many of which Ramenofsky discusses.

Disease-induced population decline began in the 16th century in the Lower Mississippi Valley, a conclusion that supports Henry Dobyns's controversial work on Florida Indians (*Their Number Become Thinned*, University of Tennessee Press, 1983). This process was initiated in the 17th century in central New York and the Middle Missouri Valley, although Ramenofsky believes that population decline may have started a century earlier. This possibility could not be evaluated with available data. In any event, the earliest historical censuses record greatly diminished populations. Ramenofsky estimates the North American precontact population as over 12 million, although the calculation procedure is not described.

These data when combined with those of other researchers represent a clear argument for demographic and cultural collapse far in advance of the Colonial-era penetration of the continent. Ramenofsky focuses on the spread of new pathogens through virgin-soil populations, resulting in high mortality and an eventual amalgamation of formerly separate groups. Protohistoric demographic collapse, however, was undoubtedly a more complex process than is outlined in her book, which despite a claim to the contrary is not the first application of epidemiological models to postcontact North America. Additional attention should be directed toward the synergism between nutrition and infection, the nature of social and natural barriers that would have interfered with the spread of diseases, particularly acute crowd infections, as well as the short- and long-term consequences of high-mortality diseases on societies that differed in organizational complexity, population distribution, subsistence security, and intergroup relations. In addition, the impact of indigenous diseases, specifically tuberculosis and one of the treponematoses, cannot be dismissed easily given their debilitating effect on stressed populations, such as those repeatedly subjected to a suite of newly introduced pathogens and experiencing pervasive social disintegration.

Ramenofsky succeeds in calling attention to the quite early and catastrophic loss of human life following European discovery of the Americas. More sophisticated epidemiological and cultural models, finer chronological controls, rigorously collected and analyzed archeological data, and a greater sensitivity to the subtleties of regional prehistoric sequences are needed to address adequately the issues raised in this book.

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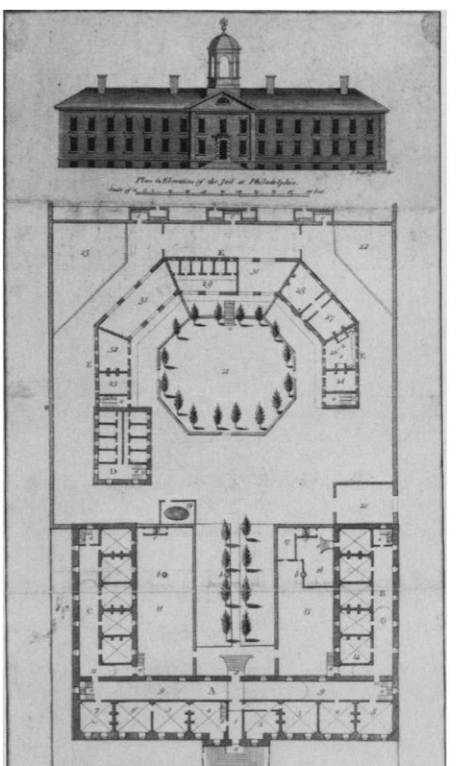
Historical Remains

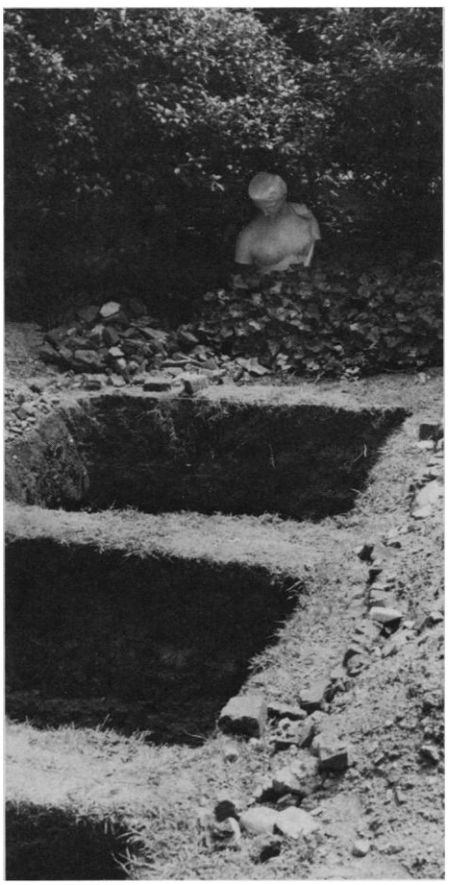
The Walnut Street Prison Workshop. A Test Study in Historical Archaeology Based on Field Investigation in the Garden Area of the Athenaeum of Philadelphia. JOHN L. COTTER, ROGER W. MOSS, BRUCE C. GILL, and JIYUL KIM. The Athenaeum of Philadelphia, Philadelphia, 1988. 95 pp., illus. Paper, $7.50.

