ILTA
Since 1950

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ILTA PUBLICATIONS

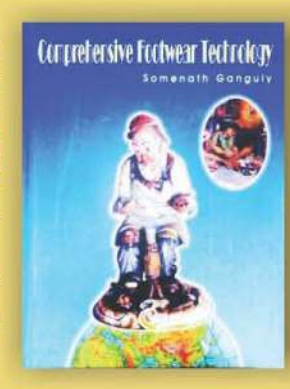
Title of the Book
Treatise on Fatliquors and Fatliquoring of Leather

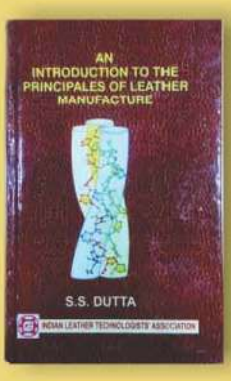
Author
Dr. Samir Dasgupta

Price per copy*
₹ 1500.00 / $ 60.00

Title of the Book
Comprehensive Footwear Technology
(Presently out of stock)
Author
Mr. Somenath Ganguly

Price per copy*
₹ 500.00 / $ 50.00





Title of the Book
An Introduce to the Principles of Leather Manufacture

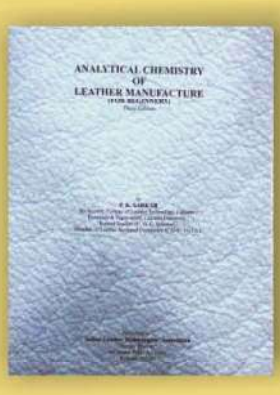
Author
Prof. S. S. Dutta

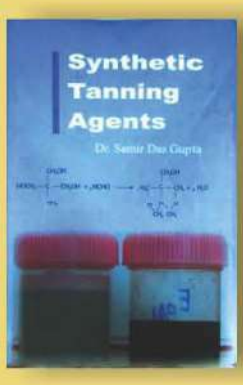
Price per copy*
₹ 800.00 / $ 50.00

Title of the Book
Analytical Chemistry of Leather Manufacture

Author
Mr. P. K. Sarkar

Price per copy*
₹ 300.00 / $ 10.00





Title of the Book
Synthetic Tanning Agents

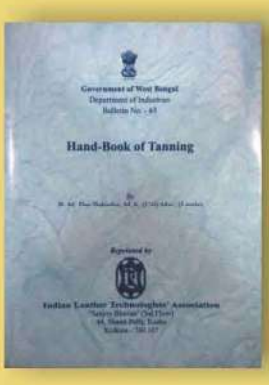
Author
Dr. Samir Dasgupta

Price per copy*
₹ 900.00 / $ 30.00

Title of the Book
Hand- Book of Tanning

Author
Prof. B. M. Das

Price per copy*
₹ 750.00 / $ 25.00



*Packing and forwarding charges extra

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Indian Leather Technologists' Association

[A Member Society of International Union of Leather Technologists' and Chemists Societies]

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JOURNAL OF INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION (JILTA)

Indian Leather Technologists' Association is a premier organisation of its kind in India was established in 1950 by Late Prof. B.M.Das. It is a Member Society of International Union of Leather Technologists & Chemists Societies (IULTCS).

The Journal of Indian Leather Technologists' Association (JILTA) is a monthly publication which encapsulates latest state of the art in processing technology of leather and its products, commerce and economics, research & development, news & views of the industry etc. It reaches to the Leather / Footwear Technologists and the decision makers all over the country and overseas.

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(Member Society of International Union of Leather Technologists and Chemists Societies)

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JOURNAL OF INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION (JILTA)

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Micro Economics to Grow Macro in 2024 - 2025

Major Economic Consensus Forecast shows small economies to record big growth in 2024–2025

Global Economic Consensus Forecast for world economic growth in 2024 and 2025 is muted at below 3%—among the slowest rates in decades—due to demographic aging, softer population growth, China's slowdown and a more fragmented global trade environment and up rise in regional extremism / conflict having major showdown on global trade. But many smaller countries are projected to buck the trend, with the panellists even forecasting three economies to grow by double digits. Guyana GDP growth is set to be stellar, as is that of Macao, Palau and Niger.

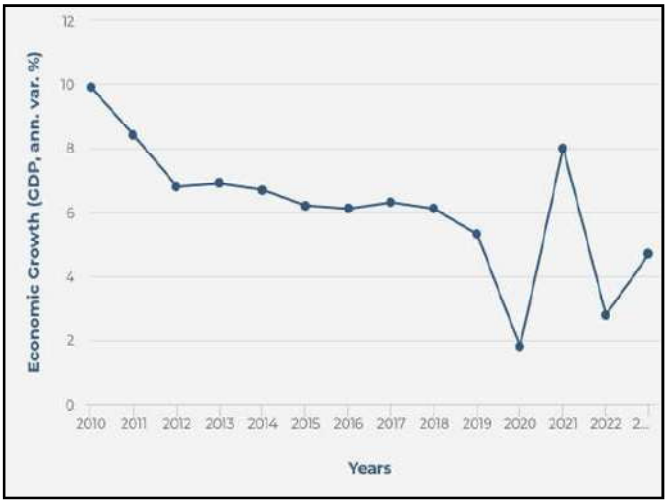
GDP growth of Guyana to come out on top - The country that borders Venezuela in South America—should record average GDP growth of 24.0% in 2024–2025, according to our Consensus Forecast. This will be due to Guyana's oil output rising from virtually zero in 2019 to close to 1 million barrels per day over the next two years, fuelling government spending and investment in turn. However, a potential war with Venezuela over the disputed, resource-rich Essequibo region is a major downside risk, while the oil surge could lead to corruption and cronyism that hampers Guyana's institutional development.

