FRA26 92-mm Nairne Refractor: Restoration/Adaptation
(Nice telescope as received, but without a tripod)

Issue and background

This is an important telescope, but with no tripod. A decision was made to build a tripod using scaled dimensions from a digital photograph provided by Harvard University in the Fall of 2006. (Courtesy of Dr. Sara Schnechner, David P. Wheatland Curator of the Collection of Historical Scientific Instruments at Harvard.) More recently a better photo became available and serves as the comparison photo for the restoration. The Edward Nairne telescope at Harvard is quite similar to the Edward Nairne Telescope FRA26 in this collection with nearly the same objective diameter (95mm versus 92mm). Evan though the Harvard telescope no longer has its original optics including its finder scope, its tripod is vintage Edward Nairne. Benjamin Franklin bought the Nairne Telescope for Harvard following a devastating fire on 24 January 1764, which destroyed the public Library and Philosophical Apparatus at Harvard.

Fabrication

Dr. Alton Clark, Ithaca, NY, provided fine wood craftsmanship advice and guidance for the custom tripod fabrication. He also did the joining/planing of the rough mahogany, and the edge routing of the three tripod legs. Dr. Clark is a builder of fine period 18th Century harpsichords. Dr. Clark's harpsichords can be founded in music departments at several major universities and colleges in the United States.

The author did both the lap joints and the bevel cuts on a table saw. He also did the mahogany staining, finishing and hardware installation. Post-construction comparison with more recent photos published by Harvard suggest the tripods are nearly identical including the concave routing of the outer edge of each tripod leg, but some of the hardware details are slightly different for lack of detail in the original photo used for design.

Tools

Jointer, planar, router, table saw, drill press, square, ruler, and pencil

Stephen 'Chris' Cowulick, Clark Hall Machine Shop, Cornell University, Ithaca, NY, fabricated the brass keeper bolts and the threaded tie-down rods.

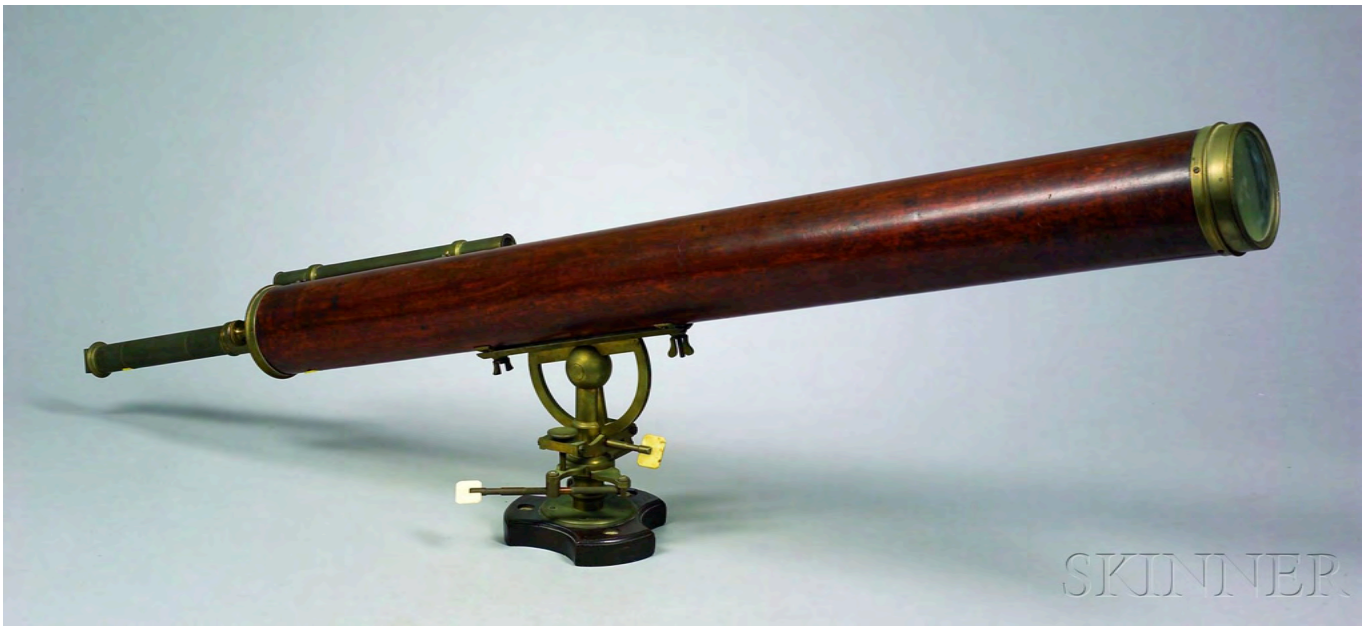
Materials

Seasoned mahogany wood was purchased in Pennsylvania. Schedule 360 brass rod was used for the blind tie-down threaded rods and bolts for holding the original mahogany base-plate of the mount to the new tripod. (See detail photos next page)