Always in historical archeology there is the question "What do we know from the excavation that we did not know before, that we also find interesting?" The excavation at the Walnut Street Prison Workshop not only provides answers but demonstrates the methods of detailed analysis that are crucial to proper use of historical archeology.

The Walnut Street Prison was erected in 1775 by the city of Philadelphia, near Independence Hall, as a new and model gaol for reforming, not just incarcerating, prisoners. The building was designed by Robert Smith, a leading architect, was used by the British during their occupation of Philadelphia as a place to let American prisoners of war die, became the prison it was intended to be after Independence, and was worn out and torn down by 1835. Pictures and plans survive, so the appearance of the building as a conventional colonial public structure is available. The interior plan of the prison and the 1790s workshop associated with it make most of the internal arrangements clear. The



Plan and elevation of the Walnut Street Prison. [From *The Walnut Street Prison Workshop*]



Part of the excavation of the Walnut Street Prison Workshop. [From *The Walnut Street Prison Workshop*]

Philadelphia Athenaeum was built on the prison location around 1845, and its garden sits over part of the prison workshop and thus has preserved the only archeological record of the prison.

The idea of reform behind the prison design was associated with Quaker philosophy as well as with early American social philosophy. Prisoners were to help earn their keep by learning and practicing a trade—nail-making and stone-sawing and polishing, for instance—which netted them some income and taught them a skill useful after their term. The Walnut Street Prison is compared briefly with the Public Hospital for the mentally ill built at the same time in Williamsburg, which looked rather like it on the outside. The hospital's philosophy, implemented a little later and derived partly from practices in Philadelphia, involved the use of music, games, and dance to ease insanity. Both asylums were a product of the Enlightenment. But how do we know what went on in the Philadelphia prison? The authors cite a small amount of textual evidence, but not really enough to hear from the prisoners themselves, if that were even possible. They cite the low rate of recidivism recorded in the prison's official records.

Then they demonstrate that archeologically the workshops are much closer to domestic environments than to any other form known archeologically, including anything military or from a deprived environment. They discover this by comparing the artifact assemblage, whose limitations are fully described, with Stanley South's artifact patterns. The ratio of plates, glass, bottles, bricks, bones, nails, and kitchenware is virtually identical to that expected from a house site. Inferred from this pattern is a routine of domestic living analogous to that found not in a military fort with its strict discipline or on a frontier with its deprivation but in a setting with rules analogous to, though not identical with, those of the home. The careful comparison of artifact patterns thus shows that at the level of reality as lived—not philosophized—the workshop was the environment for resocialization that many new American institutions were intended to be.

The post-Revolutionary era was one of much confusion and instability in the institutions of the new United States, as is apparent in "After the Revolution, 1790–1830," a well-researched and now much-celebrated exhibit at the National Museum of American History. We can see, however, from the Prison Workshop that some social experiments worked, and why. We can see that this is dramatically different from what we believe to be the effect of our prisons now.

