, as a result of the contract labor system

that provided employment for the prisoners and revenue for operating the prison, agents of contractors visited the cells regularly. These men were not aiming to "rehabilitate" the prisoner so much as to encourage active manufacturing, and in 1843 the keeper reported that an "improper trade" was developing between agents and inmates.¹³⁴

The efforts expended in rehabilitation, however, appear to be limited, despite the system's ideals. They were primarily religious in tone, with local ministers preaching in the halls. One writer described how he had crept around in his stocking feet while a minister was preaching to the open outer doors of the cells, and had seen the inmates with their ears glued to the inner door's opening, listening intently.¹³⁵ Soon, however, the necessity to repeat a sermon for each cell block, and the uneven acoustics in the halls, brought about demands for a chapel. As the discouraged "moral instructor" wrote in 1861, "I look in vain for temple or altar, a chapel or Sunday school room":

I look in vain for any structure or contrivance, however rude, to indicate that these convicts have a moral nature susceptible of improvement, and a soul that must exist forever in happiness or misery, unless, indeed, we except the heathen hieroglyphics which ornament the front of the edifice.¹³⁶

(A chapel was finally built by 1897, suitable for a school room during the week.)

While the system originally called for more active associations of a proper nature, it nevertheless called for confinement within the single cell. Try as Haviland might to make this cell a healthful environment, his task was difficult. Moreover, he perhaps fatally compounded

the difficulty when he argued that exercise yards were unnecessary. It appears that Haviland made this decision solely on economic grounds, and justified it by the improvements in the cell;¹³⁷ whether he was initiating the proposal or executing someone else's idea is unknown. Perhaps experience at Eastern Penitentiary had led its keeper, Samuel Wood, to decide that the yards could be omitted (though the later two-story cell blocks there at least incorporated 1st floor exercise yards). Haviland clearly believed that the yards were unnecessary, however.

The observations of physician, inspectors, and keeper illustrate the experimental nature of the system. In 1838, after two years of use, the physician, James Coleman, seriously questioned the system of solitary confinement, asking not just whether the building worked, but

whether being debarred from open air, sun light, and
suitable exercise, does not produce derangements...
of a peculiar nature.¹³⁸

The doctor specifically noted that some of the cells were worse than others: that some received less light than others, that some were damper than others, and that cells in the one section, where a different ventilation device had been worked out to prevent communication among inmates, were not well ventilated.

Focusing on the effects of confinement, he questioned the mental and physical condition of the inmates. He cited a debilitated intellect, leading in some cases to "imbecility," and also noted examples of "mental derangement" resulting from onanism. "It is," he wrote, "the vice of solitary confinement." He noted pale complexions, "obscure pains," and a "tendency to glandular obstruction." There were, he concluded, diseases "peculiar to the prison," which "must be regarded as the effect

of solitary confinement such as obtains in the New Jersey Penitentiary."¹³⁹

The small amount of sunlight penetrating the cells, though a lot compared to other prisons, was not much for twenty-four hour confinement. Moreover, the cells on the north side simply missed out even on that direct sun. Ventilation, apparently never great despite Haviland's flues, became more of a problem when prisoners closed up the ventilators in the winter to prevent cold air from entering the inadequately heated cells. The physician argued that

Confinement in a small unventilated room will produce anywhere, and on almost any animal, the very effects that have been observed in our penitentiary.¹⁴⁰

In 1838, by provision of a new act of the legislature, prisoners whose health required more sun and air were allowed employment in the yards and gardens of the prison, inside the walls. (The gardens, and the property in front of the prison, were primarily tended by a gardener employed by the penitentiary.) Other ill prisoners simply walked in the yard, under supervision. In 1841, the fixed windows were opened, in order to provide better ventilation "and in proportion to the change of air, have the prisoners improved in health."¹⁴¹ After such changes, Coleman could write, stating the obvious, that

It is conclusive that confinement in cells is not as conducive to health as that imprisonment which admits more air and sunlight to the convict.¹⁴²

The inspectors, while affirming their belief that the solitary system was the best, realized that the claims that had been made were unrealistic.

They wrote

The system cannot, under any management, produce the unnatural results that have frequently been claimed by its advocates.¹⁴³

Coleman expressed his belief in the value of the Pennsylvania system in 1841, provided that it included "a little more intercourse... and a little more air in the yard...."144

Besides finding that one small window did not bring adequate light into a cell where a person was confined twenty-four hours a day, and that more fresh air was necessary than that provided by Haviland's ventilating shafts, the inspectors found that the advanced hot water heating system was inadequate. It is difficult to determine how much this problem might have been remedied were someone more familiar with servicing and adjusting such a system.