Photo Credits;

E. Nairne telescope, courtesy of Skinner Auctions, as received photo, this page.

E. Nairne tripod, courtesy of the Collection of Historical Scientific Instruments, Harvard University, next three pages.



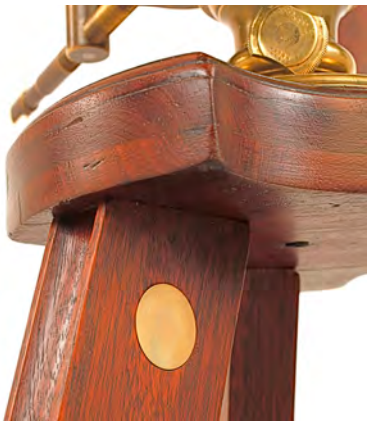
Nairne Telescope as received

FRA26 Restoration/Adaptation



Three custom brass slotted cylinder-head tie-down bolts and three flush-mount cross-tie threaded keeper rods were fabricated. (left photo shows one of the units laying on the tripod plate, center partially tightened, right shows fully installed)

Detail of base-plate attachment to tripod legs

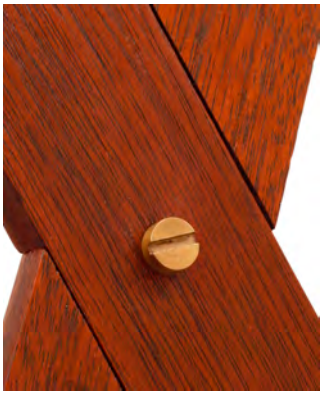



Wolf Collection "Nairne" tripod

Harvard Collection Nairne tripod

This detail could not be determined from the earlier photograph, but a more recent photo (above right) shows that Nairne used rectangular-shaped keeper bars; therefore, the use of round rods in this restoration does vary from original hardware. Photo on left shows a polished flush end of the threaded brass keeper rod; this design creates an extremely stable attachment of the telescope mounting or base-plate to the tripod leg.

Detail of blind hold-down mechanism for bolting the base-plate to tripod leg



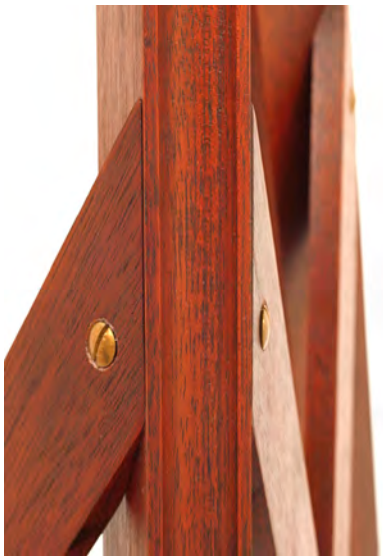

Wolf Collection "Nairne" tripod

Harvard Collection Nairne tripod

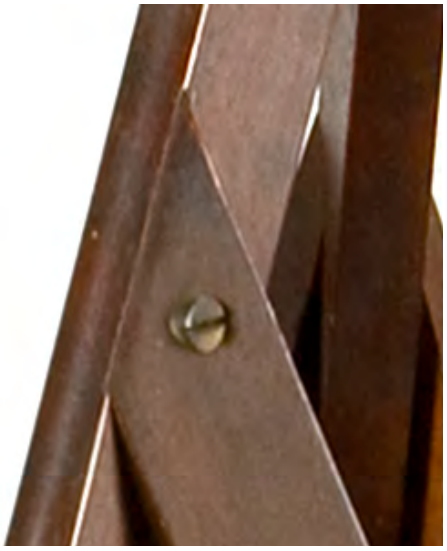
Cursory viewing shows the lap joints and hardware nearly identical

