

# FACILITIES

## **PALAEOANTHROPOLOGICAL LABORATORY AND MUSEUM WITH ANCIENT SKELETAL REPOSITORY**

### **ESTABLISHMENT:**

The Ancient Human Skeletal Remains Repository was established by Founder Director B.S. Guha in the year 1945. At the end of May 1948 when the Anthropological Survey of India shifted from Varanasi to the Indian Museum Building, Calcutta, all the collections were shifted. Further, some of the ancient skeletal remains, fossils and stone tools collected from Siwalik hills are also stored and displayed at North West Regional Centre (NWRC), Dehradun.

### **REPOSITORY:**

- ***Skeletal Remains***

Sites - 25 ancient sites 20 historical sites and 10 contemporary sites (approximately 43 communities)

Bones - More than 500 contemporary skulls, approx. 400 mandibles, and numerous fragmentary and complete long and short bones of upper and lower extremities, symphysial rib cages and vertebral column.

- ***Fossil Remains***

Sites - More than 30 (~31 and unknowns)

~230 complete and broken skulls, ~150 mandibles, ~5000+ long short and irregular bones, vertebrae, ribs, and pelvis along with animal and plant remains and artefacts and pottery.

- ***Stone Tools –***

More than. 9000 stools collected from Narmada Valley and Siwalik Hills are stored and some are displayed both in Head Office, Kolkata and NWRC, Dehradun.

## **SIGNIFICANT COLLECTIONS**

### **ANCIENT HUMAN SKELETAL REPOSITORY IN ANTHROPOLOGICAL SURVEY OF INDIA, KOLKATA AND NWRC, DEHRADUN BELONG TO THE FOLLOWING SITES:**

#### **HARAPPA:**

The Archaeological Survey of India discovered skeletal remains of Harappa, available in the repository of the Anthropological Survey of India. These were excavated from the site namely Montgomery district, Sind, Punjab, Pakistan during 1928-1946. Harappan culture belonged to the Bronze Age. From radiocarbon dating the period of Harappan culture was determined as 2300 to 1750 BC.

#### **MOHENJO-DARO:**

Like Harappan skeletons, the Archaeological Survey of India also discovered Mohejo-Daro skeletons. The site name and locality are Sind, Larkana district, Pakistan. Excavation/discovery took place during 1922-1927 and 1928-1929. Mohenjo-Daro culture belonged to the Bronze Age. The dating of the specimens (relative, radiometric) was between 3250 and 2750 BC.

#### **KALIBANGAN:**

Kalibangan skeletal remains were excavated/discovered from Ganganagar district, Rajasthan by the Archaeological Survey of India in 1961. The culture of these people was Chalcolithic. The C14 dates for Kalibangan were 2370±115 BC and 1825±110 BC.

#### **LOTHAL:**

Skeletal remains of Lothal were discovered in Ahmedabad, Gujarat by the Archaeological Survey of India from 1958-1960. The cultural affiliation of these people was the Bronze Age. Radiometric dating based on the C14 method ascribed that these belonged to 2650±145 BC.

#### **RUPAR:**

Rupar skeletal remains were excavated/discovered from Rupar, Punjab by the Archaeological Survey of India during 1954-1955. Bronze Age culture was the culture of the Rupar people. The dating of the Rupar specimens (relative, radiometric) was 2100 to 1400 BC.

#### **BURZAHOM:**

Burzahom sites are situated on a terrace of karewa clay above the marshy flood-plain of the river Jhelum, 10 km north-east of Srinagar in Kashmir, Jammu and Kashmir. Burzahom's skeletal remains were excavated/discovered by the Archaeological Survey of India during 1961-1968. The culture of these people was Neolithic. The dating of the specimens, as evident from the C14 method was 2300-1500 BC.



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## **KURMITHA:**

Kurmitha skeletal remains were discovered in Kurmitha, Birbhum, West Bengal. Dr. D. K. Chakrabarti, Cambridge University in collaboration with the Directorate of Archaeology, West Bengal in 1992, discovered these. The culture of these people was Chalcolithic. The dating of the specimens (relative, radiometric) was around 1000 years BC.

## **KUNNATTUR:**

The skeletal remains of Kunnattur were discovered from Chingleput, Tamil Nadu by Archaeological Survey of India from 1965-1966. The culture of these people was Megalithic (Iron Age). Dating of these people was not possible.

## **SATANIKOTA:**

The skeletal remains of Satanikota were discovered in Kurnool district, Andhra Pradesh. Satanikota is located on the right bank of the river Tungabhadra in Nandikotkur taluk. The Archaeological Survey of India discovered these skeletal remains during 1977-1980. The culture of these people was Chalcolithic. The dating of the specimens (relative, radiometric) was around the 4th to 3rd century BC.

## **NAGARJUNAKONDA:**

The site name and locality of Nagarjunakonda's skeletal remains was Palnad Taluk, District Guntur, Andhra Pradesh. The site is on the right bank of the river Krishna. The culture of these people was Neolithic and Megalithic. The Archaeological Survey of India discovered these skeletal remains from 1956-1960. The dating of the specimens (relative, radiometric) was 2500-1500 BC (Neolithic) and 750-650 BC (Megalithic).