By 1839, after three years of operation, the warden reported that there was not sufficient heat in the coldest weather, as a result, he believed, of the pipes being too small. He accordingly made alterations, but suggested that the entire "apparatus" be examined. The following year, the keeper attributed a low productivity in the prison's cell-based manufacturing to the cold. The physician argued that the cold was detrimental to the health.

He wrote critically of the heating system (though discussing ventilation more than heating):

One of the worst systems of heating is adopted in the prison, that of radiation from pipes. If a plan were devised for warming, without purifying an apartment, a more effectual mode could not be conceived. The same air may remain for days... for, owing to a deficiency of heat from the pipes, the ventilators are kept closed in the winter.... Heated air, as they cannot have fireplaces or stoves in their cells, is the only plan that ought to be resorted to....145

The following year, in 1841, alterations and additions costing \$10,000 were made, with experiments made with a hot air system, with a blower which would also provide "fresh breezes in summer."¹⁴⁶ However, it was not successful, and the hot water system remained in use. By 1846, ten years after the installation of the prison's heating system, the keeper reported that hot water heating was "generally condemned" and was being abandoned around the country.¹⁴⁷ The Trenton system was described as "old and liable to derangement," with the pipes often breaking. The physician advocated steam heating, and in 1849 the north wing was converted to steam.

Among the unanticipated problems with the hot water system were one related to the operation itself and one related to its use in a prison. Apparently the system had to be shut down for several hours a day to rekindle the furnace, and this led to inadequate heat in coldest weather.¹⁴⁸ Also, the pipes were conductors of sound. Haviland had chosen hot water in part because he expected fewer problems of this type than with hot air,¹⁴⁹ but it turned out that the pipes were, in the words of the "Moral Instructor," virtual "speaking trumpets for the conveyance of sound."¹⁵⁰ This was undesirable not just because it permitted inmates to communicate with one another, but also because such conversations could not be detected.¹⁵¹ In 1869, "important" alterations were made in the method of heating one of the wings, perhaps indicating the end of the hot water system altogether, and the triumph of steam.

It is interesting, though, that two years after this, in 1871, the legend of the hot water system's efficiency was still being told,

along with that of the ventilating system, and the plumbing. In that year, John Raum's History of the City of Trenton repeated the story that had first appeared in 1844:

The prison is warmed by tubes of hot water, passing through the cells. In the coldest weather the cells can thus be warmed to a temperature of sixty-five degrees. They are ventilated by apertures in the exterior walls, and also by a flue from each cell to the top of the roof.

The air is pure, the outlet pipes perfectly ventilating the building. These pipes are cleaned by water, about fifteen thousand gallons being used daily for that purpose.¹⁵²

A strong argument against solitary confinement was thus presented by the effects of such incarceration on the inmates, and by the difficulty of servicing the cells adequately for such confinement. Considering the original rehabilitative intent of the Pennsylvania system, the prison physician wrote in 1845:

To shut a man up alone in a narrow, imperfectly ventilated, and poorly lighted cell, with a view to reformation of mind, paramount to all other considerations, for him there to work out a change of feeling in the gloom of solitude, embittered by recollections of the past, and paralyzed by the prospect of the future, this condition was most effectual to drive him mad, or reduce him to imbecility; besides inducing organic diseases almost incurable.¹⁵³

A similar attack on the Pennsylvania system had been launched by advocates of the Auburn system, and also, most notably, by Charles Dickens in his Notes on America. Although others, including Dix and even the British Consul-General in Philadelphia, challenged Dicken's objectivity, reports such as the Trenton physician's confirmed the weakness of the system.¹⁵⁴

However, it was not these reports which led to the eventual downfall of the Pennsylvania system at Trenton. The most inexorable

challenge to the structure of the New Jersey State Penitentiary was simply numbers -- the steady increase in the number of inmates. Although Haviland's proposal had incorporated plans for the expansion of the building, this did not commit the legislature to allocate funds. At the beginning of operations, since Haviland's two radial wings encompassed more than the authorized number of cells, only 150 cells had been finished; the second floor of the south wing was left incomplete. In 1837, the first year of operation, there were only three vacant cells among those that had been finished, so that the upper level of cells had to be completed. This provided a total of 192 cells, seven of which were used for shops, and only fifteen were empty at the end of the next year. The cause of this sudden crowding was a change in legislation, that sent prisoners from county jails to the prison for terms of less than one year. This year, only two years after opening the prison, the warden warned that without expansion, it would be impossible to retain the solitary system.¹⁵⁵

By 1845, the prison population had increased to 178. With a number of cells having been converted for storage, laundry and baking, some inmates had to share cells. By 1853 there were 217 prisoners, with no more cells than before. Such over-crowding was one reason that the keeper suggested establishing workshops in 1857 (thereby implicitly proposing a change to the Auburn system), for with two people in a cell it was too crowded for working. In 1858, two thirds of the cells had two prisoners. This crowding was contrary to the law demanding solitary confinement, and it led to an official change to the Auburn system. In 1859, every cell had at least two prisoners; some three.

