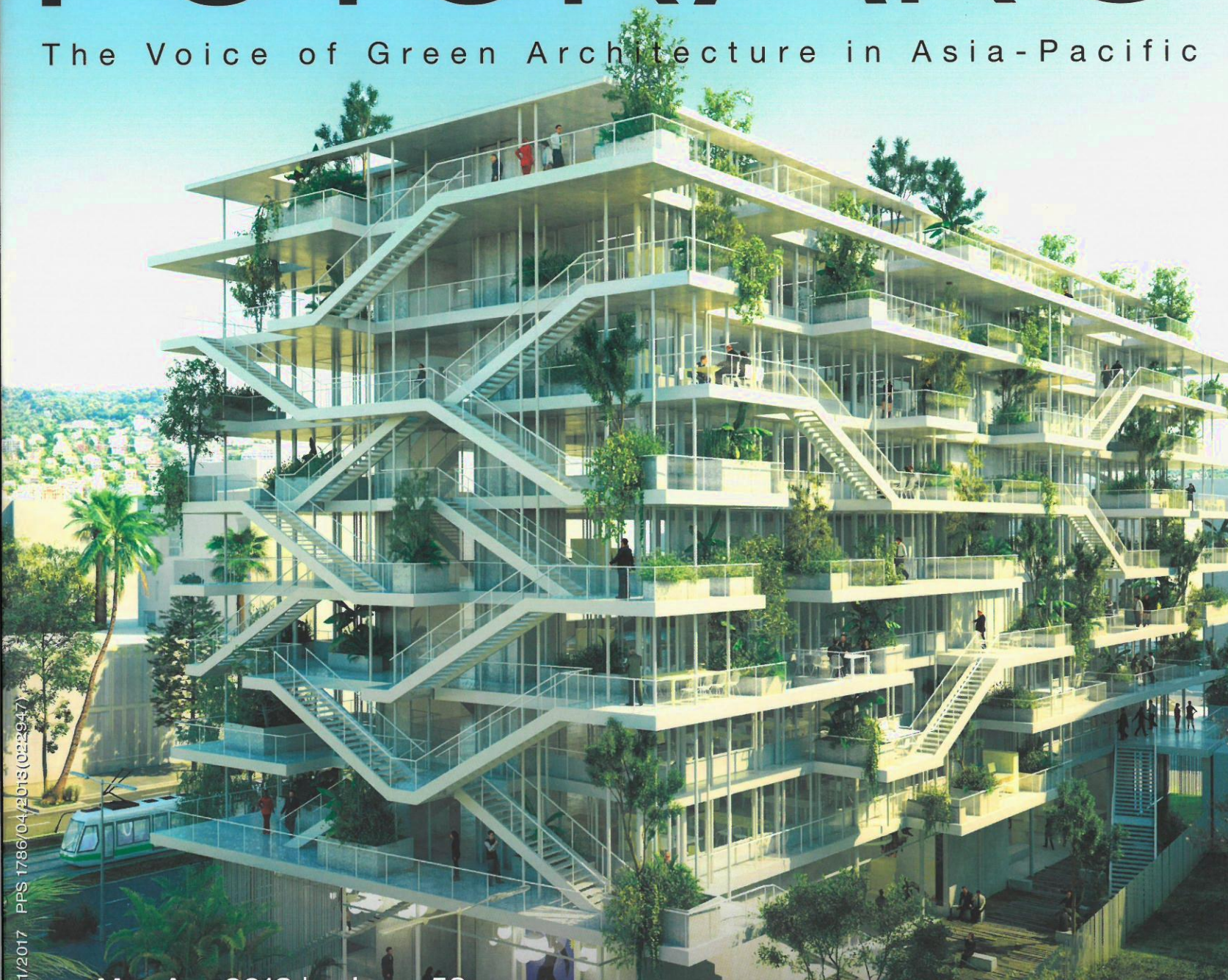


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The New Workplace