Macao to be second fastest-growing economy - A special administrative region of China akin to Hong Kong—is projected by our Consensus Forecast to expand around 14% in 2024–2025. This will be largely due to recoveries in the tourism and gambling sectors as mainland Chinese visitors return en masse following several years of tough lockdown restrictions. As such, Macao's economic performance will hinge on that of mainland China, and could deteriorate suddenly in response to a recession on the mainland.

Palau to benefit from rising tourism - A nation formed of hundreds of islands in the Pacific Ocean—should record GDP growth of 12.0% on average this year and next. This will likely be due to a strong rebound in tourist arrivals from East Asia—the key driver of the economy. In 2023, visitor numbers were still well below pre-pandemic levels, highlighting still-elevated potential for catch-up growth. However, spikes in food and fuel prices will remain a key downside risk to our Consensus Forecast, given Palau's dependence on imported goods. Extreme weather events and sea-level rises linked to climate change are also concerning.

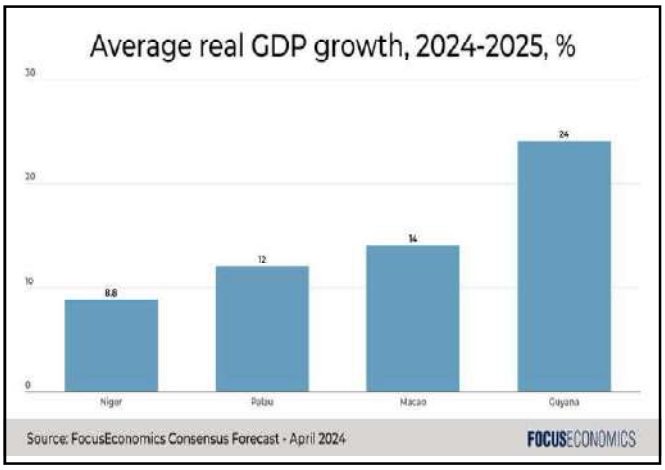
Economic Outlook of East Asia

Regional growth will slow this year from last as the post-pandemic boost to activity in China and Hong Kong disappears. However, Korea and Taiwan will grow faster on rebounds in exports and industrial production. Mongolia will stay by far East Asia's top performer thanks to strong mining investment, higher wages and social spending, and a burgeoning tourism industry. Consumer prices in East Asia fell 0.4% year on year in January (December: +0.1% yoy). Faster deflation in China and lower inflation in Korea and Taiwan drove the downturn in regional prices. In 2024, price pressures are projected to be muted across the region with the exception of Mongolia, which will see elevated inflation on the back of expansionary fiscal policy.



Niger's economy will get a boost from sanctions relief - The economy should see 9% growth on average this year and next, according to economic panellists, with growth in 2024 forecast to be in double digits. Activity will be buoyed in 2024 by normalizing cross-border trade following the lifting earlier this year of sanctions imposed by other West African states in response to the 2023 coup. Moreover, oil production from the Agadem basin is expected to rise more than fivefold later this year thanks to a new Chinese-built pipeline. But heightened geopolitical instability will continue to hold back potential, and Niger will remain among the world's poorest economies. Reporting from the summit in Abuja, Al Jazeera's Ahmed Idris said, "Almost all the sanctions imposed on Niger have been lifted," including land, sea, and air blockades, and sanctions barring Niger from economic and financial institutions in the region. However, ECOWAS placed "some conditions" on the lifting of the sanctions, he added. "They want the immediate release of President Mohamed Bazoum and members of his family." Niger's President Bazoum was deposed in a military coup last July, prompting ECOWAS to suspend trade and impose sanctions on the country. He is still imprisoned in the presidential palace in Niamey. On the eve of the summit, his lawyers urged ECOWAS to demand his release.

Earlier this week, ECOWAS co-founder and former Nigerian military leader General Yakubu Gowon also called for the bloc to lift "all sanctions that have been imposed on Burkina Faso, Guinea, Mali and Niger". "Even before today's summit, there has been a change in tone, in language and also the approach of ECOWAS entirely to the sanctions and embargoes imposed on these three West African countries," Idris said. Easing sanctions is seen as a gesture of appeasement as ECOWAS tries to persuade the three states to remain in the nearly 50-year-old alliance and rethink a withdrawal. Their planned exit would undermine regional integration efforts and bring a messy disentanglement from the bloc's trade and services flows, worth nearly $150bn a year. ECOWAS on Saturday gave the three military-led countries "an opportunity to be members of the organisation once again", Idris said, adding that they asked them to be part of "technical discussions of the ECOWAS bloc" without restoring them as full participating heads of state at summits or major conferences.