## **KUMHAR TEKRI:**

This site is situated on the outskirts of the city of Ujjain, Madhya Pradesh. The Archaeology Department of the former State of Gwalior discovered the burials in 1939. The cultural affiliation of these people was early historic. The dating of the specimens (relative, radiometric) was 2nd to 3rd century BC.

## **BRAHMAGIRI:**

The site name and locality of Brahmagiri was Molakalmur Taluk of the Chitradurga district, Karnataka. The culture of the people belonging to this period was megalithic and chalcolithic stone axe culture. Archaeological Survey of India along with the State Archaeology Department, Mysore discovered these skeletal remains in 1947. Dating of the specimens (relative, radiometric) was early 1st millennium BC to the beginning of the 2nd century BC (Stone Axe Culture) and 200 middle 1st century AD (Megalithic Culture).

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## **MASKI:**

Maski skeletal remains were discovered by the South-Western Circle of the Department of Archaeology, in collaboration with the Hyderabad Archaeology Department from January to March 1954. This site is located in Lingsugur of Raichur district, Karnataka. The cultural affiliation of the people was Chalcolithic (period I)/Megalithic (period II)/Early Historic (period III). The dating of the specimens (relative, radiometric) was 1st millennium-400 BC (Chalcolithic), 200 BC-1st century AD (Megalithic) and 1st-3rd century AD (Historic).

## **SANUR:**

Sanur's skeletal remains were discovered in Chingelput, Tamil Nadu. These were discovered by the Archaeological Survey of India during 1951-1952. The culture of these people was Megalithic. Regarding the dating of the specimens, it can be mentioned that no absolute dating is available. However, the series is earlier than the Brahmagiri series. The relative dating assigned is 300-200 BC.

## **RUPKUND:**

The site name and locality of Rupkund is Rupkund, Garhwal Region, of Uttarakhand. The Anthropological Survey of India discovered the skeletal remains of Rupkund in September 1956 and 2019. The cultural affiliation of the people was early historic. Radiometric dating based on C14 is estimated to be  $470 \pm 120$  years (C.U., Calcutta), and  $560 \pm 60$  years (Royal Institute, London).

## **KAUSAMBI:**

This site is situated IN Allahabad, Uttar Pradesh. Dr.G.R. Sharma, University of Allahabad discovered the skeletal remains during 1957-1959. The cultural affiliation of these people was early historic. The dating of the specimens (relative, radiometric) was  $185 \pm 45$  BC and 50-4509 AD.

## **PANDU RAJAR DHIBI:**

Pandu Rajar Dhibi site is situated on the valley of the river Ajoy in Burdwan, West Bengal. Directorate of State Archaeology, West Bengal discovered the skeletons FROM 1962 TO 1965. The cultural affiliation of the people was Chalcolithic. As per C14 approximate date, the dating is  $1012 \pm 120$  BC.

## **HARAIPUR:**

The Haraipur skeletal remains were discovered in Birbhum, West Bengal by the Archaeological Survey of India in 1965. The cultural affiliation of the people was Chalcolithic. Dating of the specimens is not available.

## **ARIKAMEDU:**

The Archaeological Survey of India discovered skeletal remains of Arikamedu from Pondicherry. The cultural affiliation of the people was Early Historic. Dating of the specimens is not available.



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## **ADICHCHANALLUR:**

The Adichchanallur skeletal remains were discovered IN Tirunelveli, Tamil Nadu by the Archaeological Survey of India during 1876/1908. The cultural affiliation of these people was Megalithic (Iron Age). The dating of the specimens (relative, radiometric) was Iron Age- ranges between 400-4000 years (Rea, 1903).

## **NALANDA:**

Nalanda's skeletal remains were discovered in Nalanda, Bihar by the Archaeological Survey of India from 1965-1966. The people belonged to the Early Historic Cultural Period. Dating of the specimens is not available.

## **TAXILA:**

The Archaeological Survey of India discovered these skeletal remains from Taxila, Pakistan FROM 1930 TO 1931. The cultural affiliation of the people was Early Historic. The dating of the specimens (relative, radiometric) was between 500 BC and 500 AD (Marshall, 1951).

## **AMIRTHAMANGALAM:**

Skeletal remains of Amrithamangalam were discovered in Chingelput, Tamil Nadu by the Archaeological Survey of India during April-July, 1955. The cultural affiliation of the people was Historic. Dating of the specimens is not available.

## **KHUNTITOLI:**

Khuntitoli's skeletal remains were discovered by the Archaeological Survey of India from Ranchi, Bihar in 1965. The people belong to the Megalithic cultural period. Dating of the specimens is not available.

## **SARAI NAHAR RAI:**

THE Skeletal remains of Sarai Nahar Rai were discovered in Pratapgarh district, Uttar Pradesh. The Archaeology Department of Uttar Pradesh discovered these remains in 1968. The cultural affiliation of the people was Mesolithic. Radiometric dating is estimated to be 8110 BC.

