

Todai-ji Daibutsuden. Close-up of building entrance



Chapter 2

Behind the Culture of Wood

It is not easy to rationalize Japan's traditional choice of timber as a building material. Anyone who has seen Japan's ancient burial mounds or pit dwellings can attest to their primordial rendezvous with earth construction. Anyone who has noted the construction precision at the base of its nine surviving *donjons* (castles) can affirm their knowledge and skill of building with stone (*Fig 2.1*). The magnificent white castles soaring above these massive plinths, however, are made not of stone but wood. The Japanese chose for their dwellings, temples, and even their bulwarks of defense, a building material that was less resistant and more vulnerable to the perils of fires and natural disasters. Stone and earth, better suited to mediate the climatic extremes of humid summers and dry winters was ignored.

Justifiably, the comparative lightness of a timber building did make it less damaging within Japan's seismic climate. Other cultures have also pursued similar wisdoms. The Anasazi in the American southwest for instance built their dwellings with heavy earth walls to keep away the heat and cold but always had a light wooden roof that could be easily reconstructed after its collapse due to snow. Also as Jared Diamond has pointed out, Japan has high rainfall, and high fallout of soil-replenishing volcanic ash nurturing rapid tree growth. Its natural wildlife had no goats or sheep whose grazing activities have devastated forest landscaped in other cultures. The abundance of seafood also relieved pressure on forests as sources of both food and fertilizer.¹ Japan's incredible culture of wood must therefore also be understood within its geographical and environmental advantages.

Even so, the Japanese obsession with an impermanent building material and their willful acceptance of the recurrent damage to timber construction wrought through fires and typhoons seems counterintuitive to other cultures that have always sought to build for permanence. Thanks to this, there is no traditional building standing in Japan today that has not been rebuilt. The idea of monuments, communities, indeed entire cities being recurrently destroyed and built again seems not only unsustainable but irrational by today's standards. Even as late as the Edo period, when the great Kyoto fire of 1781 destroyed the Imperial Palace yet again, the eleventh Shogun, simply ordered its reconstruction on an even grander scale, only to be burnt again in 1854 and replicated to its current form. And when the Shogunate mandated Edoites to use clay tiles on roofs as a protection against fire,



Figure 2.1 Top: Osaka Castle – details of stone base

Figure 2.2 Opposite page left: Shinnyo-do Temple pagoda, Kyoto right – Hoki-ji Temple pagoda, Kyoto

they responded by covering only the visible portions of their dwellings, leaving their cheaply built townhouses to be burnt by the next disaster.

The philosophical underpinnings nurturing Japan's timber architecture then are unique in human history. They genuinely embrace the sentient materiality of wood, accepting cyclic renewal as a natural activity in the making of the built environment. Wood is a material that lives and dies. This explains the Japanese resistance to nails, so as to not hurt wood or wooden components, as well as their willful acceptance to timber's decay through natural processes. Even today, in both the cyclic rebuilding rituals of many of its shrines, as well as the periodic preservation of its wooden monuments, Japan's remarkable culture of wood forms an important part of the larger dialog on its contemporary built condition. In this chapter, we go behind the scenes of this timber culture, and reflect on the multifaceted forces that shaped it. What was the sense and sensibility behind this culture of wood? What did it take to build these colossal timber buildings? How did Japan sustain this culture for a thousand years? What is the price it has paid for it? And what is its place and presence today?

STRUCTURE: COLUMN & BRACKET

In his 1893 essay "Horyu-ji Kenchiku Ron" (On the Architecture of Horyu-ji), Chuta Ito famously speculated that the entasis, that is, the slightly convex curve given to a column to correct the illusion of concavity produced by a straight shaft, in the wooden columns of the Horyu-ji Temple in Nara, one of Japan's oldest monumental buildings, had originated in Greece.² Whether this is true or not, one cannot help but compare the scale and size of timber members of Japanese temples with their Hellenistic stone counterparts. The monumental structuralism of Japan's Buddhist temples, dominant from the sixth to the twelfth centuries deserve special attention and what stands out here is the timber pillar—the structural core of traditional Japanese architecture and the symbolic epitome of its rituals of ancient tree worship.