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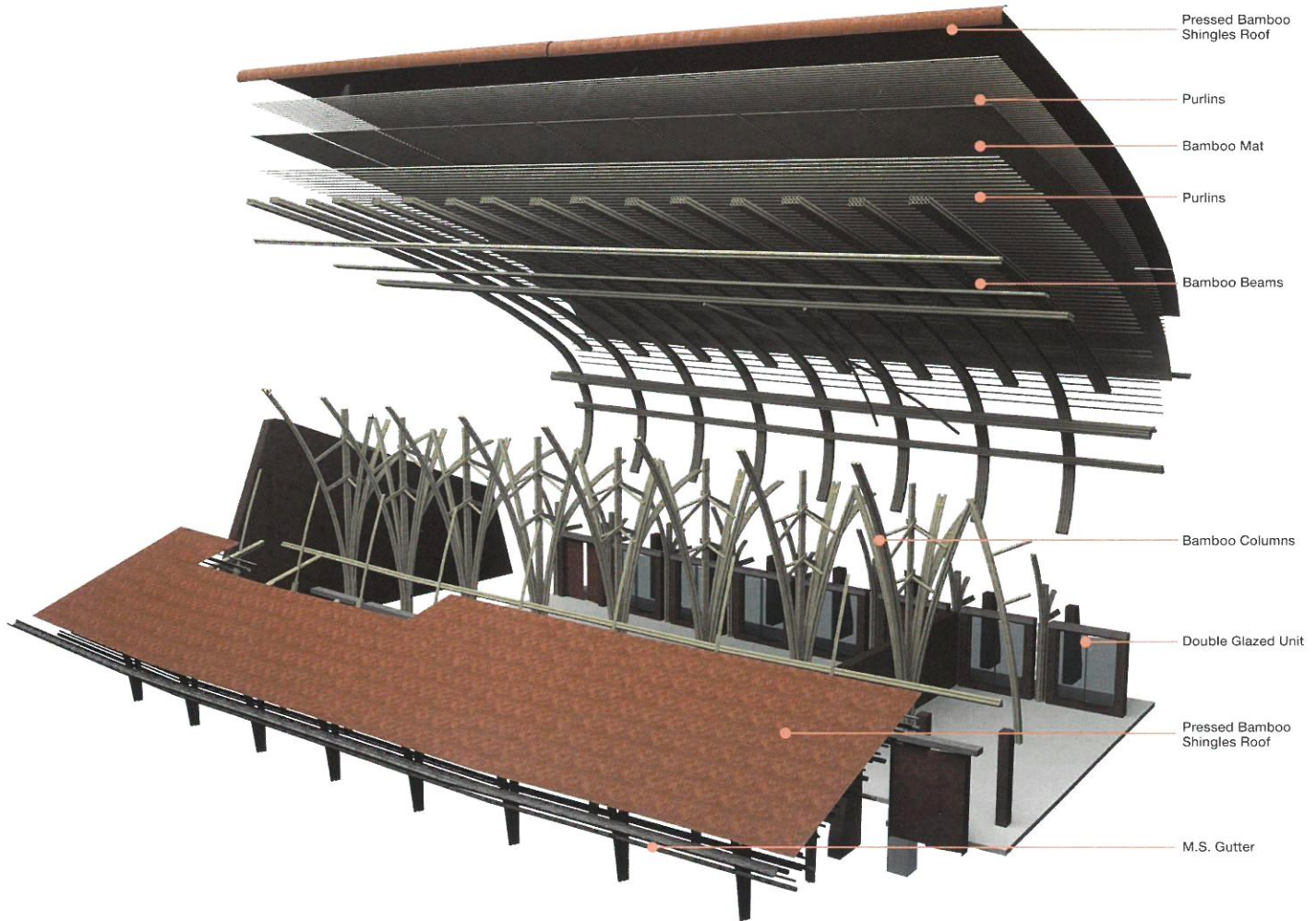
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INDIA



