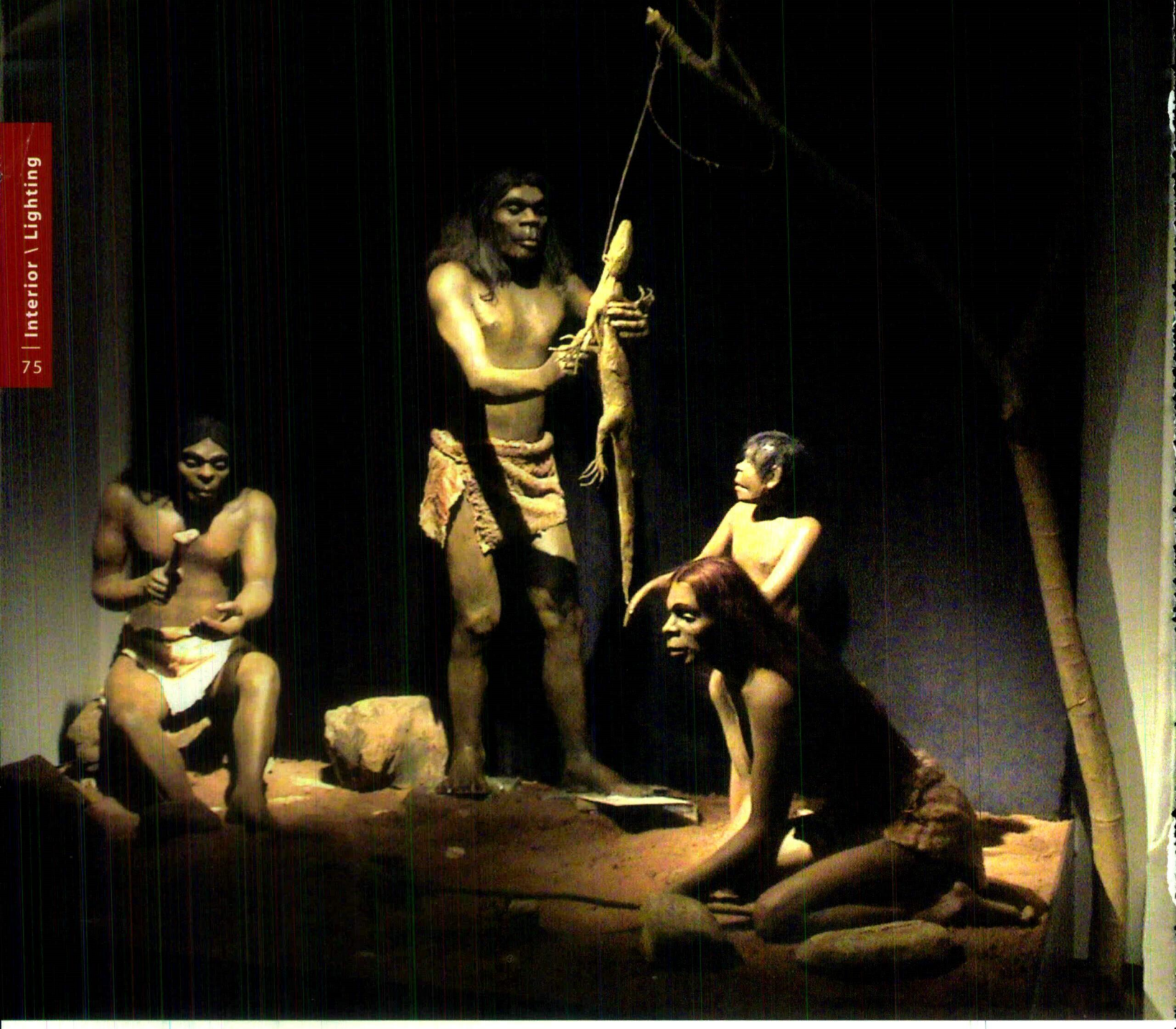


LIGHTING UP OUR HISTORY

Russel Dandeniya

The use of lighting in architecture varies in terms of its purpose and context. The re-making of the galleries at The National Museum Colombo required using lighting as the predominant space enhancing tool, to render moods, shades and shadows to its age old interior. A large part of the interior design decisions included lighting, both general and objects, incorporated into the solid mass of its colonial interior, otherwise drab and uninteresting