Detail of lap joint

FRA26 Restoration/Adaptation



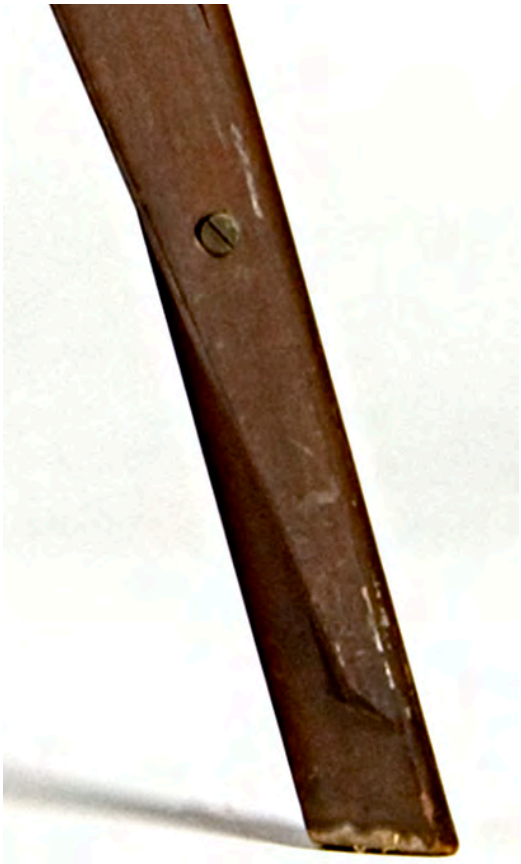
Wolf FRA26 "Nairne" tripod



Harvard Collection Nairne tripod

Here too there is deviation from the original cylinder-head hardware.