The pagoda for instance has a single central column resting on a stone foundation with other wooden elements cantilevered from it. Thus despite introducing



a completely new vertical paradigm in Japanese architecture, the pagoda was based on the same structural concept as its predecessors. The earliest wooden buildings in Japanese history were the thatched dwellings of the Yayoi era (circa 300 BCE – 300 CE) characterized by a tent like timber roof covering a circular pit. These dwellings rested on a central row of pillars loosely embedded into the earth, creating a hinge joint to provide flexibility and stability during an earthquake. This idea conceptually appears to have persisted through the evolution of Japanese architecture: *minke* (farmhouses) and *machiya* (townhouses) were typically constructed with a main pillar called *daikokubashira* at the center of the building supporting most of the roof weight. This pillar held the status of an object of worship as the dwelling place of the God of the household. Even today in old households, children are not allowed to lean against the central pillar and on New Year's day, it is decorated with pine fronds and a straw rope and revered with offerings of *sake* (rice wine) and *mochi* (pounded rice). (Fig. 2.2)

The massive scale of Japanese temples also reveals the architectural shift through the advent of the timber bracket. With this Chinese import, buildings could now become larger objects with longer spans and spaces. The evolution and stylistic diversities of the bracket is an elaborate discussion in itself but fundamentally a bracket complex, *kumimono* or *tokyo*, was made of two basic parts—the bearing block *masu* and the bracket arm *hijiki*.³ The bearing block, a square or rectangular cube beveled at the bottom, could be set directly into a column to become a *daito* (large block) or on a bracket arm to become a *makito* (small block). The outward support of the bracket complex was provided by bracket arms typically beveled at their projecting ends. The entire network directly supported the purlins above. Here was the ingenuity of pure wooden joinery devoid of any nails thereby creating a looser hinge connection to absorb shocks during earthquakes. Just as the buttress represented for Gothic architecture the aesthetic outcome of a structural intention, enabling the walls to have larger punctures, the timber bracket could be thought of as the Japanese equivalent, enabling the roof eaves to stretch beyond the vertical columns. (Fig 2.3)



Figure 2.3 Timber bracket details, clockwise from top: Todai-ji Daibutsuden; Hoto-ji Temple; Ohara Shoin-in

Figure 2.4 Opposite page: Todai-ji Daibutsuden ceiling





AESTHETICS: LIGHTNESS & RUSTICITY

The lightness of a chopstick is peculiar to Japan and could be compared to the lightness of the *shoji* screen. There are chopsticks in other cultures, but they are heavier, made of ivory, silver or other metal; there are sliding doors in many cultures, but the ability to slide a door with the tip of a finger is unique to Japan. The evolution of the *shoji* began in the early Nara period when boards were used as room dividers with the addition of thick opaque paper. Gradually this paper began to get increasingly translucent and evolved into the *shoji* with *washi* (rice paper) stretched across a grid of wooden pieces. The aesthetic of the *shoji* stems as much from its distinctive lattice as its perceived softness. It is the aesthetic antithesis of the colossal structuralism of Japanese temples.

While many of these early temple forms were fundamentally derived from Chinese examples, there were recurrent refinements and shifts that gradually made them distinctly Japanese – an elaboration on the theme of the foreign and the native. One such feature that deserves particular mention is the *noyane* or “hidden roof” because it had a significant impact on the aesthetic and spatial experience of a temple interior, and also took temple architecture beyond its Chinese predecessors.⁴ Before its introduction around the tenth century, it had been impossible to build wide spaces without having a steep drop in the roof rafter angle over the building’s peripheral sections. The hidden roof made it possible for the pitch of the roof underside to be independent of the exterior, allowing gently inclined exposed rafters along the periphery, thereby eliminating heavy shadows and enhancing the horizontality and repose of the exterior spaces (*Fig 2.4*).