Approach

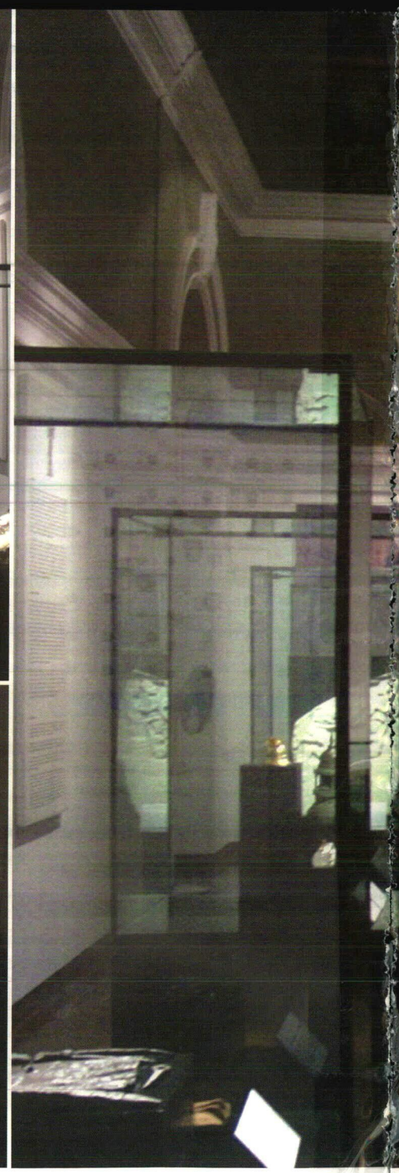
The main objective of museum lighting is to condition visitors' minds to move excitingly through the gallery space while also grasping the nuances of the exhibits. The challenge, was to light up the general movement corridors, accentuating the importance of the objects d' art. These range from tiny stones to massive statues, each important in their own right. The design was worked under strict budgetary constrains, with funds offered by a concerned corporate donor.

The global lighting industry however boasts of very low heat emitting products, with UV absorption screens, infra red coated capsules and other sophisticated fittings and technology, ideally used in heat sensitive situations. Limited budgets for this project prompted the use of best possible alternatives available, without having to compromise on the quality of experience created.

Design

The massive colonial building consisted of double height galleries with tall arches which brought in ample daylight and inevitable glare. Daylight with its varying lighting qualities is considered inappropriate for museum gallery lighting. Hence it was controlled at the source, by strategically closing off the arches, and using some of them as backdrops for beautiful statues. These statues enhanced by artificial lighting acted as focal points within the museum. Court yards in the building were viably integrated into the design to tie up the galleries. Daylight was optimized in these court yards which acted as transitional spaces. These open spaces with hues of changing light throughout the day, and artificially lit galleries provided an illusion of myth and magic, with exciting spatial progression.

A simple and cost effective design of a lighting solution was formed in terms of artificial



lighting.A single type of low voltage halogen lamp with Aluminum reflectors (AR 111), a relatively new product here, was used in two different wattages as needed. This was chosen over the conventional spot, purely to reduce glare and to mitigate heat accumulation, the main issue on historically valuable objects.

The design of this fitting minimizes glare by only allowing the light source to be seen from where the light beam falls and along a straight axis. The source is thus hidden from the visitor since the object occupies the spot where the light beam falls. Emission of heat and UV radiation on to the direction of the light beam is partial. While light is guided as a straight beam towards the artifact, part of UV radiation is absorbed by a UV stop glass at the foot of the fitting. These characteristics were used to the best possible advantage, to make the museum experience intriguing.
The fittings were decided to be placed high above at ceiling level, clearly taking advantage of the internal height of the building. This helped to effectively minimize heat gain on objects. The distance between object and the source had to be adjusted on a case by case basis. However after a series of practical experiments, most of the objects were lit up using three spots, placed at three different angles, (8 degrees, 20 degrees and a combination of the two) at a distance of 4.5 m, minimum. Three spots were considered absolutely necessary to bring out the three dimensional effects of the objects.

Lit up glass boxes were used as a novel concept in the museum to house historical objects. The valuable artifacts were placed on raised platforms to be in par with eye level, and covered on four sides with unobstructed clear glass. The recessed light fitting fixed on to the solid top surface effectively lit up the object with a pleasing light distribution sans disturbing shadows.

This simple combination was used as a concept to bring out the best of three dimensional depths, texture of objects, qualities of material, shapes & forms, craftsmanship , other prominent architectural and archeological characteristics which was otherwise hidden away for too long.

It may be worth mentioning here that the quality of the space and viability of the project could be further enhanced in future, by introducing better quality fixtures and advanced methods for lighting control to the lighting design already in place. Occupancy censors, dimming capabilities, additional control flaps on fixtures to reduce glare etc., to name a few. With these incorporated, the lighting design would be more effective in terms of energy, power consumption and lamp life. Let us fervently hope that a national monument of this magnitude receives the due respect and care it deserves to get.

Consultants:
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- Electrical Engineering consultant : Rohitha T. Senanayake-

Russel Dandeniya manages his Architectural practice. He has made many presentations on Architectural lighting.

PREVIOUS PAGE, LEFT: Space creation with depth and shades, RIGHT: Tholuwila Buddah Statue Light used to accentuate features and texture
THIS PAGE, LEFT ABOVE & RIGHT: Well lit galleries with highlighted Artefacts, BELOW, LEFT: Distant view through light with 'Thara' as a focal point, BELOW, RIGHT: Attention to detail