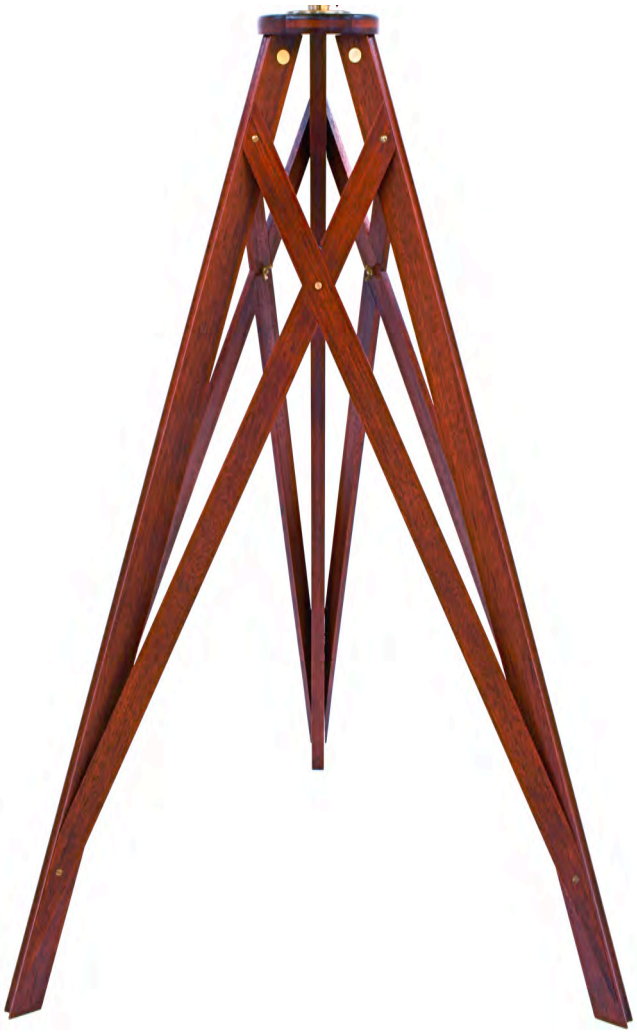
Wolf FRA26 "Nairne" tripod



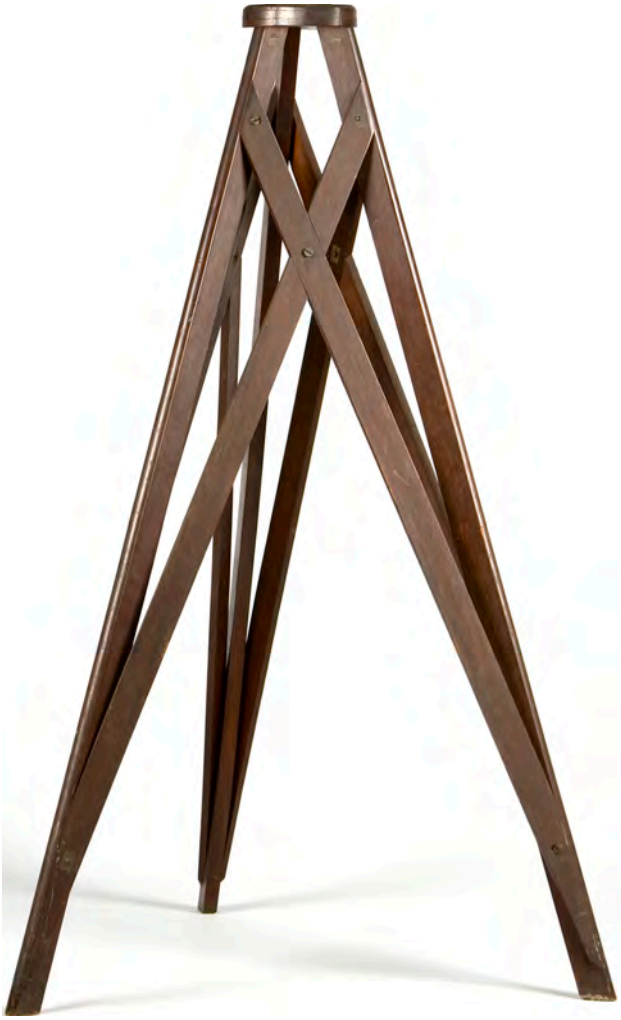
Harvard Collection Nairne tripod

Details of compound angle of cross-strut terminations at top and bottom of each tripod leg