The Joint Committee on the prison visited Albany to see the New York prison, and it endorsed the workshop system, recommending an appropriation of \$16,000 for a cell block and \$4000 for a workshop, "similar to the lock-up in the Albany penitentiary."¹⁵⁶ The cell wing, designed by Trenton architect Chauncey Graham and built by A. H. Patterson, was built for \$17,593 and housed 132 cells.¹⁵⁷ Though described as a "complete and well-built building," it did not have even the plumbing system of Haviland's earlier blocks, and was soon found to be unserviceable. It brought the total number of cells to 320, while the number of inmates had increased by now to 401. By 1866, there were at least two prisoners in every Haviland cell once again, and there was no way to fit more than one prisoner in the small Auburn-type cells of the new wing. Moreover, although the new wing had been intended for only night use, with convicts working out of the cell in the daytime, the lack of adequate work space necessitated twenty-four hour confinement in the tiny 4' x 7' cells. The new wing was so tight, without even room to install plumbing, that the physician recommended demolishing it and the Joint Committee said that the wing was a "disgrace" to "civilization and humanity."¹⁵⁸ (It was finally gutted and converted to a dining hall in 1919.) 596 prisoners were housed in the prison the next year, with only 200 large cells and 132 small ones. A special committee on prison discipline noted that some of the cells held as many as five inmates! While a wing for women was attached to the laundry block in 1868 at the cost of \$13,000, the commissioners made more extreme suggestions to deal with the over-crowding -- either to add more wings to cell blocks, or to build an entirely new prison.

The decision was to add more wings -- one wing authorized in

March of 1870, #1, designed by Robert P. Gallagher, to hold 176 prisoners according to the Auburn system. In 1877, Gallagher again was called for a plan for the prison's enlargement, described as "the best improvement... for the least money." This entailed the rebuilding of North Hall, Haviland's first cell block, from the foundations up, as an Auburn block. This provided 272 cells as rebuilt, but even after completion of this change, two or three prisoners were housed in each of the large cells remaining in Haviland's other wing, South Hall.

In 1895-96, Wing #6 was constructed. With all five radiating arms having been built by this time, the State finally abandoned not just Haviland's Pennsylvania system, but also his radiating plan. The new block was an extension of Wing #5, and broke through the south wall of the prison. It contained 200 cells. In 1907, one more wing was added, #7. This block contained 350 cells. Thus, by the early twentieth century, the prison included over 1200 cells, and, always, even more prisoners.

Other changes in the prison resulted from unanticipated laws or inadequate facilities. Already in 1837, because of a law forbidding prisoners to work outside the cell blocks, two of the "workshops" in the corners of the wing were converted for the baking and laundry. These functions had been located in the front house originally.

In 1838, it became necessary to provide in some way for the numerous visitors attracted to the prison. Therefore, a room on the first floor was equipped with a table and chair, and a doorman was employed to oversee all visitors and deliveries. Everyone entering the prison was to register and to have a permit. A bell was added to the prison this year.¹⁵⁹

In 1843, one of the cells was converted as a punishment (or torture) chamber, with a "neptune bath" installed. This replaced the use of the underground "dungeons" as a punishment. It was a mechanism for dousing a convict, fastened in a chair, with cold water.

By 1845, the physician strongly argued that a separate building should house the cooking and laundry facilities, since their odors and steam pervaded the cell blocks. He also recommended a separate hospital building. In 1846 the Joint Committee on the prison recommended this also, noting that

for the want of other accommodations, the ordinary cells of the prison are used for a wash room, bakery and store rooms; thus, from their small size, are in every way unfitted for the purposes to which they are applied; and also, the great heat necessarily kept up in the oven of the bakery, renders the adjacent cells extremely hot, and deprives the Prison of the use of them for the confinement of prisoners.

The offensive effluvia of the kitchen, which is in the center of the building, fills the halls, and must be extremely disagreeable to those who necessarily pass their time there in discharge of their duties.¹⁶⁰

The following year, a building was constructed for these purposes "in the most convenient, economical and satisfactory manner."¹⁶¹ It has been attributed to the Philadelphia architect, John Notman.¹⁶² The wing featured a vaulted corridor with rooms to one side, and was located to the south, parallel with the facade of the building, in one of the locations Haviland had planned.

The major addition planned in the mid-century was never built. It was a hospital wing, designed by the Philadelphia architect J. C. Hoxie in 1854.¹⁶³ The legislature authorized construction of this wing, not to exceed \$15,000, but the structure was not erected after bids came in

too high. Six years later, a small amount of space between the new wing, #3, and the center, was allocated for the hospital (this must have been on the second floor).