The architecture of the tea huts in the Momoyama era (1573-1603) brings another aesthetic dimension in putting a premium on the rusticity and the beauty of knots in the wood, with materials chosen scrupulously on a discriminating aesthetic sensibility. Such an approach probably took its origins from the aesthetics of modest timber huts, evolving unique standards that allowed natural characteristics such as bark and crude surfaces to be used. In some instances, the wood employed in tea rooms came from a variety of trees, including Japanese cedar, red pine, chestnut and bamboo, due to which a process of coloring was employed where the wood sections



of the building were coated with a pigment mixed from a red cosmetic resin called *ni* and soot—so that the wood became nearly black while simultaneously the knots and other natural features in the wood remained visible (Fig 2.5).

PEOPLE: THE WORLD OF THE SHOKUNIN

The lives and methods of the *shokunin*, the craftsmen who built the colossal timber temples and shrines is best seen through illustrations on folding screens, woodblock prints and picture scrolls, and they reveal many significant subtexts in understanding Japan's timber culture. For instance, in the eighth through the twelfth centuries, lumber was split with a wedge and then smoothed with an *adzze* and a long-blade plane, but began to get sawed in the Heian Era, making it easier to make thin planks and delicate wooden components. As the medieval age wore on, the scarcity of massive lumber necessitated the use of smaller trees, in turn contributing to the development of new tools and methods, for instance the *oga* (two-man saw) that operated vertically, allowing much thinner planks. The Japanese architectural expressionism of various periods can thus also be understood through the lens of the shokunin, and their evolving innovations and advances in carpentry (Fig. 2.6).

As seen in the Ishiyamadera Engi (Picture Scroll of the Legends of the Ishiyamadera Temple), lumber was brought to the site in ox carts. Large planks were pulled by men using rope and rolling logs. In Kuwakata Keisai's *Shokunin Zukushi E* (Pictures of Tradesmen) painted in 1804, we see wood carvers producing delicately rendered floral patterned panels for a shrine, plasterers kneading clay into balls and tossing them to others who flatten them against the walls with trowels, and tatami-makers weaving straw mats and sewing the decorative strips on the sides. With few tools surviving to this day, the *Wakan Sansai Zu E* (Sino-Japanese Illustrated Encyclopedia), dating circa 1713, is now an invaluable source in this regard, with pictures of contemporary carpenter tools and explanations.⁵

The shokunin always worked under the leadership of an appointed project leader, and in the case of many a temple, these figures were monks. One can attribute the massive scale of *Todai-ji*, the largest timber building in the world in its time, to the monk Shunjobo Chogen, just as the *Eiheiji* Temple in present Fukui



Figure 2.5 Opposite page: Ryogen-in Tea House interior

Figure 2.6 Top: Himukai Daijingu roof details; bottom: Toji Temple Main Hall





Figure 2.7 Todai-ji Temple.
opposite page: Daibutsuden,
top: base of Nandaimon

prefecture to Eihei Dogen. If the shokunin were the hands that manifested the building, then it was these leaders who laid out the political and economic strategies necessary to enable the inner workings of these massive operations. Not unlike Ross King’s descriptions of the construction of Brunelleschi’s Duomo in Florence, it was not just about the construction of the building, but the seeking of the materials, the props for their transportation, and more importantly, the political navigation in obtaining them.⁶

POLITICS: CHOGEN & TODAI-JI’S DAIBUTSUDEN

Arata Isozaki’s essays on Chogen’s reconstruction of the Todai-ji daibutsuden reveals several lesser known behind the scenes aspects on what it took to build such colossal timber temples.⁷ In 1180, a sixty year-old Chogen visited the burned down Taodai-ji daibutsuden and took up the role of fundraiser and construction commissioner for its rebuilding. Todai-ji was the largest wooden building of its time; each of its columns was around 1.5 meters in diameter and per the Chinese Sung principles upon which its architecture was based, each column had to be a single tree trunk. Further the maximum horizontal beam length was a thirty meter span (Fig. 2.7). The daibutsuden’s remaking would thus not only take significant material, but also the political savvy to make it happen in times of civil disturbance and war.