On the oil sector's contribution to Guyana GDP growth, **EIU** analysts said :

"We estimate average oil output of 642,400 barrels/day in 2023, which will continue rising to an average of 921,800 b/d in 2024 25. The development of new oil blocks will also support growth in the short term as investments come in and fuel the local economy, but oil output from those new endeavours is likely to materialise beyond 2025."

On Niger, **Oxford Economics** analysts said :

"Progress on Niger's oil pipeline continues to advance steadily. Once completed, the 2,000 km Niger-Benin Oil Export Pipeline will be the longest cross-border crude oil pipeline in Africa. The conduit will feature nine pit stops with a pipeline capacity of 110,000 barrels per day (bpd), of which 90,000 bpd will be earmarked for export."

Therefore, a trend of upside down in the economic show down is likely to happen henceforth in the world. Major and so far stable economies will have to relook into.

Goutam Mukherjee

Dr. Goutam Mukherjee
Hony. Editor, JILTA

Stahl Leather solutions

Stahl is proud to launch the renewed Stahl Neo® range: a future-proof portfolio of low-impact solutions covering the entire wet-end and finishing stages of leather production.

With growing awareness of environmental and health and safety impacts, the Stahl Neo® portfolio has been extensively reviewed and tested to help customers meet today's fast-evolving certification and compliance landscape for leather chemicals. This includes the recently updated Zero Discharge of Hazardous Chemicals (ZDHC) Manufacturing Restricted Substance List (MRSL) 3.1.

Following a rigorous internal review and testing programme, all products in the Stahl Neo® portfolio are in compliance with the following three criteria:

1. ZDHC: All Stahl Neo® products are compliant with Version 3.1 of the ZDHC MRSL for leather manufacture.

2. EU CMR: Stahl Neo® products are certified free from carcinogenic, mutagenic or reprotoxic (CMR) substances as per EU criteria.

3. EU REACH SVHC: Stahl Neo® products meet EU REACH criteria for substances of very high concern (SVHC) (less than 0.1% concentration).

As a result, Stahl is now able to offer tanners the most comprehensive range of future-proof solutions on the market – providing peace of mind for stakeholders across the leather article value chain.

Scan the QR code to download the Stahl Neo® brochures and discover the specific benefits of each product in our portfolio.

www.stahl.com

Stahl is a world leader in speciality coatings and treatments for flexible materials. Around the world, nearly 2,000 Stahl colleagues are driven by a clear purpose:
Touching lives, for a better world.

Our diverse teams work on creative and innovative surface solutions that enable our customers to make fantastic products. Our coatings are found on everyday materials in the automotive, luxury goods, packaging, apparel and home furniture market, among others. When consumers touch everyday products, we touch their lives.

Being a world leader means we are dedicated to contributing to a better world together with our value chain partners. At Stahl, we aim to impact the market through innovation and sharing knowledge and by reducing our own operational footprint. Our approach is underpinned by our robust ESG strategy and our strong sense of social responsibility, a characteristic shared by leading global companies.

We promote:

- Teamwork
- Initiative
- Personal development
- Innovation
- Creativity

Working at Stahl, means being part of a versatile, ambitious team that is committed to working on innovative, high-quality coating solutions for our customers while making the world a better place. You will also be joining a diverse global community: headquartered in Waalwijk, the Netherlands, Stahl operates a network of 16 production sites and 37 application laboratories, supported by sales offices in 22 countries.

stahl.com

Stahl

STAHL ADDS STAYDRY WATERPROOF PERFORMANCE COATING TO INTEGRA® PORTFOLIO

Stahl, a leading provider of speciality coatings and treatments for flexible substrates, has launched the protective coating Stahl Integra® Dry 725, meeting the increasing demand for water-repellant technical fabrics.

Part of the Stahl Integra® toolbox, Stahl Integra® Dry 725 is a fluorine-free coating for water-repellent technical textiles that harnesses Stahl's proven polymer technology. Stahl has introduced Stahl Integra® Dry 725 in response to the growing market demand for fluorine-free, water-repellent technical textiles, which is projected to reach USD 605.1 million by 2029.

Jan Terras, Global Market Manager within Stahl's Performance Coatings division, says: "With Stahl Integra® Dry 725, we have added a new solution for technical fabric producers within our range of performance coatings, which offer superior performance without compromising on sustainability. Together with our partners, we are creating solutions to new and existing challenges and identifying areas where our advanced, polymer-driven technologies can truly add value, in support of our purpose – Touching lives, for a better world".

Stahl Integra® Dry 725 offers a balanced performance between repellency, durability and adhesion. Stahl's durable water-repellent (DWR) technology, StayDry, repels water from fabric by modifying the surface tension of fibres. The solution can be combined with other top or back coatings and is specifically designed for technical textile applications such as camping equipment or luggage. As a fluorine-free, waterborne coating that is cured at low temperatures, Stahl Integra® Dry 725 can help reduce environmental impact without compromising on quality.