With the 1858 act to establish a congregate workshop, Haviland's plan was contradicted. The radiating arms were designed for total security, but now prisoners were to be in workshops during the day, not in the cell blocks. Furthermore, these workshops could only be located in the spaces between the radiating wings, where they would block the little air and light that was available to the cell blocks. Thus, from 1855 onward, the prison began to assume the character of the old prison, which had been so actively condemned in the early 1830's. Buildings were added as needed, sometimes erected at the expense of the company that contracted for the prisoners' labor. Frame and brick buildings were constructed, followed by the stone structures that remain today. They tended to be bare utilitarian workshops, such as that built in 1858, a two-story building measuring 30' by 60', costing only \$1200.

In 1863 a shoe shop and blacksmith shop were constructed, with \$65 paid to C. Graham, architect (probably Chauncey Graham, the Trenton architect who had designed wing #3). In 1869, a new shop was built outside the south wall, a large building to hold 500-600 inmates. Designed by Robert P. Gallagher, it was built outside the former prison enclosure so that the existing shop could be moved in order to make room for the new cell block, #1, also by Gallagher. Its construction outside might have been encouraged by the fire of 1868, which burned the blacksmith shop and two-thirds of the roof of South Hall. The erection of a new central tower on the back of the front house roof became necessary at

this time in order to provide for greater surveillance.

Throughout the rest of the nineteenth century, uses changed and additions were made. City water was introduced to replace well water after the 1868 fire, but by 1892 pipes were laid from the well to South Hall again to provide for less expensive water. The room over the center, formerly a reservoir, was converted for the hospital in 1875. The walls of the prison were extended in 1884, in order to enclose the new shops and a larger area of ground. A separate hospital was built in 1887. The keeper's apartment was finally moved out of the front house, after years of complaints, to a new house across the street. And in 1919, wing #3 was finally remodelled for a dining hall.

All in all, however, this construction following the conversion to the Auburn system was a matter of adapting a given plan for purposes that were not anticipated in it. Haviland's plan was essentially a rigid, orderly accommodation of a penitentiary on the system of solitary confinement. It was not designed for access to the outside yard, for supervision of inmates outside the cell blocks, or for the placing of a variety of subsidiary buildings throughout the lawn. Haviland's plan did anticipate expansion, but not of the scale or nature that occurred. As a consequence, the State found itself with a "tool" that was not adaptable to a new task. Abandoning the Pennsylvania system, New Jersey tried to accommodate the Auburn system in a Pennsylvania form. The result might have been anticipated. As Barnes wrote, the period of "bold originality and experimentation" was replaced by a long extended period of "compromise, and of forced alteration of old and outgrown institutions and systems."^{163a}

Thus, the building that stands in 1979 is the product of countless additions and alterations, of responses to existing conditions and to crises. The smoothly functioning penitentiary envisioned by the architect and commissioners in 1833, a building that was intended to reform its inmates and society both, became an over-crowded, over-worked structure within a matter of years. The flaws of the system and of the building were all too obvious, given the great expectations of the age. The building that exists today testifies to these original ambitions, and to the years of uncertainty and neglect that have followed.

VII. A MONUMENT

While still an untried experiment in 1834, the New Jersey State Penitentiary began its influential career. Visited by commissioners from Britain, France, Canada, and Brazil, among other countries, the prison was widely studied, published, and imitated.¹⁶⁴

As Norman Johnston has documented, the prison's influence was immediate and widespread:

On the basis of plans submitted by Haviland, which were essentially those of Trenton, Britain built a Model Prison in London, later known as Pentonville. As the result of commission reports and the success of this prison, the entire system was rebuilt with cells totaling 24,000. Likewise in colonies from Hong Kong to Burma, similar prisons went up.¹⁶⁵

In 1844, Frederick William IV and his architect visited Pentonville, and returned to build a model prison based on it in Berlin -- a second-hand version of Trenton.¹⁶⁶ And as late as 1904, the first of the new Japanese-built prisons in China "consisted of three five-wing arrays reminiscent of Trenton."¹⁶⁷

This influence of the New Jersey State Penitentiary plan is of particular interest because it may represent the first time that an American building influenced a European building. Although scholars have debated the question of when America was able to begin turning around the direction of influence, they appear to have generally overlooked the Trenton prison, as documented by Johnston. Thus, Henry-Russell Hitchcock proclaimed Eastern Penitentiary as the source for the Pentonville plan, and wrote that the Philadelphia prison was "the first transatlantic edifice to have real influence abroad."¹⁶⁸

However, as Johnston wrote,

...Although Cherry Hill is more famous, the European prisons patterned after the radial plan almost invariably appear in the form of the original Trenton prison plan, and it is this latter-day product of Haviland's experience that strictly speaking must be regarded as the prototype of so many radial prisons throughout the world.¹⁶⁹