Chogen soon realized that the sizes of the timber logs needed for this building were no longer available in the Yoshino hinterlands that had originally supplied wood for the temple. Such timber reserves were now only available at the Ise shrine, that was then preparing for its own periodic reconstruction. Subsequently, Chogen devised a political strategy to “syncretise the people’s worship of Ise with that of Todai-ji in support of his reconstruction.”⁸ He gathered an aggregation of sixty



Figure 2.8 top: Kiyomizu Temple, Kyoto. opposite page: Detail of timber supports holding up one of the temple decks.

monks to formally offer a new hand-copied text of the Mahaprajnaparamita Sutra (Sutra of Great Wisdom) to the revered Shinto shrine with hopes of winning their favor. But while this choreographed pilgrimage received tremendous public attention, Chogen's failed to win Ise's timber reserves.

But Chogen had a backup plan. He bought the Suo timberlands (today in Yamaguchi prefecture). The challenge now was to transport the colossal trees from the mountainside to the city of Nara. Water seemed the best means of transportation: The trees "were flushed down the Sawa River for about thirty kilometers, transported by raft via the Set Inland Sea to the mouth of the Yodo River near Osaka, then guided upstream along the Kizu River, and finally delivered overland through the Narazaka highlands."⁹ Records claim that more than a hundred temporary dams were constructed along the Sawa River, strong hemp rope was secured from across the country to aid in transportation, and a special roller called *rokuro* was invented to help the thousands of men move the hundreds of logs to the site.

It is now known through excavation that Chogen reused the original column foundations of the daibutsuden whilst enlarging its original span of seven by three bays, to eleven (twelve columns) by seven (eight columns) bays. Chogen could have taken a far more convenient route. Like the Edo builders in the eighteenth century – when large trees were no longer available—he could have chosen to laminate pillars with metallic bands or conversely retain the original building size and spans. He was no architect, but as manager of his carpenter team, he had the discretion to decide the model for the new building. Knowing all the inherent challenges, he instructed his team to build per the Sung tectonic that enabled the significant enlargement of the temple. Chogen's accomplishment at the Todai-ji daibutsuden therefore was not so much in his aggrandizement of one of the largest structures of his time, but his political savvy and unswerving determination to see the project complete without any apparent personal gain.

CRISIS: DEPLETION & REFORESTATION

The Japanese attitude to wood, their Shinto love for nature, Buddhist idea of transience, and zeal for renewal and rebuilding does not necessarily paint the prettiest



of pictures. It is unimaginable to estimate the sheer amount of forest that must have supplied timber for these great architectural endeavors (Fig. 2.8). Timber was needed not just for construction and reconstruction, but for heating houses, cooking, industrial uses such as making salt, tiles and ceramics, smelting iron, and transporting timber through ships themselves built of wood. In his book “Collapse”, Jared Diamond has provided a detailed account of the lesser known timber crisis and its aversion during the Tokugawa Era (1603 – 1867), when a number of Tokugawa shoguns kept the country free of war and outside influence.¹⁰ Peace and prosperity had resulted in a population and economic explosion and a consequent building frenzy. By 1720, Edo was the most populous city in the world. Beginning in the late Muromachi era around 1570, the various *daimyos* seeking to impress each other through the size of their temples and castles led the way to as many as 200 castle towns and cities built under Hideyoshi, Ieyasu and the succeeding Shogun.

But “just the three biggest castles built by Ieyasu required clear-cutting about 10 square miles of forests.”¹¹ In 1582—to compensate for the timber scarcity in his own domains – Hideyoshi is known to have demanded it from all over Japan taking control of various daimyo forests and private lands, and spreading logging over Japan’s three main islands. The years from about 1570 to 1650 marked the peak of the construction boom and consequently that of deforestation. By 1710 the most accessible forests on Japan’s three main islands (Honshu, Shikoku and Kyushu) had been destroyed, with old-growth forest surviving only on steep slopes or areas inaccessible for Tokugawa era logging. With wildfires, soil erosion, snow-melt, flooding and earthquakes consequently on the rise; and with simultaneously increasing disputes amongst villages over timber, fuel, and the use of rivers, deforestation had begun to hurt Tokugawa Japan.

