



ST. ALOYSIUS INSTITUTE OF TECHNOLOGY

Recognised by N.C.T.E. Affiliated to R.D.V.V. Jabalpur M.P.B.S.E. Bhopal
Near Ekta Market, Gaur, Mandala Road, Jabalpur

Email : stalloysius1951@gmail.com, Website : www.saiteducation.in

Motto: Invention, innovation & creation

Aarambha

DEPARTMENT OF
SCIENCE EDUCATION

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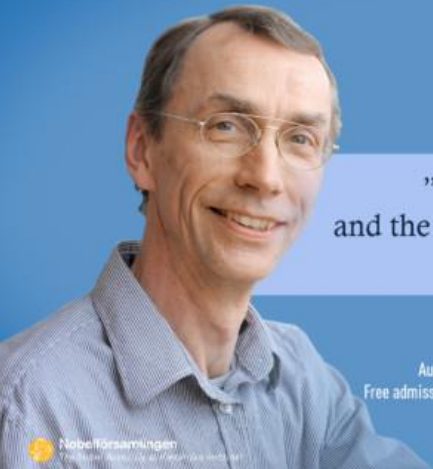
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The Nobel Lecture
in Physiology or Medicine 2022

"The Neandertal Genome
and the Evolution of Modern Humans"
Svante Pääbo

DECEMBER 7 at 3 PM

Aula Medica, Nobels väg 6, Karolinska Institutet, Campus Solna
Free admission. The lecture hall is open from 14.00. Seats must be taken by 14.45

Broadcasted at www.nobelprize.org

Nobelförsamlingen
Tryck: Nobeltryckeriet, Stockholm



"The Neanderthal Genome and the Evolution of Modern Humans"

Svante Pääbo was born in 1955 in Stockholm, Sweden. He defended his Ph.D. thesis in 1986 at Uppsala University and was a postdoctoral fellow at the University of Zürich, Switzerland, and later at the University of California, Berkeley, USA. He became Professor at the University of Munich, Germany in 1990. In 1999 he founded the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany where he is still active. He also holds an adjunct professor position at the Okinawa Institute of Science and Technology, Japan.

A door-opening discovery to understand the pre-historic relations of hominins.

A long-time debate is coming for certain questions to be answered with this discovery. Are there any linked hominins between Homo and Neanderthals? Neanderthals and Homo existed at the same time? Are they existed together and had something in common? What things supported the survival of *Homo sapiens*? The immune response we received from where? This article will try to explain the new synergic field and its application. Paleogenomics can unveil many layers of the pre-historic world and even rationalize previous findings of Palaeontology.

Research provided evidence has proven that the anatomically modern human, *Homo sapiens*, first evolved in Africa approximately 300,000 years ago, while our closest known relatives, Neanderthals, developed outside Africa and populated Europe and Western Asia from around 400,000 years until 30,000 years ago, at which point they went extinct. About 70,000 years ago, groups of *Homo sapiens* migrated from Africa to the Middle East and, from there they spread to the rest of the world. *Homo sapiens* and Neanderthals thus coexisted in large parts of Eurasia for tens of thousands of years.

In 2008, a 40,000-year-old fragment from a finger bone was discovered in the Denisova cave in southern Siberia. The bone contained exceptionally well-preserved DNA, which Pääbo's team sequenced. The DNA sequence was unique when compared to all known sequences from Neanderthals and present-day humans. Pääbo had discovered a previously unknown hominin, which was given the name Denisova. Comparisons with sequences from contemporary humans from different parts of the world showed that gene flow had also occurred between Denisova and *Homo sapiens*. This relationship was first seen in populations in Melanesia and other parts of South East Asia, where individuals carry up to 6% Denisova DNA.

Pääbo's discoveries have generated a new understanding of our evolutionary history. At the time when *Homo sapiens* migrated out of Africa, at least two extinct hominin populations inhabited Eurasia. Neanderthals lived in western Eurasia, whereas Denisovans populated the eastern parts of the continent. During the expansion of *Homo sapiens* outside Africa and their migration east, they not only encountered and interbred with contemporary hominins.

Paleogenomics and its Relevance - Through his groundbreaking research, Svante Pääbo established an entirely new scientific discipline, paleogenomics. Pääbo's discoveries have established unique new powerful methods for sequence analysis of archaic DNA.