FRA26 Restoration/Adaption

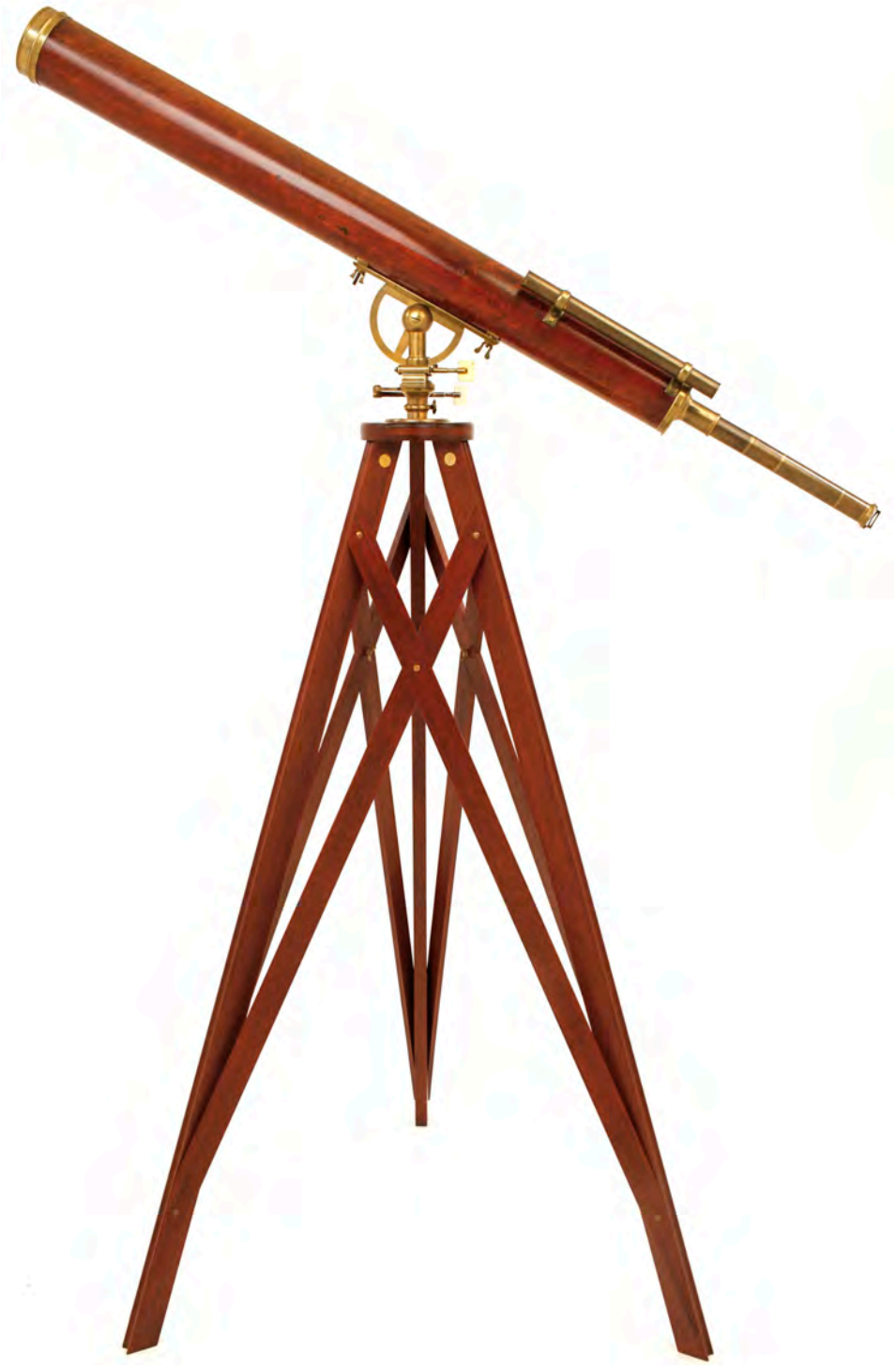


Wolf FRA26: custom "Nairne" tripod.



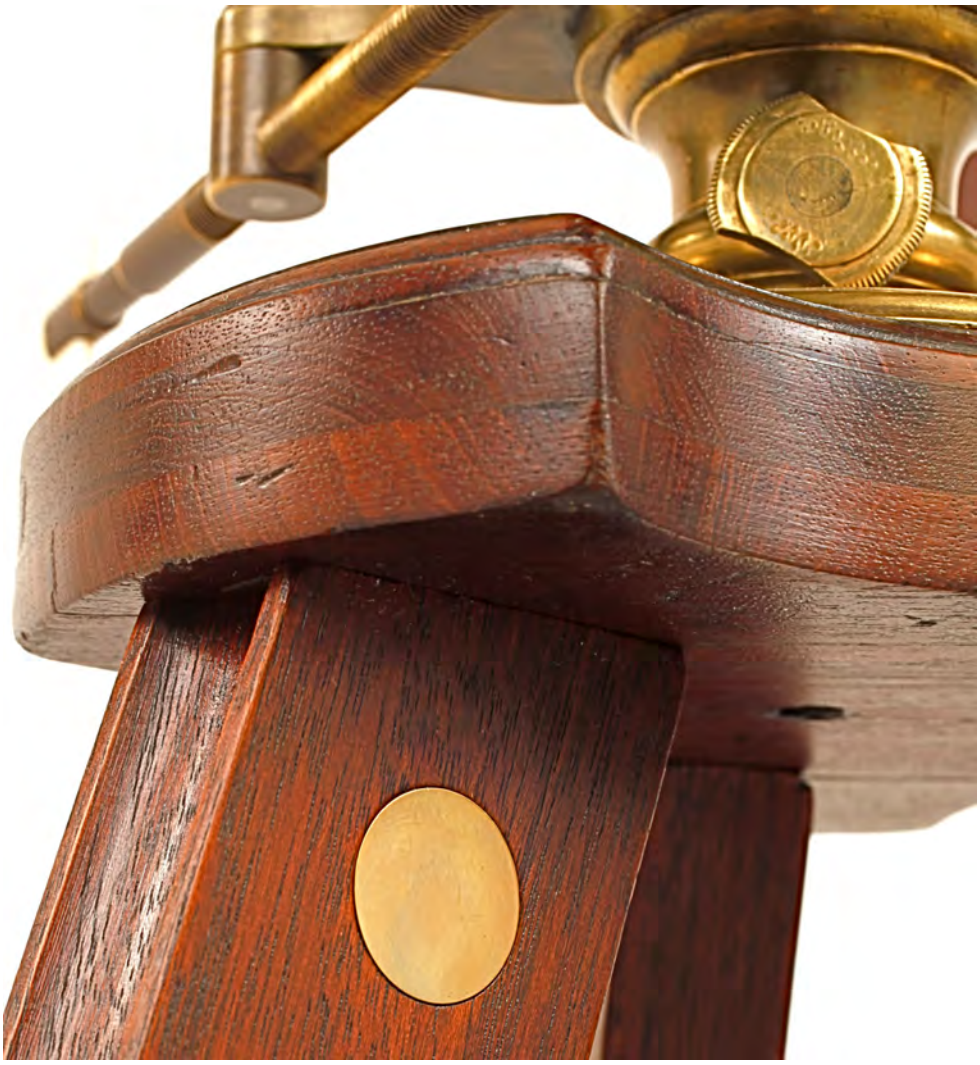
Harvard Collection Nairne tripod.

FRA26 Restoration/Adaptations



Important Naime telescope raised from the floor; mounted on a carefully crafted mahogany tripod according to Edward Naime's signature sturdy cross-strut tapered-tripod design; and returned to its original position of usefulness.

A strong statement for the restoration of historically important telescopes.



FRA26 92-mm Naime Refracting Telescope, c. 1765