The 1657 Meireki fire that consumed half of the Edo capital and some 100,000 lives exposed Japan’s depleting timber supply. Consequently, amidst an urban population explosion, the next two centuries saw a multitude of policy shifts in limiting timber consumption and accumulating reserves to avert a grave crisis: There was an increased reliance on sea food, a near zero-population growth between 1721 and 1828, and the replacing of wood fuel with coal in the 17th century. There were top-down woodland management policies – from detailed forest inventories, strin-



Figure 2.9 top: Okihiki-zome-shiki is a ceremony to transport timber logs to the Ise Geku for the shikinen sengu. This photograph was taken at the 62nd sengu in 2013.

Opposite page: Yakugi log for the Okihiki-zome-shiki ritual at the Betsugu Taka-no-miya Sanctuary of Toyokedajingu at the Ise Geku. This photograph was taken at the 62nd sengu in 2013.

gent timber shipment monitoring, laws limiting the amount of timber to be used in buildings and products, and the rigorous promulgation of silviculture since the 1600's. The Tokugawa Shoguns had gradually developed a method of plantation forestry on a national scale to solve a crisis in which they ironically had played one of the biggest roles. With plantation and forestry becoming widespread between 1750 and 1800, by the early nineteenth century, Japan's long decline in timber production had been reversed.¹²

A more recent parallel to such visionary policies is the forest regeneration efforts by outstanding Japanese scholars using the most advanced global forestation practices. The lush forest of the Meiji Jingu, one of the few remaining natural forests set against the backdrop of Tokyo's skyscrapers was created by 110,000 volunteers who planted more than 100,000 donated trees in 1920. The site, barren eighty years ago, has been transformed into a man-made woodland reviving the Japanese idea of the divinity of trees. The forest has since flourished due to its association with the revered shrine.

SHIFTS & ADAPTATIONS: BEHIND THE SHINKINEN SENGU

How has Japan adapted to such crises and to what degree have they shifted the core values of the culture? The various *Sengu*, or cyclic reconstructions at several Shinto shrines across Japan are the best optic to discuss this question. Such reconstructions symbolize a reverence to the deity by cleansing his/her household, but they must also be read as the pragmatic need to intermittently maintain and renew parts of a timber building or complex. Of these, the shikinen sengu, the 1300 year-old reconstruction ritual of the two Ise Shrine complexes, the Geku and Naiku, every twenty years is by far the most elaborate, and therefore the focus of discussion here. Some thirty-five rituals are enacted during this elaborate construction, with workers in white garbs reconstructing over sixty structures¹³ (Fig. 2.9).

Originally, the trees needed to reconstruct Ise's shrines were available within their surrounding forests called Jingu Birin. The forests had specific areas with trees labeled for use in specific parts of the shrine's re-building. Today, the forest has become a National State Forest and occupies a quarter of the city of Ise with an



area of 5500 hectares. It has three areas: The first is the 1000-hectare scenic forest visible from the path to the shrines that is carefully maintained and controlled. The second is the 93-hectare historic forest from the Muromachi Period (circa 1300 CE), where fallen trees from the 1970 Ise Taihu (hurricane) remain untouched. The third is the 4400-hectare area reserved exclusively for the reconstruction of the Ise Shrine every twenty years. Here, bombing, wars and industrialization have lowered soil quality, and the tree-yield is now far lower both in quantity and quality. Much of the Sengu's timber supply – some 14,000 pieces of timber and 25,000 sheaves of miscanthus reeds—now comes from distant forests, transported by trucks, and needing significant infrastructure and cost.¹⁴ The larger environmental context framing the Ise Sengu has thus significantly changed (*Fig 2.10*).