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Books Reviewed in *Science* 22 May 1986 through 13 May 1988

The Academic Profession, B. R. Clark, Ed., 19 Feb. 1988, 922
Academics in Court, G. R. LaNoue and B. A. Lee, 5 Feb. 1988, 656
Advances in Chronobiology, J. E. Pauly and L. E. Scheving, Eds., 17 July 1987, 307
Advances in Nuclear Science and Technology, vol. 19, J. Lewins and M. Becker, Eds., 4 Sept. 1987, 1238
Advances in Physiological Research, H. McLennan *et al.*, Eds., 20 Nov. 1987, 1154
Aeolian Geomorphology, W. G. Nickling, Ed., 29 May 1987, 1126
The African Frontier, I. Kopytoff, Ed., 1 April 1988, 88
The Analysis of Starlight, J. B. Hearnshaw, 14 Aug. 1987, 783
The Ancestry of the Vertebrates, R. P. S. Jefferies, 12 June 1987, 1476
And the Band Played On, R. Shilts, 26 Feb. 1988, 1039
Animal Evolution in Changing Environments, R. Matsuda, 15 Jan. 1988, 300
Apes of the World, R. H. Tuttle, 22 May 1987, 1004
The Archaeology of Animals, S. J. M. Davis, 6 Nov. 1987, 833
The Archaeology of Western Iran, F. Hole, Ed., 1 April 1988, 87
Arthropod Brain, A. P. Gupta, Ed., 29 April 1988, 668
Behavioral Biology of Killer Whales, B. C. Kirkevold and J. S. Lockard, Eds., 10 July 1987, 204
Beyond the Gene, J. Sapp, 15 Jan. 1988, 299
Beyond the Laboratory, P. J. Kuznick, 18 Dec. 1987, 1739
Bhopal, P. Shrivastava, 22 May 1987, 979
The Biology and Evolution of Lungfishes, W. E. Bemis *et al.*, Eds., 25 March 1988, 1547
The Biology of Marine Fungi, S. T. Moss, Ed., 31 July 1987, 543
The Biology of the Honey Bee, M. L. Winston, 11 Dec. 1987, 1591
Brought to Bed, J. W. Leavitt, 23 Oct. 1987, 556
Calcium in Muscle Activation, J. C. Rüegg, 9 Oct. 1987, 223
The Care of Strangers, C. E. Rosenberg, 1 Jan. 1988, 79
The Changing Humors of Portsmouth, J. W. Estes and D. M. Goodman, 21 Aug. 1987, 924
The Changing Samoans, P. T. Baker *et al.*, Eds., 3 July 1987, 87
Coevolution and Systematics, A. R. Stone and D. L. Hawksworth, Eds., 24 July 1987, 441
The Cognitive Revolution in Psychology, B. J. Baars, 26 June 1987, 1683
The Collected Papers of Albert Einstein, vol. 1, J. Stachel, Ed., 29 Jan. 1988, 510
The Competitive Challenge, D. J. Teece, Ed., 11 March 1988, 1320
Consciousness and the Computational Mind, R. Jackendoff, 25 March 1988, 1546
Contemporary Marriage, K. Davis, Ed., 18 March 1988, 1434
Continental Extensional Tectonics, M. P. Coward *et al.*, Eds., 4 March 1988, 1185
The Control Revolution, J. R. Beniger, 22 May 1987, 970
Controlling Life, P. J. Pauly, 17 July 1987, 305
The Correspondence of Charles Darwin, vol. 2, F. Burkhart and S. Smith, Eds., 22 May 1987, 988
Cultural Literacy, E. D. Hirsch, Jr., 22 May 1987, 973
Current Topics in AIDS, vol. 1, M. S. Gottlieb *et al.*, Eds., 23 Oct. 1987, 558
The Cuvier-Geoffroy Debate, T. A. Appel, 22 Jan. 1988, 421
Dark Matter in the Universe, J. Kormendy and G. R. Knapp, Eds., 3 July 1987, 86
Darwin and the Emergence of Evolutionary Theories of Mind and Behavior, R. J. Richards, 8 Jan. 1988, 198
Development as an Evolutionary Process, R. A. Raff and E. C. Raff, Eds., 10 July 1987, 203