BAMBOO RESEARCH AND TRAINING CENTRE

by **Nitika Agarwal**

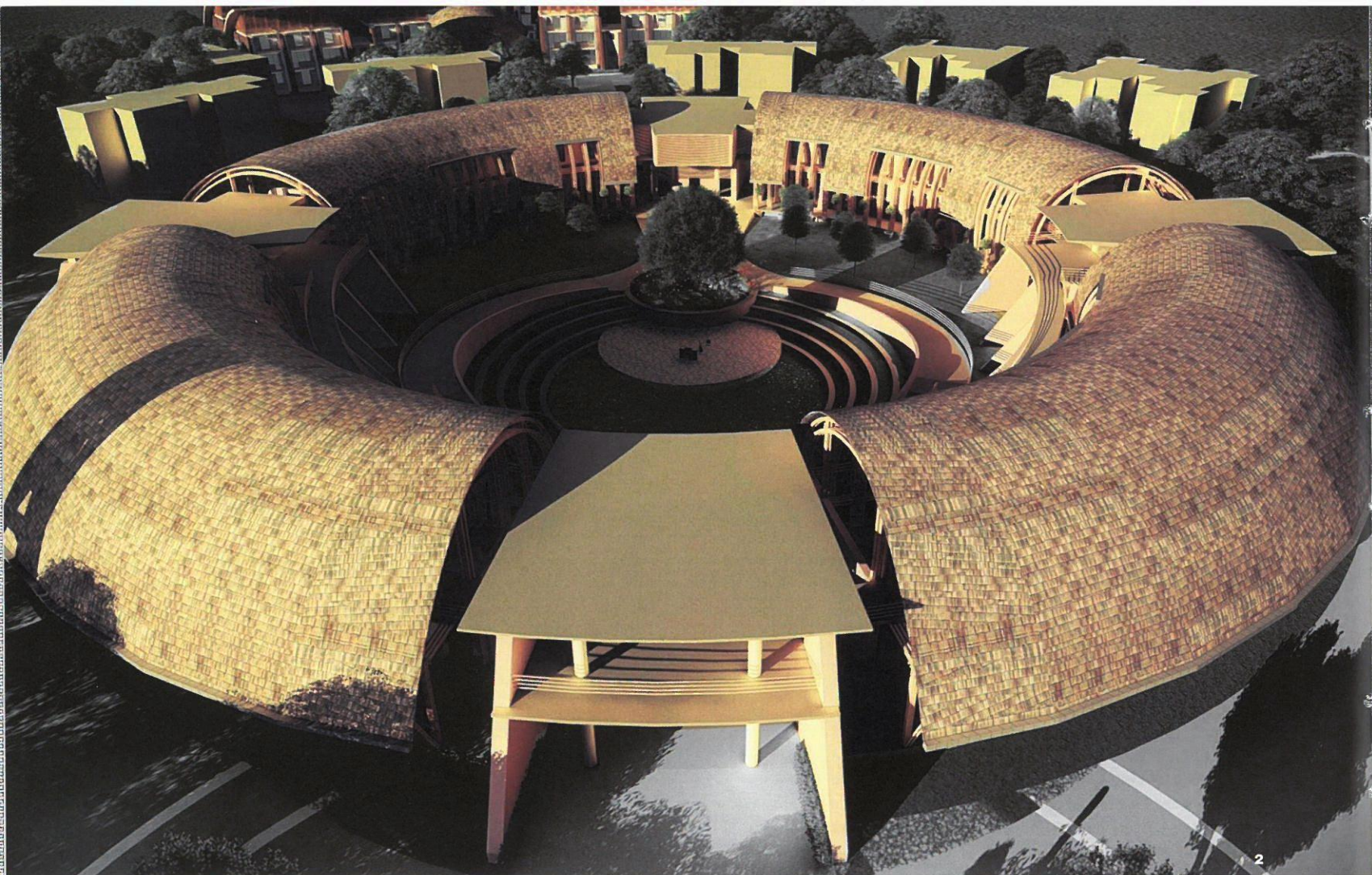
Conceived as one of Asia's largest training centres built from locally available bamboo, the Bamboo Research and Training Centre is located in the tribal village of Chichpalli, close to areas under the influence of Naxalism. The project aims to empower the tribal communities, which have been relying on non-timber forest produce for livelihoods, by developing their skill sets from traditional agricultural know-how to crafting and manufacturing local bamboo. This centre is a collaborative effort between the Maharashtra government and Tata Trusts to improve the socio-economic conditions of the district and its neighbouring villages by embarking on the abundance of local resources and putting them into practice, with related technologies.