Simultaneously, contrary to popular perception, there are significant differences between the original shikinen sengu and the one we see today. Originally, most of the shrines besides the Geku and the Naiku were rebuilt with recycled timbers from the previous sengu. Workers besides carpenters helped with various construction related processes, and locals living near the shrines were also required to participate. Thus the number of shrines rebuilt with new timber was less than what it is today. This new timber was cut from the preserved forest directly surrounding the shrines, and the high quality of timber took only four years to stain instead of the eight years it does today. The duration of the sengu was thus much shorter. Today, select timbers of Ise's dismantled shrines are reused in parts of other contracted Shinto shrines around Japan. The sengu, meanwhile, has added sixteen more shrines to the previous list of the two main and fourteen other reconstructed shrines, bringing the total to over sixty structures, including gates, bridges, and storage spaces, with the total building reconstruction taking over eight years.¹⁵

Further, while traditional hand tools continue to give final shape and finish to the shrine parts, the carpenters use electric saws and sanders for rough work within the work yards (though never within the sacred sites.) This hybridization saves the shrine significant money while not violating the authentic eventual look of the shrine. And since even the minutest dent on the shrine made by a falling object is considered a defilement necessitating the piece of wood to be replaced, the shrine has opted to have its *suyane*, the traditional temporary shed over the construction

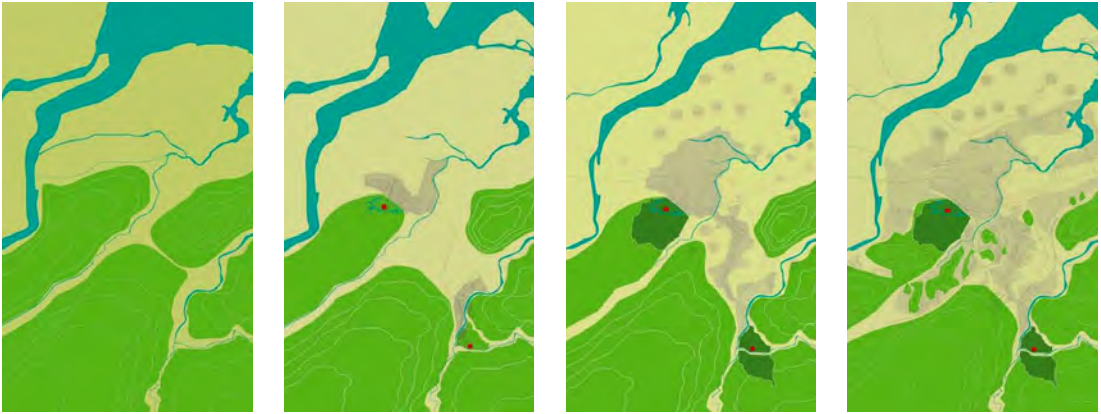


Figure 2.10 Diagrammatic analysis of forest depletion around the Ise Shrine. The grey shows the increasing habitat footprint. The dark green indicates the boundaries of the now preserved forests around the shrines.

site, to be made of prefabricated modern materials for better protection of both the building and the workers during the shrine's disassembly.

Meanwhile, bigger changes have happened at other shrines. The Izumo Shrine has a similar ritual called the *shikinen senza*, performed once every sixty years. But here, reconstruction is limited to only a few shrines rather than the entire complex. As noted in Chapter 1, the main shrine was originally lifted high off the ground with gigantic wooden columns. Today, the shrine structure is much smaller, its columns are slimmer and shorter, and it sits closer to the ground.¹⁶ At the Katori shrine, the *shikinen senza* is performed every thirty years with the reconstruction limited to mainly the roof structure, and many other Shinto shrines have in fact stopped the ritual of *shikinen senza* altogether. At the Osaki shrine, the structural material for the shrine's renovation has been changed to Beech, Japanese Judas, and Japanese Chestnut, with proximate land reserved to grow these trees. And the rituals have been opened to the public to enhance cultural education.¹⁷ All these changes are responses and adaptations to the timber production availability of our time.