About Stahl Integra®

Stahl Integra® is a modular 'toolbox' of tailor-made, customer-orientated protective coating solutions that simultaneously ensure product quality and superior fabric integrity. This means that specific mechanical functionalities – from flame-retardant and breathable coatings to stay-clean technologies – can be introduced at different stages of the production process to meet specific end-market requirements as needed. These solutions help fabric producers to not only comply with regulatory and environmental demands, but also to achieve the highest standards in mechanical properties, fabric integrity, and other market requirements.

(Stahl News – 22/04/2024)

STAHL'S 2023 ESG REPORT CHARTS FURTHER PROGRESS IN MEETING ENVIRONMENTAL, SOCIAL AND GOVERNANCE GOALS

Stahl, a leading provider of speciality coatings and treatments for flexible substrates, has published its 2023 Environmental, Social and Governance (ESG) Report. The report outlines Stahl's recent progress on its ESG Roadmap to 2030 and the steps the company is taking to live its purpose of Touching lives, for a better world. The report is available now as a/ fully digital version.

Maarten Heijbroek, CEO of Stahl: “Stahl’s 2023 ESG Report looks back on an important year for Stahl and its people. We delivered on our interim ESG Roadmap milestones and defined our new interim goals for 2026, that support our ambition to be an ESG leader in our space. In April 2023, we launched our new purpose: Touching lives, for a better world. I believe this sent a clear message about the kind of company we aspire to be and the impact we want to have on society. I look forward to collaborating with our value chain partners to make even more impact in 2024.”

Exceeding interim environmental targets

Stahl’s ESG Roadmap to 2030 includes interim targets for 2023, making this a year in which Stahl reached several important milestones. For example, the company reduced its scope 1 and 2 greenhouse gas (GHG) emissions by 22% versus 2022. Furthermore, in 2023 the Science Based Targets initiative (SBTi) validated Stahl’s scope 1, 2 and 3 targets, making it one of the first coatings companies on the SBTi-approved list.

To reduce its GHG emissions, Stahl is actively increasing its use of clean energy. At the end of 2023, renewable energy generation, such as solar panels, had been installed at four Stahl sites, compared to its target of three.

Measuring – and reducing – the impact of products is an important step in the company’s scope 3 emissions. As such, 353 Stahl products now have either life cycle assessment (LCA) or product carbon footprint (PCF) data, far exceeding the 2023 target of 50.

New ratings and certifications

In 2023, 2,161 of Stahl’s products were certified by Zero Discharge of Hazardous Chemicals (ZDHC), in line with ZDHC MRSL V3.1. These products represented 70% of the company’s sales revenue, demonstrating increased demand for coatings with a lower risk to health and the environment. Stahl was also proud to achieve a Platinum rating from EcoVadis for the second year in a row, which places it in the top 1% of companies evaluated. Stahl also exceeded its 2023 target of an average EcoVadis rating of at least 60/100 for their top ten suppliers, with an average rating of 68/100 reported in December 2023.

Fostering a safe and welcoming work environment

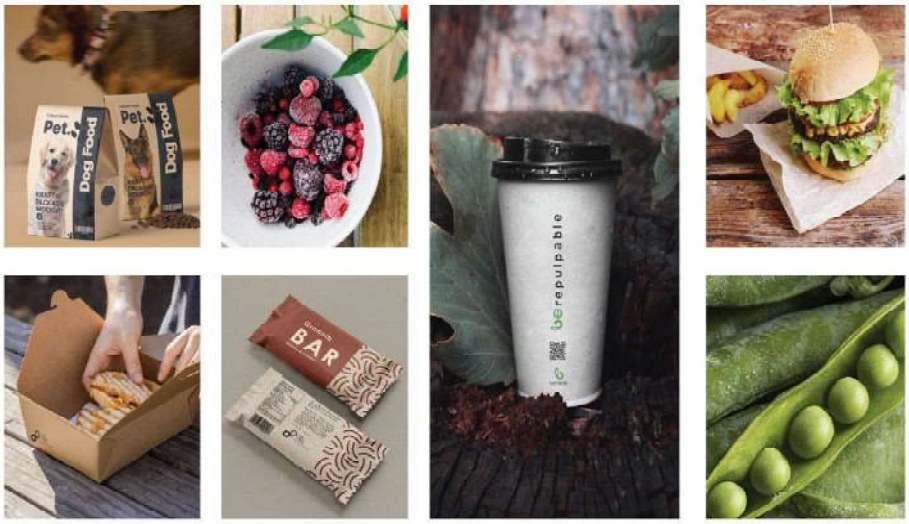
A core pillar of Stahl’s ESG approach is how it supports its employees’ physical and mental well-being. The 2023 ESG Report outlines several examples of this commitment, such as improvement in its key safety KPIs for the third year in a row.

Besides keeping people safe, Stahl continues to make progress in fostering an open and inclusive workplace. For example, in support of diversity, equity and inclusion (DEI), Stahl appointed its first female leadership team member, trained 98% of its staff in DEI and established DEI committees at all Stahl sites. In addition, to strengthen communication, engagement and collaboration across the workforce, Stahl also established an internal workplace hub, MyStahl.