Nevertheless, the prison plan and its influence have generally been omitted from studies of prison architecture, and of American architecture.¹⁷⁰

Published in Germany, France, and England, at least, the Trenton prison plan was certainly well known in the 1830's, and influenced un-built projects as well as built. Thus, in 1837, when the French architect Frederic Blouet designed a model prison on the Pennsylvania system, his plan was almost literally that of Trenton.¹⁷¹ Haviland was taken at his word when he wrote that the New Jersey penitentiary was

...the most worthy of imitation as possessing with simplicity and economy the most desired properties of an institution better calculated to carry the system into effect....¹⁷²

While its plan was immediately influential, the Trenton prison's style was far less so, despite its equal quality and innovation. As the first real Egyptian Revival building in the country, the prison surely showed that the style was capable of adaptation for large public structures, especially for prisons and halls of justice. It immediately influenced Thomas U. Walter's Moyamensing Debtor's Wing, an awkward Egyptian Revival structure which utilized the same style of columns as the Trenton prison's.¹⁷³ Walter's prison, perhaps because of its location in Philadelphia, became known as an example of the style, despite its lack of finesse.

On the other side of Trenton, Newark and New York soon boasted Egyptian Revival buildings. Designed by Haviland, these were both later exercises in style that he first developed in Trenton.¹⁷⁴ Although the "Tombs" was certainly less Egyptoid in feeling, being more like a classical building converted to Egyptian, it also was destined to become much better known.¹⁷⁵

Trenton, between Philadelphia, with its Eastern Penitentiary and Moyamensing, and New York with its "Tombs," has been in the shadow of better known buildings and cities. Its importance, however, clearly suggests that it merits equal standing with these more famous structures. In the influence of its plan, the priority of its style, and its overall design, the New Jersey Penitentiary was a major monument of nineteenth century architecture.

FOOTNOTES

(See Bibliography for complete references)

1. Rothman, p. xiv.
2. See for instance Helen Rosenau's Social Purpose in Architecture: Paris and London Compared 1760-1800. London, 1970. For prisons, see the works by Johnston, Ignatieff, and Foucault.
3. Both of these projects date from 1835. The date of the Debtors' Wing has often been incorrectly given as 1831 or 1832.
4. Carrott, The Egyptian Revival.
5. See Ignatieff and Rothman for this history.
6. Report of the Joint Committee on the Erection of a New State Prison. 1833, p. 145. (This and later annual reports on the prison, which are all found published in Votes and Proceedings of the General Assembly, will hence forth be listed as P.R., for Prison Reports.)
7. Rothman, p. 79.
8. The North American Tourist, p. 61.
9. P.R., January 1836, p. 67.
10. Rothman, p. 82.
11. Foucault, p. 239.
12. Quoted in Rothman, p. 84.
13. See article by Evans.
14. Bentham.

15. Soane, p. 178.
16. Milizia in 1785, quoted in Pevsner, "Prisons," p. 162.
17. Quoted in Johnston, The Human Cage, p. 26-27.
18. Benjamin Rush, Enquiry into the Effects of Public Punishments upon Criminals and Upon Society. Philadelphia, 1787. Quoted in Johnston dissertation, p. 212.
19. P.R., 1830-1833.
20. P.R., 1830, p. 12.
21. P.R., 1831, p. 99.
22. P.R., 1833, p. 143.
23. P.R., 1831, p. 99.
24. P.R., 1834, p. 23.
25. Governor's Message, 1833, p. 10.
26. P.R., 1830, p. 31.
27. Ibid.
28. Haviland Papers, IV, p. 58. (Henceforth H.P.)
29. P.R., 1831, p. 100.
30. Ibid.
31. Governor's Message, 1832, p. 17.

32. Ibid.
33. H.P., II, 292.
34. Quoted in Baigell, p. 271.
35. See Newcomb.
36. Elmes, Notes.
37. "John Haviland," Pennsylvania Journal of Prison Discipline, p. 98.
(Henceforth PJPD)
38. "Changes of the Pennsylvania System," PJPD, p. 37.
39. Quoted in Baigell, p. 271.
40. P.R., 1833, p. 152.
41. Ibid.
42. H.P., II, 303.
43. H.P., III, 92-94.
44. Johnston, Human Cage, p. 34. See also Johnston, "John Haviland, Jailer
to the World."
45. This is evident in Haviland's letters and reports on the building, as
quoted on page 18.
46. Johnston, "John Haviland, Jailer to the World," p. 105.
47. P.R., 1833, p. 143.
48. H.P., I, 19-29.