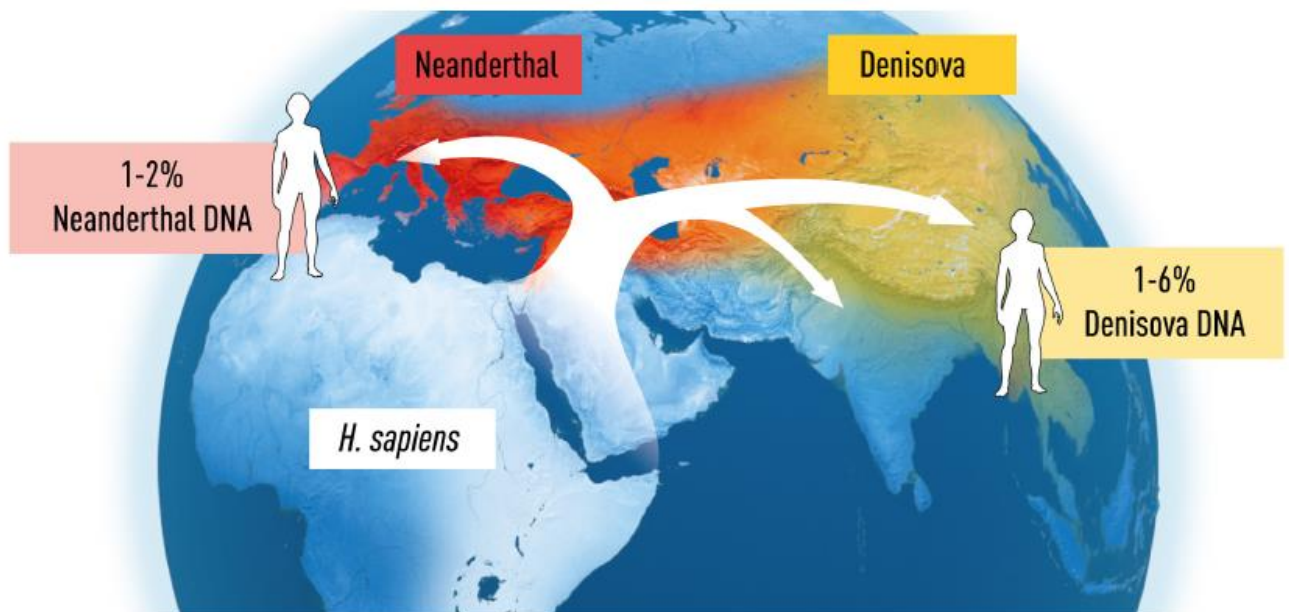


Figure Pääbo's discoveries have provided important information on how the world was populated at the time when *Homo sapiens* migrated out of Africa and spread to the rest of the world. Neanderthals lived in the west and Denisovans in the east on the Eurasian continent. Interbreeding occurred when *Homo sapiens* spread across the continent, leaving traces that remain in our DNA.

Activities



Farewell of B.Sc.B.Ed. 8th Semester (2018-24) was organized on 20/08/2022.



Educational Visit to TFRI, Jabalpur is organized for B.Sc.B.Ed.4th Semester. B.Sc.B.Ed.6th Semester on 08/09/2022.



Poster and Bird Feeder-Making Competition organized on account of Wildlife Week from 02/10/2022-08/10/2022.

Activities



Department organized 'Fancy Dress Competition- themed Indian Freedom Fighter' on the occasion of Gandhi Jayanti on 01/10/2022.



Stationary Distribution is organized for Primary and Secondary School students of Jamtara, Jabalpur on 22/11/22.

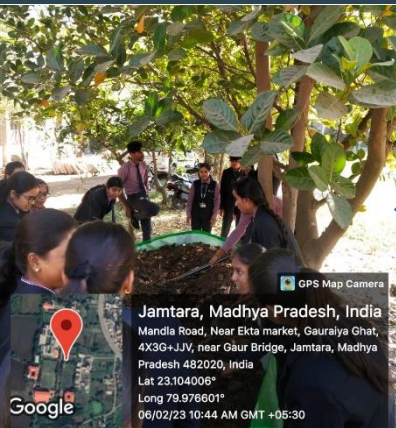


Department organized an Educational Visit to 'Rani Avanti Bai Bargi Hydel Power Station' and Historical Temple for BSc. B.Ed. 7th Semester on 14/01/2023.



ANAND UTSAV (Community Living) 4.0 organized on 21/01/2023.

Activities



‘Organic waste management by Vermicomposting’ is started as departmental best practice on 10/02/2023.