(Stahl News – 17/04/2024)

STAHL STRENGTHENS SUSTAINABLE PACKAGING COATINGS OFFERING WITH BARRIERTEC LICENSING AGREEMENT

Stahl, the world leader in speciality coatings and treatments for flexible substrates, has signed an exclusive licensing agreement with Barriertec, a provider of sustainable high-performance barrier solutions for paper and cardboard packaging.



The licensing agreement gives Stahl exclusive rights to sell Barriertec's sustainable barrier coatings product to the packaging market under the Stahl brand. The products will also carry the Barriertec and Be Repulpable label.

Barriertec's solution enables the application of sustainable barrier coatings onto paper, providing excellent barrier properties for oxygen, water, oil and grease to packaging and supporting the recycling and reuse of paper fibers in new packaging solutions. The sustainable barrier coatings offer significant benefits to food packaging manufacturers, in particular, supporting the industry's transition to fully recyclable paper-based packaging.

Paolo Bavaj, Chief Innovation and Development Officer at Stahl, said :

'Sustainability is a key pillar at Stahl as we embrace new technologies that can help our customers increase the recyclability of their products and manage their environmental footprint. Supported by our in-house R&D capabilities, our aim is to scale this technology and expand our toolbox of tailored packaging coatings solutions for customers. This exciting partnership with Barriertec supports our sustainability ambitions and strengthens Stahl's position as a market leader in speciality coatings for flexible substrates.'

Paul Grzebielucha, Global Director Packaging Coatings at Stahl, said :

"We at Stahl take our role of being a leading and responsible supplier in the food and packaging chain as a serious quest. We feel this partnership with Barriertec and Francois Dandenault helps us take a major step at saving fibres, reducing waste and making a step change improvement that allows single coated substrates to replace difficult to recycle multilayer materials. This new line of repulpable, enhanced properties, thin film coatings, with our ability to supply them worldwide, will take a huge step at supporting a sustainable packaging lifecycle for our customers worldwide.

Francois Dandenault, Owner & CEO Barriertec Packaging & Group Research I.D., said :

"Barriertec's mission is to find better, greener options like developing new coating technologies that help introduce renewable and bio-sourced components. Our unique approach enables us to lead the market with our technology while remaining competitive, thanks to our innovative processes. Based on industry needs, we have defined the technological requirements for repulpable packaging coatings. It's essential to surround ourselves with the best, with those who share our vision, so it was only natural for us to partner with Stahl. Barriertec's technology is now part of a worldwide network offering one of the world's most effective barrier solutions: repulpable packaging made from renewable fibres. So, take the green step, be the change! Be Repulpable!"

The agreement with Barriertec is the latest step in Stahl's strategy to strengthen its packaging coatings offering, with a focus on providing high-quality, sustainable solutions to printing and packaging customers. In March 2023, Stahl expanded its market share in packaging coatings with the acquisition of ICP Industrial Solutions Group (ISG), a leading supplier of high-performance coatings for packaging and labelling applications.

(Stahl News – 14/03/2024)

LOW IMPACT WET – END LEATHER CHEMICALS FOR HIGH QUALITY LEATHER

At Stahl, we work closely with our partners to shape a better chemicals industry. We support tanners with low-impact chemical solutions to help them meet growing demand for sustainably produced leathers. Our portfolio of wet-end leather chemicals complies with rising environmental standards without sacrificing leather quality.

Our wet-end solutions form part of our low-impact Stahl Neo® portfolio. This means they comply with the Zero Discharge of Hazardous Chemicals (ZDHC) Manufacturing Restricted Substances List (MRSL).

Stahl's wet-end portfolio comprises leather chemicals for beamhouse, tanning, re-tanning, fat liquoring, waterproofing, and wet-end dyeing. All our solutions are designed with sustainability in mind, enabling tanners to produce leather responsibly in keeping with today's environmental requirements.

THE WET-END LEATHER PRODUCTION PROCESS

The wet-end leather production process includes all steps in the beamhouse and tanning stages, starting from the cured hides arriving at the beamhouse.

Beamhouse – Soaking, liming, and degreasing

Once at the beamhouse, the hides and skins are soaked to reabsorb water lost during curing and transportation, or after flaying. During soaking, the hides are also cleaned to remove salt, blood, and dirt. Next, hairs, epidermis, and interfibrillar proteins are removed during liming. Finally, fats and greases are removed to improve the penetration of tanning materials and dyes and to make the leather soft and pliable.

Tanning – Deliming, bating, and tanning

During the deliming stage, the hides and skins are cleaned to remove the chemicals used during liming. The pH value is also reduced to prepare them for bating. During bating, the hides are treated with enzymes to soften them while maintaining their flexibility and firmness. Scud and unwanted proteins are also removed. After bating and – if required – pickling, the tanning agents are applied to the hides, converting the collagen structure to leather.