49. The development of the design of Eastern Penitentiary is discussed by Baigell and Johnston.
50. H.P., III, p. 81-82.
51. P.R., 1830, p. 12.
52. H.P., II, p. 303-304.
53. Baigell, p. 155-157.
54. H.P., II, p. 189.
55. Based on measurements accompanying the plan, H.P., III, p. 100.
56. Walter replaced Haviland on the job when irregularities in Haviland's books regarding the Naval Hospital led to a certain degree of scandal.
57. H.P., II, p. 291.
58. Crawford, p. 3.
59. Demetz and Blouet, pl. 31.
60. "New State Prison at Trenton."
61. Bradford, p. 4-5.
62. Ibid.
63. H.P., III, p. 280.
64. H.P., II, p. 340.
65. H.P., III, p. 81.

66. H.P., II, p. 303-304, Dix, p. 46.
67. P.R., 1838, p. 56.
68. Ibid., p. 82.
69. Barber and Howe, p. 288.
70. P.R., 1838, p. 40-41.
71. This system appears in the plans and sections published in Demetz and Blouet, pl. 32, 33.
72. Dix, p. 46.
73. P.R., 1841, p. 79.
74. The recent work of Ferguson and Bruegmann has not uncovered this early use of the system.
75. Franklin Institute Journal, XIV (July 1832), 45-49.
76. Ferguson, p. 166.
77. H.P., VI, p. 114.
78. H.P., III, p. 82.
79. H.P., III, p. 106.
80. H.P., VI, p. 114.
81. Barber and Howe, p. 287.
82. P.R., 1838, p. 62, ff.

83. See Roos, Peysner and Lang, and Carrott.
84. See Whiffen.
85. Carrott, chapter 4, p. 66, p. 119.
86. Carrott. p. 66.
87. This priority has not previously been discussed.
88. P.R., 1836, p. 71.
89. Haviland purchased the second edition for his library, H.P., IV, p. 93.
90. Carrott, p. 47.
91. Elmes, Dictionary, "Prison" (n.p.)
92. Elmes, Lectures, p. 72.
93. "Egyptian Architecture," American Quarterly Review, 1829.
94. Smith, A Defense of the System of Solitary Confinement, Philadelphia, 1833.
95. Ibid., p. 7.
96. Ibid., p. 21.
97. Ibid., p. 21.
98. P.R., Jan. 1833, p. 144.
99. Carrott's argument is based on the fact that the major Egyptian Revival prisons served the Pennsylvania system.

100. P.R., Jan. 1833, p. 152.
101. P.R., Jan. 1833, p. 151.
102. P.R., Oct. 1833, p. 42.
103. "Egyptian Architecture," American Quarterly Review, p. 14.
104. Quoted in Gaigell, p. 232.
105. Haviland, Biddle's Young Carpenter's Assistant, pl. 58.
106. H.P., II, p. 190.
107. P.R., Jan. 1836, p. 70.
108. P.R., Jan. 1836, p. 66.
109. P.R., Jan. 1836, p. 67.
110. P.R., Jan. 1836, p. 71.
111. P.R., Oct. 1833, p. 42.
112. Ibid., p. 42.
113. Ibid., p. 44.
114. H.P., III, p. 281.
115. P.R., Oct. 1834, p. 23.
116. P.R., Oct. 1833, p. 42.
117. Elmes, Hints, p. 14.

118. Roos, p. 222.
119. Elmes, Lectures, p. 77 (quoted in Baigell, p. 55)
120. Description, A. Vol. V, pl. 15.
121. G. B. Piranesi, Diverse Maniere d'adornare; cammini, pl. 24.
122. See, for example, the stepped pyramids illustrated in Norden.
123. Cockerell, Antiquities of Athens, Supplement, pl. I, III.
124. Ibid., p. 31.
125. The idea of the "Egyptian Hall" dates back to Vitruvius, as will be seen.
126. P.R., Oct. 1834, p. 27.
127. Vitruvius, p. 176.
128. Palladio, p. 45.
129. "Architectural Designs," The American Monthly Magazine, p. 160.
130. Rothman, chapter 10.
131. PJPD, reference lost.
132. P.R., Oct. 1837, p. 77.
133. P.R., Jan. 1846, p. 30.
134. P.R., Jan. 1845, p. 221.
135. Letter from Lucius Q. C. Elmer in Prison Discipline Society, 13th Annual Report, p. 44.

136. P.R., 1861, p. 14.
137. H.P., II, p. 303; 305.
138. P.R., Oct. 1838, p. 60.
139. Ibid.
140. P.R., Jan. 1841, p. 67.
141. P.R., 1841, p. 79.
142. P.R., 1839, p. 80.
143. P.R., Jan. 1841, p. 65.
144. P.R., Nov. 1841, p. 80.
145. P.R., Jan. 1841, p. 70.
146. P.R., March 1844, p. 348.
147. P.R., Dec. 1846, p. 26.
148. New Jersey Prison Reform Association, 1852 (Quoted in Barnes, p. 489).
149. H.P., III, p. 82.
150. P.R., 1855, p. 34.
151. P.R., 1851, p. 43.
152. Raum, p. 261.
153. P.R., Jan. 1846, p. 150.