The 12.5-acre campus is designed as an eco-farm, where the buildings are interspersed within the existing landscape. Taking a holistic approach to design and construction, the centre demonstrates creative ways of protecting the environment, preserving resources and employing indigenous materials to create greater values for the community. Recent engineering advances, easy availability and its low-embodied energy were some of the few obvious factors for choosing to build in bamboo, besides taking the opportunity to demonstrate its strength and potential. The project intends to encourage a livelihood that the community can identify with and own, in addition to providing a platform that can lead to micro- and small-scale industrial developments in the region.

ECO-FRIENDLY CAMPUS

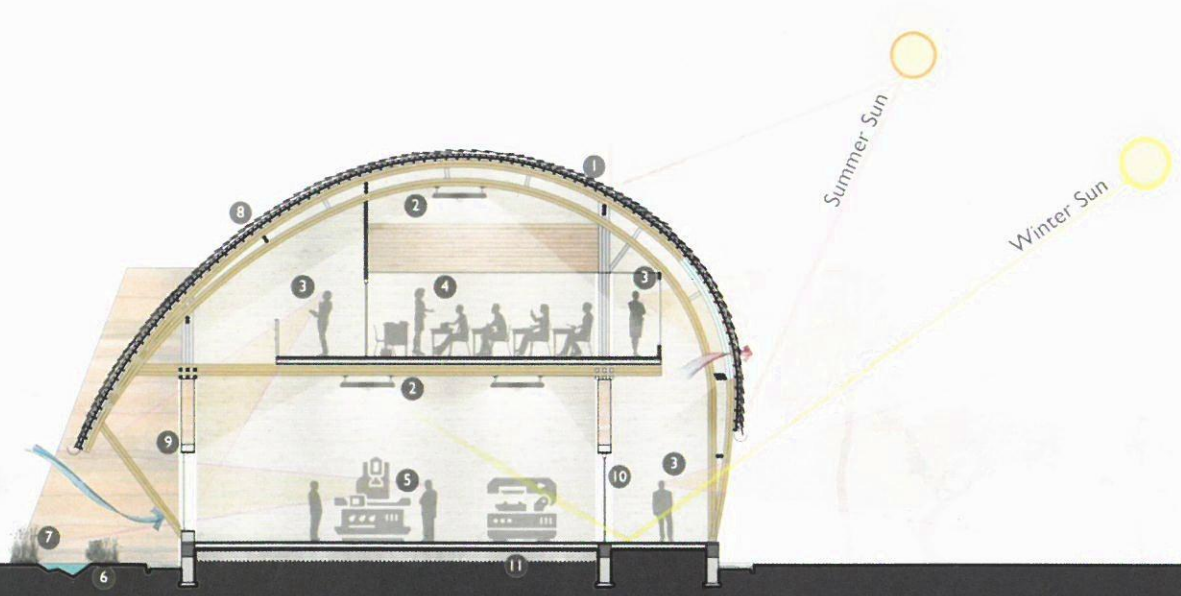
The centre includes four main components: administration and workshop; 5,750-square-metre academic block with seminar hall and classrooms; residences for staff; and hostel accommodation for students. As one enters, the first set of buildings includes the administration, workshop and exhibition centre placed strategically along the north-south axis. The larger side of the buildings open up to enormous gardens towards the front and rear, bringing in natural light to all floors while simultaneously allowing the much needed breeze. Sound orientation, massing, shaded hallways, bamboo screens with large openings on north and south, as well as linkages and landscapes support an active and experiential learning environment on the campus. The buildings attempt to defy the dependence on mechanised services and means with high energy intensity for occupant comfort by encouraging a low-energy lifestyle through multiple environmental strategies. Simple methods of preservation have been devised according to the site topography, climate and resources to minimise the project's impact on the environment. Existing trees are retained while rainwater percolation is maximised through bioswales planned along the site's boundary. Water harnessed from trenches and roofs overflows into a water-harvesting pond in the complex. Native species are carefully planted on the site as ground cover, with hedges and large trees minimising the urban heat island effect and providing 100 per cent pervious landscape, supporting water percolation. Walkways and cycle