Re-tanning, dyeing, fat-liquoring, and waterproofing

Re-tanning helps to further stabilize the collagen network of the leather. The hides are colored with wet-end dyes. Oils and greases are used on the leather to prevent stiff leather cracking when it is bent acutely during fat-liquoring. When water resistance is required, the leather is treated with waterproofing agents.

Stahl offers tanners a variety of solutions that span the entire wet-end leather production process. For a complete overview of our wet-end chemicals portfolio, please download the product catalog below.

Stahl has a complete portfolio of wet-end leather chemicals, which enables tanners to produce high-quality leather more sustainably. Click on the links in the table below to find the products you need.

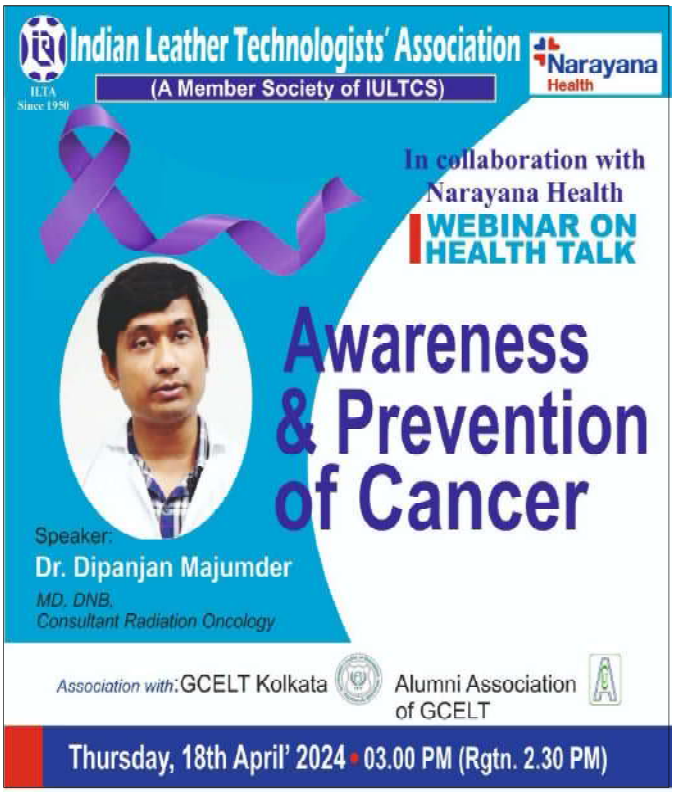
From the desk of General Secretary

ELECTION SCHEDULE FOR RECONSTITUTION OF THE EXECUTIVE COMMITTEE OF ILTA AND THE REGIONAL COMMITTEES FOR THE TERM 2024 - 2026

The Executive Committee of ILTA at an Emergency Meeting held on 09/04/2024 approved the following schedule for Election of Executive Committee of ILTA and the Regional Committees for the term 2024-2026.

Sl. No.	Events	Election Schedule for 2024-2026	Day
01	Mailing of Nomination papers & Voters' List on or before	02.05.2024	Thursday
02	Last date for receipt of Nomination Papers	24.05.2024	Friday
03	Last date for receipt of Consent	13.06.2024	Thursday
04	Last date for withdrawal of candidature	17.06.2024	Monday
05	Mailing of ballot papers on or before	06.07.2024	Saturday
06	Last date for receipt of ballot papers From voters residing outside KMDA area & 24-Pgs (N & S)	03.08.2024	Saturday
07	Casting of votes by voters residing in KMDA & 24-Pgs (N & S) Area at ILTA Administrative Office 10-00 to 17-00 hrs. LUNCH BREAK : 01-30 to 02-30PM	02.08.2024 & 03.08.2024	Friday & Saturday
08	Counting of votes at ILTA Administrative Office from 11-00 hrs. onwards	05.08.2024	Monday

WEBINAR ON COMPREHENSIVE CANCER CARE ORGANIZED BY ILTA



ILTA in collaboration with M/s Narayana Health and in association with Govt. College of Engineering & Leather Technology, Kolkata & Alumni Association of GCELT have organized a Webinar on Comprehensive Cancer Care on 18th April, 2024 at 03.00 PM on the digital platform of Zoom.

Dr. Dipanjan Majumder, MD, DNB, Consultant Radiation Oncology, delivered a lecture titled **"Awareness and Prevention of Cancer"** in this webinar.

This was an initiative of the HRD Committee of ILTA.

For detailed report of this Webinar, please follow Page No. 34

The video of this webinar will be available on the official YouTube Channel and the Facebook page of ILTA within a short while.

FREE HEALTH CAMP ORGANIZED BY ILTA

ILTA in collaboration with M/s Narayana Health and in association with the Govt. College of Engineering & Leather Technology, Kolkata & Alumni Association of GCELT, Kolkata organized a Free Health Checki Up Camp on 26th April, 2024 at Govt. College of Engineering & Leather Technology, Kolkata from 10 am to 5 pm. Around 130 persons participated in this camp and did the following tests in this camp :

- Checking Blood Pressure (BP)
- Checking Body Mass Index (BMI)
- Random Sugar Test
- Pulmonary Function Test (PFT)
- Bone Density Test
- Consultation with Doctor
- Electrocardiogram (ECG), as per doctor's advice.