The Development of American Physiology, W. B. Fye, 7 Aug. 1987, 665
Developmental Genetics of Higher Organisms, G. M. Malacinski, Ed., 8 April 1988, 228
Developments in Numerical Ecology, P. Legendre and L. Legendre, Eds., 13 May 1988, 932
Diseases and Plant Population Biology, J. E. Burdon, 9 Oct. 1987, 221
Domestic Tyranny, E. Pleck, 18 Dec. 1987, 1738
The Dragon's Tail, B. C. Hacker, 22 May 1987, 979
The Dread Disease, J. T. Patterson, 11 Dec. 1987, 1589
Ecological Theory and Integrated Pest Management Practice, M. Kogan, Ed., 16 Oct. 1987, 410
Ecology and Evolution of Darwin's Finches, P. R. Grant, 22 May 1987, 1002
Ecology of Biological Invasions, R. H. Groves and J. J. Burden, Eds., 2 May 1987, 1000
Ecology of Biological Invasions of North America and Hawaii, H. A. Mooney and J. A. Drake, Eds., 22 May 1987, 1000
The Ecology of Woodland Rodents, J. R. Flowerdew *et al.*, Eds., 17 July 1987, 305
Elites in Conflict, M. A. James, 8 April 1988, 227
Energy and the Federal Government, J. G. Clark, 22 May 1987, 978
Engines of Change, B. Hindle and S. Lubar, 22 May 1987, 972
Environmental Radon, C. R. Cothern and J. E. Smith, Jr., Eds., 5 Feb. 1988, 660
Essays on the History of Organic Chemistry, J. G. Traynham, Ed., 4 Sept. 1987, 1237
Essays on the History of Organic Chemistry in the United States, 1875–1955, D. S. Tarbell and A. T. Tarbell, 12 June 1987, 1476
Evolution and Escalation, G. J. Vermeij, 4 Sept. 1987, 1235
The Evolution of Human Behavior, W. G. Kinzey, Ed., 29 May 1987, 1125
The Evolution of Reef Communities, J. A. Fagerstrom, 29 April 1988, 667
Evolution of the Lewisian and Comparable Precambrian High Grade Terrains, R. G. Park and J. Tarney, Eds., 15 April 1988, 342
Evolutionary Genetics of Invertebrate Behavior, M. D. Huettel, Ed., 18 Dec. 1987, 1741
Excitatory Amino Acid Transmission, T. P. Hicks *et al.*, Eds., 18 Sept. 1987, 1517
Expanding Protons, H. Cheng and T. T. Wu, 8 April 1988, 227
Experimental Approaches to Mammalian Embryonic Development, J. Rossant and R. A. Pedersen, Eds., 13 Nov. 1987, 970
Experimental Fluvial Geomorphology, S. A. Shumm *et al.*, 15 April 1988, 343
Extrachromosomal Elements in Lower Eukaryotes, R. B. Wickner *et al.*, Eds., 17 July 1987, 307
The Fall of the Bell System, P. Temin with L. Galambos, 12 Feb. 1988, 800
Farm Work and Fieldwork, M. Chibnik, Ed., 22 May 1987, 982
Fifty Years of Neutron Diffraction, G. E. Bacon, Ed., 9 Oct. 1987, 221
Fine Ceramics, S. Saito, Ed., 19 Feb. 1988, 925
The First Electronic Computer, A. R. Burks and A. W. Burks, 13 May 1988, 931
Fjords, J. P. M. Syvitski *et al.*, 29 May 1987, 1126
Foraging Theory, D. W. Stephens and J. R. Krebs, 6 Nov. 1987, 831
Forging the Atomic Shield, G. Dean, 21 Aug. 1987, 924
Fossil Invertebrates, R. S. Boardman *et al.*, Eds., 20 Nov. 1987, 1153
Fraser Darling's Islands, J. M. Boyd, 5 June 1987, 1360
Free Radical, R. W. Moss, 1 Jan. 1988, 82
From Message to Mind, S. S. Easter, Jr., *et al.*, Eds., 8 April 1988, 229
From Mineralogy to Geology, R. Laudan, 5 Feb. 1988, 656