1 Construction technology



2

1. High Albedo Roof (Bamboo Shingles)
2. LED Lights
3. View of Landscaped Areas
4. Classroom
5. Machineries (workshop area)
6. Rainwater Swale
7. Rammed Earth Wall
8. Bamboo Shingles + Bamboo Mat Roof
9. Stone Chaukhats
10. Bamboo Doors
11. Cable Tray in Floor



paths run organically along the site, joining various components of the centre while maintaining a balance in vehicular and pedestrian traffic. The academic centre is housed in a circular building that forms a ring-like structure around a massive central courtyard. Borrowing from the traditional building typology, the central green space brings daylight into the classrooms, provides ample ventilation and above all, encourages an active environment within the complex. This centre of activity features as the heart of the campus with an open-air theatre, pocket gardens and walkways that link to the buildings in the north and the arrival court in the south via covered entrances. The upper floors of the academic centre are connected through open ramps in the central courtyard to create a more immersive, communal learning experience.

BUILDING MATERIALS

The campus is designed using materials that are low in embodied energy and are easily available on-site. Excavated soil was used extensively to create rammed earth walls while bamboo has been used as the primary load-bearing material for columns, roof and beams. The structures are designed as per the National Building Code of India using creative standard details and devising new ones. Identifying appropriate species, engineering of joints and treatment for a 50-year-lifespan were some of the key aspects of the design that were mastered through research, trials and exploration.

The Bamboo Research and Training Centre emerges from the evolution of sociocultural, climatically relevant built forms. The project intends to empower (through its design and facilities) the local population of Chandrapur by providing expertise in building bamboo structures, furniture and crafts with proper knowledge and technologies in indigenous materials that they can identify with.

PROJECT DATA

Project Name
Bamboo Research and Training Centre,
Chichpalli

Location
Chichpalli, Chandrapur, Maharashtra,
India

Status
Under construction

Expected Completion
January 2019

Site Area
12.5 acres

Gross Floor Area
16,700 square metres

Building Height
13.5 metres (maximum)

Clients/Owners
Sir Dorabji Tata Trust; Forest Department,
Chandrapur

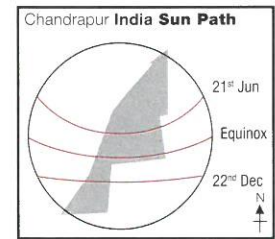
Architecture Firm
SHIFt (Studio for Habitat Futures Pvt Ltd)

Principal Architect
Sanjay Prakash

Electrical Engineer
Vijay Sethi

Civil & Structural Engineer
Skeleton Consultants (Dr Abhay Gupta)

Images/Photos
SHIFt (Studio for Habitat Futures Pvt Ltd)



2 Exterior view of the academic block
3 Sectional diagram of the academic block
4 Floor plan of the academic block