This was an initiative of the HRD Committee of ILTA.

For detailed report of this Health Camp, please follow Page No. 35

HEALTH CARE BENEFIT FOR ILTA MEMBERS

As per decision taken in the 562nd Meeting of the Executive Committee, ILTA is going to launch Health Care Benefits for all the Members of our Association in collaboration with M/s Narayana Health w.e.f. 1st April, 2024. Initially the scheme is going to be launched for the members of Eastern Region as the Pilot Project.

For benefits and other details of this project may kindly follow the HRD Corner at Page No. 33.

DIGITALIZATION OF ILTA PUBLICATIONS

As per decision taken in the 562nd Meeting of the Executive Committee, ILTA is going to launch a digital platform for availing all its publications including Leather Text Books, JILTA and different articles from renowned authors of Leather Fraternity online.

Work on this project is under process. The details of the same will be published very soon.

(Susanta Mallick)
General Secretary

SNAPSHOTS of HEALTH CAMP

YOUTUBE CHANNEL & FACEBOOK PAGE OF ILTA

An official **YouTube Channel** namely **ILTA Online** and a **Face Book Page** namely **Indian Leather Technologists' Association** has been launched for sharing the activities of our Association since November' 2020 and July' 2021 respectively.

You may find all the Lives / Video recordings of different Seminar, Symposiums & Webinars on both of these social medias along with our website **www.iltaonleather.org** time to time.

You are requested to kindly do **Like** & **Subscribe** the YouTube Channel and **''Follow**' the FaceBook Page to get regular updates on the activities of our Association.

PUBLISH YOUR TECHNICAL ARTICLE

Faculties, Research Scholars and students of various Leather Institutes may wish to publish their Research / Project papers in an Article form in this monthly technical journal, JILTA.

Interested author may sent their paper (in MS Word format) along with a PP Photograph and Contact details like Email, Mobile etc. to our email IDs : admin@iltaonleather.org / jiltaeditor@gmail.com

Members are requested to :-

a) Kindly inform us your '**E-Mail ID**', '**Mobile No**', '**Land Line No**', through E-Mail ID: admin@iltaonleather.org or over Telephone Nos. : 24413429 / 3459. This will help us to communicate you directly without help of any outsiders like Postal Department / Courier etc.

b) Kindly mention your **Membership No.** (If any) against your each and every

RECEIVING PRINTED COPY OF JILTA EVERY MONTH

We have started to post Printed copy of JILTA from April' 2022 to members and all concerned as it was before Covid period. Simultaneously we have been sending the e-copy of JILTA through email also to all the concerned receivers.

If you are not receiving JILTA by Post or through email, may please verify your Postal Address and/or Email Id with our office at the earliest.

General Secretary and the Members of the Executive Committee are available to interact with members at 18.30 hrs, at our Registered Office on every Thursday

Solidaridad

switchasia

Funded by the European Union

PROJECT PARTNERS

PISIE

CLC TANNERS ASSOCIATION
(We Care for the Environment)

dugros

Stahl

Pradipta Konar, Sr. Programme Manager- Leather (Kolkata): pradipta.konar@solidaridadnetwork.org
Solidaridad Regional Expertise Centre
158/5, Prince Anwar Shah Road, Kolkata-700045 | Contact: 033-4060211, +91 98302798666

Solidaridad

switchasia GRANTS PROGRAMME

EFFECTIVE WASTE MANAGEMENT AND SUSTAINABLE DEVELOPMENT OF MSME TANNING COMPANIES IN KOLKATA LEATHER CLUSTER (BANTALA)

2022-2023

PROJECT PARTNERS IN ASIA

Pradipta Konar, Programme Manager-Leather(Kolkata): pradipta.konar@solidaridadnetwork.org

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CONSENT TO CONCRETE : "TRANSFORMING TANNERY SLUDGE INTO SUSTAINABLE PAVEMENT BLOCKS"

Abstract :

The Indian Leather, Leather Products, and Footwear Industry occupies a significant position in the Indian economy, renowned for its consistent high export earnings, ranking among the top ten foreign exchange earners for the country. This sector is a major source of employment and export revenue, deriving its raw materials from the by-products of the meat industry. However, the process of converting skins/hides into leather generates a substantial amount of sludge in the form of PTP and CETP sludge. Disposing of this sludge is not only costly but also contributes to land and air pollution, without realizing its potential for economic value. The accumulation of solid waste in landfills poses a serious threat to the surrounding ecosystem by contaminating groundwater. To address these conventional practices, Solidaridad, as the implementing partner of the EU-funded Switchasia Grant Programme, "Effective Waste Management and Sustainable Development of the MSME Tanning Companies in Kolkata Leather Cluster (Bantala)," has intervened to transform this waste into valuable products such as pavement blocks and tiles. By repurposing the waste into paver blocks, Solidaridad aims to reduce the burden on landfill sites and mitigate environmental risks.