Certificate course themed ‘Mathematics for short tricks’ conducted from 11/04/2023 to 11/05/2023.



3 days FDP themed ‘Innovation, Trends and Techniques in Teaching Methodology’ organized from 24/06/2023 to 26/06/2023.



TFRI Educational Project of B.Sc. B.Ed. 8th Semester (2019 -2023) was organised on 8/05/2023



On account of Worlds Enviornment Day Department organised ‘Sakora hanging’ to quench the thirst of birds on 05/06/2023.

Faculty Achievements

Dr. Aradhana Dhanaraj

- ✓ Dr. Aradhana Dhanaraj, Assistant Professor, Department of Science Education was invited as Resource Person in DST-STUTI (Department of Science & Technology - Synergistic Training Program Utilizing the Scientific and Technological Infrastructure) sponsored National workshop on “Analytical Techniques on 22nd-23rd November 2022 at St. Aloysius’ Institute of Technology, Jabalpur.

Dr. Rashmi Choubey

- ✓ Published chapter in ‘Design and Applications of Theranostic Nanomedicines, Elsevier Publication’ in September 2022.
- ✓ Organised 7days NSS Camp in Village Paraswara from 16th Nov-22nd Nov 2022.
- ✓ Program Coordinator of District level quiz competition organized by Collectorate on 23rd Nov 2022.
- ✓ Invited for Judgement in District level quiz competition organized by Collectorate in Hitkarini College on 2nd Dec 2022.

Mrs. Pooja Sharma

- ✓ Chapter published in ‘jindgi aur hm’ in ‘Sahitya sugandh’ book by ‘Geeta Prakashan’ ISBN 978-93-91934-42-2 on November 2022.
- ✓ Paper presented in National seminar on ‘राष्ट्रीय शिक्षा नीति 2020 के साथ आत्मनिर्भर बनता भारत’ 23-24 September, 2022.

Dr. Rashmi Jaiswal

- ✓ Dr. Rashmi Jaiswal received **Research Excellence Award – 2023** for her outstanding contribution to the field of Electronics and Condensed matter physics during 1st International Conference on Advanced Optimization Techniques and Applications (AOTA - 2023) by Ramgarh Engineering College (Estd. by Govt. of Jharkhand & Run by Techno India Under PPP) in collaboration with Sultan Moulay Slimane University, Morocco City University, Malaysia.

Mrs. Ruchi Jain

- ✓ Paper presented in Seminar organized by Eklavya University under Theme-Digital education on 23-24 September 2022.
- ✓ Paper presented in a Two-day International seminar themed ‘Multidisciplinary Research in Education, Entrepreneurship, Employment, and Economic Development’ on 11-12 December 2022 topic ‘Suggestion for revised Right to Education Act’. Also received the best paper presentation Award.
- ✓ Paper presented in Seminar organized by Science College on 19-20 December 2022 topic A study of learner’s satisfaction from MOOCs.

B.Sc.B.Ed. 8th Semester (2018-22) Toppers



Shristi Gupta
First Rank
83.83



Pallvi
Second Rank
82.33



Swati Shukla
Second Rank
82.33



Sakshi Sahu
Third Rank
82.00

B.Sc.B.Ed.(2018-22) Toppers



Pallvi
First Rank
87.71



Swati Shukla
Second Rank
87.42



Shristi Gupta
Third Rank
86.06

B.Sc.B.Ed.(2018-22) Top dominators of Science Education

Student Name	Aggregate	Rank	Student Name	Aggregate	Rank
Pallvi	87.71	1st	Sakshi Sahu	85.56	6th
Swati Shukla	87.42	2nd	Chetana Rahangdale	85.21	7th
Shristi Gupta	86.06	3rd	Astha Pandey	85.00	8th
Siddhidatri Gupta	86.04	4th	Shreya Pandey	84.96	9th
Pratibha Patel	85.85	5th	Femilin John	84.92	10th

B.Sc.B.Ed. 3rd Semester (2021-25) Toppers

Student Name	Percentage	Rank
Riya Tiwari	83	1 st
Rashi Barmaiya	81.67	2 nd
Shivee Shrivastava	81.50	3 rd

B.Sc.B.Ed. 5th Semester (2020-24) Toppers

Student Name	Percentage	Rank
Ashika Jain	80.83	1 st
Komal Matriya	79.83	2 nd
Abhileka Verma	78.33	3 rd