154. See Foulke for some of the debate.
155. P.R., Nov. 1838, p. 35.
156. P.R., 1859, p. 454.
157. P.R., 1860, p. 857.
158. P.R., 1866, p. 1079.
159. P.R., 1838, p. 73.
160. P.R., 1846, p. 5.
161. P.R., 1847, p. 23.
162. See Greiff, John Notman, Architect.
163. P.R., 1854, p. 58.
164. The prison was published or discussed by Crawford, Demetz and Blouet, Neilson and Mondelet, and Julius, among others.
165. Johnston, "John Haviland, Jailer to the World," p. 101.
166. Ibid., p. 102.
167. Ibid., p. 104.
168. Hitchcock, p. 191. This conclusion was based on that of Hamlin, in 1944, p. 72.
169. Johnston, dissertation, p. 215.
170. See, for instance, Pevsner's History of Building Types on "Prisons."

171. Demetz and Blouet, pl. 45.
172. H.P., III, p. 92-94.
173. Although this building has been dated as early as 1831, because of confusion between the prison itself and the debtors' wing, Robert Ennis reports that the Egyptian debtors' wing was designed in 1835.
174. The New York City Halls of Justice and House of Detention, or the "Tombs," is dated 1835-1838; The Essex County Courthouse in Newark, 1836-1838.
175. This was perhaps the most famous Egyptian Revival structure ever built, no doubt largely due to its immense size and its location in New York City.

BIBLIOGRAPHY

Manuscripts

Bowen, D. C. "Trenton City: Special Investigation of the New Jersey State Prison." 1917. Copy at Newark Public Library.

Haviland, John. Papers. Deposited in the University of Pennsylvania Library by the Somerset County Archaeological and Natural History Society, Taunton, England.

"New State Prison at Trenton." Manuscript in Board of Alderman Papers, Committee on the House of Detention, 1835. New York City Municipal Archives.

Articles

"Architectural Designs." The American Monthly Magazine, V (April 1835).

Bruegmann, Robert. "Central Heating and Forced Ventilation: Origins and Effects on Architectural Design." Journal of the Society of Architectural Historians, XXXVIII (October 1978).

"Changes of the Pennsylvania System." Pennsylvania Journal of Prison Discipline, II (1846).

"Egyptian Architecture." American Quarterly Review, V (March 1829).

Evans, R. "Bentham's Panopticon." Architectural Association Quarterly, (August 1971).

Ferguson, Eugene S. "An Historical Sketch of Central Heating: 1800-1860." Chapter 10 in Building Early America, edited by Charles E. Peterson. Radnor, Pa., 1976.

"John Haviland." The Pennsylvania Journal of Prison Discipline, VII (July 1852).

- Johnston, Norman B. "John Haviland, Jailer to the World." Journal of the Society of Architectural Historians, XXIII (May 1964).
- Johnston, Norman B. "Pioneers in Criminology: John Haviland (1792-1852)." Journal of Criminal Law, Criminology, and Police Science, XLV (Jan. - Feb. 1955).
- Kimball, Fiske. "John Haviland" in Dictionary of American Biography, ed. by Dumas Malone. New York, 1932.
- Markus, Thomas A. "Pattern of the Law" Architectural Review, CXVI (Oct. 1954).
- Newcomb, Rexford, "John Haviland - Early American Architectural Specialist." The Architect, II (December 192B).
- Pevsner, Nikolaus and S. Lang. "The Egyptian Revival." in Studies in Art, Architecture and Design by Nikolaus Pevsner. London, 1968. (originally published 1956).
- Pevsner, Nikolaus. "Prisons," Chapter X in his A History of Building Types. Princeton, 1976.
- Roos, Frank J., Jr. "The Egyptian Style." The Magazine of Art, XXXIII, (April 1940).
- "Views in Trenton, New Jersey." Ballou's Pictorial Drawing Room Companion, VIII (May 26, 1855).

Books and Dissertations

- Baigell, Matthew E. "John Haviland." Unpublished Ph.D. dissertation, Department of Fine Arts, University of Pennsylvania, 1965.
- Barber, John W. and Henry Howe. Historical Collections of The State of New Jersey. New York, 1844.
- Barnes, Harry Elmer. A History of the Penal, Reformatory and Correctional Institutions of the State of New Jersey. Trenton, 1918.