This crisis of timber seen at Ise is at once ironic and laudatory. It holds on to an ancient tradition with neither its original symbiotic sacred, social and environmental interrelationships, nor a decisive strategy towards adaptation for a new time. During the Meiji era, there were discussions over timber deficiencies leading to propositions for changes in the Ise *sengu* such as a concrete foundation that could expand the shrine's lifespan. The emperor however denied such suggestions, and the construction method and amount of timber is still the same as in the past, incurring an enormous amount of cost. After the early Meiji's Restoration policy, the government in fact planted more trees to preserve the Ise forest for the succeeding *sengu*, but until today, this has not been successful. There are concerns about the future of the *shikinen sengu* because timber production within Japan has been decreasing on the whole, with few remaining preserves able to produce the vast amounts of cypress used as the main structural material for the shrines.

CONCLUSION

Long shielded from any exterior influence – save its early Chinese precedents—Japan’s timber architecture was an insulated cultural phenomenon, whose epochs and accomplishments were only as great as its repeated destruction. Seen from a chronological standpoint, it was also arguably a relatively lethargic phenomenon. Unlike European stone construction that transformed from the Roman arch, to the Gothic vault and buttress to Brunelleschi’s vertical ribs and double dome at the Duomo, in Japan, there was little tectonic or structural innovation after the great Buddhist temples had mastered the timber column and bracket. Much of what followed was a variation on that theme, with architecture remaining largely preoccupied with spatial and aesthetic concerns. One exception to this, the donjon (castle) elevated the timber edifice over a stone base, and introduced the use of plaster for fire protection, and this idea was adapted to other succeeding monuments or habitats. Whether a cultural lethargy, or a blindfolded adherence to ancient cultural bents, the Japanese seemed resigned to accept the continuous destruction and rebuilding of timber architecture for centuries to follow.

Japan’s timber culture lives on through the ongoing preservation of its numerous monuments. The Amida-do, the main hall at the famous Byodo-in temple in Uji is currently caged in scaffolding and a temporary roof, and under repair till March 2014. At the Kiyomizu Temple, the Koyasu-no-to pagoda just completed an overhaul in March, 2013, regaining its original color, and temple authorities, expecting the need to rebuild the main hall in the distant future, have already begun planting trees¹⁸ (*Fig. 2.11*). But simultaneously, an objective assessment of Japan’s traditional timber culture raises many complex questions. In a time when Modern build-and-scrap practices pose a global threat to the environment, one can argue that components of demolished wooden buildings should resurrect themselves through reuse in their modern counterparts. Or that the contemporary Japanese wooden structure must redefine itself with concrete foundations, and substitute the tradition of joinery with less skill-demanding connections, with its structural distribution relying more on the rigidity of its outer faces than a single pillar at its core. One can argue, in turn, that the continuity of Japan’s timber traditions might

Figure 2.11 Koyasu Pagoda at the Kiyomizu Temple, Kyoto – during and after restoration



be more through process than product; that contemporary building techniques such as exposed concrete—a popular tendency in Post-Modern Japan—relies heavily on a similarly meticulous precision for the formwork to ensure the aesthetic uniformity of the eventual surface, thereby keeping the culture alive. But then, with modern construction workers using power tools, there is, particularly for those that treasure Japan's authentic traditions, the apparent danger that modern labor and cost efficiency can undermine that contemplative and patient process integral to the refined timber culture of Japan's past.

The story of Japanese timber culture then remains a contradictory one: If its Shinto reverence for nature offers a reading of spirituality and sublimation, then the Shogunal megalomania of depleting entire forests reveals another extreme. One cannot afford to dismiss the deep-rooted philosophical dimensions or the master carpentry that gave us the magnificent daibutsuden at Todai-ji, or the delicate Shokin Tei tea hut. But at the same time, one must also remain unapologetic towards reading this culture's environmentally destructive and eventually impractical dimensions. They in particular, can serve as cautionary barometers towards assessing Japan's post-industrial condition.