***In addition to the above, the Anthropological Survey of India collected more than 5000 stone tools and more than 500 fossils from Narmada Valley and Siwalik Hills.***

# **DNA LABORATORY ESTABLISHMENT**

**2004**

DNA LABORATORY OF CENTRAL REGIONAL CENTRE (CRC), NAGPUR

**2005**

DNA LABORATORY OF HEAD OFFICE, KOLKATA AND DNA LABORATORY  
OF SOUTHERN REGIONAL CENTRE (SRC), MYSORE

**2006**

NORTH EASTERN REGIONAL CENTRE (NERC), SHILLONG

**2007**

DNA LABORATORY OF ANDAMAN AND NICOBAR ISLANDS REGIONAL  
CENTRE (ANRC), PORT BLAIR

**2009**

DNA LABORATORY OF WESTERN REGIONAL CENTRE (WRC), UDAIPUR

**2011**

DNA LABORATORY OF NORTH WESTERN REGIONAL CENTRE (NWRC),  
DEHRADUN



# **DNA LABORATORY**

## **FACILITIES**

### **DNA ISOLATION FACILITIES:**

All the Laboratories are well equipped for DNA Isolation facilities from Blood Samples. The Head Office, Kolkata and SRC, Mysore are specially equipped for Microbial DNA Isolation from Fecal Samples.

### **DNA BANKING:**

All the AnSI Laboratories have the facilities for DNA Banking. Till now, more than 10000 DNA samples have been stored in DNA banking.

### **ADVANCED DNA ISOLATION FACILITY:**

Magna Pure LC 2.0 is an automated robotic magnetic bead-based DNA and RNA Isolation facility that is capable of isolating DNA and RNA from various biological materials. This facility is installed in the Head Office, Kolkata only.

### **DNA QUANTIFICATION AND GEL DOCUMENTATION FACILITIES:**

Spectrophotometry facilities and Gel Documentation are available at all the DNA Laboratories

### **PCR / AMPLIFICATION FACILITIES:**

PCR facilities are available with all the DNA Laboratories

### **DNA SEQUENCING:**

Anthropological Survey of India has two automated capillary array-based DNA Sequencers (Model 3730) from M/s Applied Biosystems, USA for analyzing fluorescently labelled DNA molecules installed at Head Office, Kolkata and Southern Regional Centre, Mysore since 2005-06.

The Sequencers are capable of sequencing 48 samples simultaneously, using 48 capillary arrays. The different sizes of capillary arrays i.e. 36 & 50 cm provide read lengths ranging from 500 bp to 800 bp. The integrated built-in Autosampler, sample plate stacker and bar code reader provide full automation and easy sample tracking.

### **GENE EXPRESSION FACILITIES:**

The Applied Biosystems 7500 and 7500 Fast Real-Time PCR Systems are integrated, versatile platforms for the detection and quantification of nucleic acid sequences. Real-time PCR combines thermal cycling, fluorescence detection, and application-specific software to measure the cycle-by-cycle accumulation of PCR products in a single-tube homogenous reaction. This facility is installed at Head Office, Kolkata.

The 7900HT Fast Real-Time PCR System is a real-time quantitative PCR system that combines 96- and 384-well plate compatibility and the TaqMan™ Low-Density Array with fully automated robotic loading and now also offers optional Fast real-time PCR capability. This facility is available at Southern Regional Centre Mysore.

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## CORE PHENOTYPE FACILITY

- Automated Biochemical Analyzer Erba EM 360 is installed at Southern Regional Centre, Mysore and Western Regional Centre, Udaipur. Erba EM 360 is a fully automated Biochemical analyzer, also known as a clinical chemistry analyzer, that measures metabolites in biological samples like blood or urine. It is being used in hospital laboratories to perform tests like albumin tests, sugar level tests, or to detect levels of enzymes and creatinine in the blood. It has a throughput of 360 tests per hour.
- Semi-Automated Biochemical Analyzer Merck Microlab 300 installed at North West Regional Centre, Dehradun. The Microlab 300 is a true semi-automated clinical chemistry analyzer in all its glory. A system that is designed as a clinical chemistry analyzer and not as a standard photometer.
- Luminex 200 is installed at Southern Regional Centre, Mysore. The Luminex 200 system is a compact analyzer that performs up to 100 immunoassays simultaneously using a single drop of serum sample.
- Immulite 1000 chemiluminescent immunoassay. The IMMULITE 1000 is the proprietary Test Unit, which offers a breakthrough in automated bead washing. This immunoassay system features an extensive menu, ease of use, reliability, robust hardware and excellent assay performance.
- Haemoglobin Variant Analyser: The VARIANT II TURBO Hemoglobin Testing System is a fully automated ion-exchange HPLC system installed at the Head Office, Kolkata. Sebia Capillary Electrophoresis is designed mainly to detect the Hemoglobin variant and is facilitated at Port Blair and Nagpur only.

**Cell Counter facility is available at Head Office, Kolkata, NERC, Shillong, NWRC, Dehradun and ANRC, Port Blair.**