- Bentham, Jeremy. Panopticon Papers. London, 1791.
- Bradford, Thomas, Jr. Sixth Annual Report of the Inspectors of the Eastern State Penitentiary. Philadelphia, 1835.
- Carrott, Richard G. The Egyptian Revival: Its Sources, Monuments and Meanings, 1808-1858. Berkeley, 1978.
- Cockereil, C. R., et. al. Antiquities of Athens. Supplemental Volume. London, 1830.
- Commissioners to erect the new State Penitentiary. Reports. 1833 (Jan., July, October), 1834 (Oct.), 1836 (Jan.). Published in Votes and Proceedings of the General Assembly of the State of New Jersey.
- Crawford, William. Report on the Penitentiaries of the United States. 1834. Reprinted in British Parliamentary Papers: Crime and Punishment, Prisons. Shannon, Ireland, 1968.
- Demetz, M. and M. G. Abel Blouet. Rapports a M. le Comte de Montalivet sur les Penitenciers des Etats - Unis. Paris, 1837.
- Description de l'Egypte. Paris, 1821-29, second edition.
- Dix, D. L. Remarks on Prisons and Prison Discipline in the United States. Philadelphia, 1845. 2nd Ed.
- Elmes, James. A General and Bibliographical Dictionary of the Fine Arts. London 1826.
- _____. Hints for the Improvement of Prisons. London, 1817.
- _____. Lectures on Architecture. London, 1823.
- Foucault, Michel. Discipline and Punishment: The Birth of the Prison. New York, 1979 (originally published 1975).
- Foulke, William Parker. Remarks on Cellular Separation. Philadelphia, 1861.

Governor's Message to Members of the Legislative Council. 1831-1835. Published in Votes and Proceedings of the General Assembly.

Greiff, Constance M. John Notman, Architect. Philadelphia, 1979.

Hamlin, Talbot. Greek Revival Architecture in America. London, 1944.

Haviland, John. An Improved and Enlarged Edition of Biddle's Young Carpenter's Assistant. Philadelphia, 1833.

_____. Proposal to construct the New State Penitentiary. January 1833. Published in Votes and Proceedings of the 57th General Assembly.

_____. Reports on the Construction of the new State Prison. Oct. 1833; Oct. 1834; Jan. 1836. Published in Votes and Proceedings of the General Assembly.

Hitchcock, Henry-Russell. Early Victorian Architecture in Britain. New Haven, 1954.

Ignatieff, Michael. A Just Measure of Pain: The Penitentiary in the Industrial Revolution, 1750-1850. New York, 1978.

Johnston, Norman Bruce. "The Development of Radial Prisons: A Case Study in Cultural Diffusion." Ph.D. dissertation, Sociology, University of Pennsylvania, 1958.

_____. The Human Cage: A Brief History of Prison Architecture. New York, 1973.

Joint Committee to Settle the Accounts of the State Prison. Reports. Beginning 1830. Published in Votes and Proceedings of the General Assembly.

Julius, N. H. Nordamerikas Sittliche Zustände. Leipzig, 1839.

Lee, Francis Bazley. History of Trenton, New Jersey. Trenton, 1895.

- Neilson, John and Dominique Mondelet. Report of the Commissioners . . . to visit the United States Penitentiaries. Quebec 1835.
- New Jersey Prison Instruction Society: First Annual Report. Trenton, 1833.
- New Jersey State Prison Reports. Annual reports of Keeper, Inspectors, Physician, and Moral Instructor, to the State Legislature, Published annually as part of Votes and Proceedings of the . . . General Assembly of The State of New Jersey. Separate copies of the reports are bound together in the New Jersey State Library.
- Norden, Frederic Lewis. The Antiquities, Natural History, Ruins, and other Curiosities of Egypt, Nubia, and Thebes. London, 1780.
- The North American Tourist. New York, 1839.
- Palladio, Andrea. The Four Books of Architecture. New York, 1965, (Reprinting of 1738 Issac Ware edition).
- Prison Discipline Society of Boston. 13th Annual Report. 1838.
- Raum, John O. History of the City of Trenton. Trenton, 1871.
- Rothman, David J. The Discovery of the Asylum: Social Order and Disorder in the New Republic. Boston, 1971.
- Smith, George Washington. A Defense of the System of Solitary Confinement. Philadelphia, 1833.
- Soane, Sir John. Lectures on Architecture. London, 1929.
- Vitruvius, Marcus Pollio. Ten Books of Architecture, translated by Joseph Gwilt. London, 1826.
- Whiffen, Marcus. American Architecture Since 1780: A Guide to the Styles. Cambridge, Mass., 1969.
- Woodward, Major E. M. and John F. Hageman. History of Burlington and Mercer Counties, New Jersey. Philadelphia, 1883.

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November 13, 1987

ADDENDUM TO:
NEW JERSEY STATE PRISON
Second & Federal Streets
Trenton
Mercer County
New Jersey

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