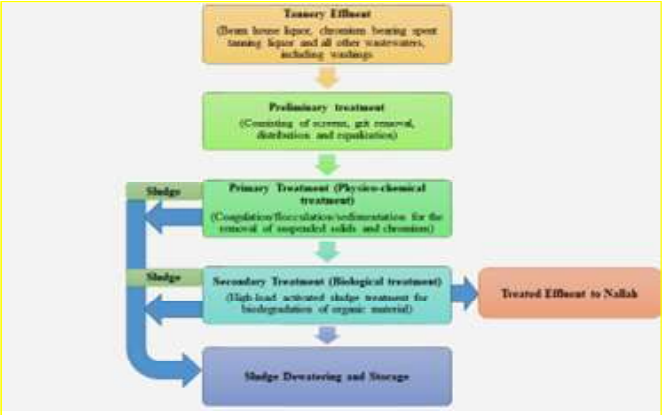
Introduction :

The leather industry stands as a prominent sector within India's industrial landscape, with key production hubs located in states such as Tamil Nadu, Uttar Pradesh, and West Bengal. Among these, Kolkata, the capital of West Bengal, emerges as a pivotal center for tanning activities. The Kolkata Leather Complex, situated in Bantala, hosts over 300 tanneries, highlighting its significance in the nation's leather trade. Central to the operations of the Kolkata Leather Complex is its Common Effluent Treatment Plant (CETP), a facility crucial for treating the effluent discharged by tanneries to align with the stringent standards set by the State Pollution Control Board (SPCB). Notably, the CETP handles a substantial volume of 10 tons per day of sludge, comprising both primary and secondary residues from the treatment process. Currently, this sludge is disposed of via secure landfilling, incurring a significant cost of INR 2500 per ton. The disposal of this sludge poses a significant challenge for stakeholders in the Kolkata Leather Complex, necessitating a technologically and economically viable solution for its safe and sustainable management. The tanning process inherently generates wastewater with high suspended solids content, leading to the formation of sludge in the effluent treatment process. On average, 100-150 kg of dry solid matter is produced per ton of hides or skins processed. In conventional treatment systems combining physio-chemical and biological methods, the majority of sludge, around 70-80 per cent, is generated in the primary treatment phase, with the remaining 20-30 per cent formed during the secondary biological treatment. The quantity of solids in the effluent is influenced by various factors, including the type of raw materials used, the tanning process employed, the chemicals utilized, and internal control measures within the tannery. Key stages such as first soaking and liming are identified as primary sources of suspended solids generation in the effluent.

Picture 1.0: Tannery Beamhouse Yard (Post Liming)

Conceptualization of idea into ground :

The preliminary treatment system comprises a fine screen, grit removal unit, distribution well, and an equalization tank. Wastewater from the collection network flows into a channel, where a screen chamber removes floating matter, and then into a grit chamber, which separates settleable solids.



The sludge from the primary sedimentation tank is pumped into a sludge collection tank, then transferred to a mechanical sludge dewatering system. The dewatered sludge was originally sent to a designated secure landfill, as its reuse was not feasible. However, Solidaridad reformed the entire approach by making methodical adjustments to the chemical composition. This effort resulted in the successful creation of paver blocks that are not only safe but also environmentally friendly in every aspect.

The initial step in utilizing this sludge involved analyzing its current composition using test reports from NABL-accredited laboratories.

S. No	Test Parameters	Results
1.	pH (10% of aqueous solution)	8.5
2.	Volatile Solids, %	27.91
3.	Non-volatile solids, %	72.09
4.	Total Chromium mg/kg	5.784
5.	Calcium Oxide as CaO, %	21.14

The most intriguing and crucial aspect revealed by the test reports is the remarkably high calcium oxide content. This is primarily due to the use of lime in the liming process, which is employed to soften the pelt, enabling better absorption of chemicals and other ingredients without any obstruction.

Given the significant calcium content found in the sludge, Solidaridad ingeniously repurposed it for the manufacturing of paver blocks. These blocks, solid items crafted from CETP primary sludge and other essential components, come in various sizes and shapes, including rectangular and hexagonal forms, designed for interlocking with adjacent blocks. The manufacturing process requires raw materials such as Portland cement, coarse and fine aggregates, readily available in Kolkata. Paver blocks find wide application in sidewalks, gardens, parking lots, bus stops, industries, and other public spaces. There is a substantial demand for these products in the CLC, especially in parking areas and raw sections where transport vehicles are parked for loading and unloading. The blocks can be tailored to achieve desired compressive strengths, ranging from M25 to M40, making them suitable for diverse applications based on strength requirements.

Picture 2.0: Laid Pavement Blocks at CLC Gate-03

Characteristics of Paver Block (M-35), 60 mm thickness :-

S. No	Parameters	Test Method	Results	Standards (IS: 15658-2021)
1.	Compressive Strength (N/mm²)	IS: 15658-2021 Annex-D	40.5	32.0 min.
2.	Water Absorption %	IS: 15658-2021 Annex-C	4.7	7 max.
3.	Dry Abrasion Resistance, mm³/mm²	IS: 15658-2021 Annex-E	12000	20000 mm³/5000 mm² Max.
4.	Wet Abrasion Resistance, mm³/mm²	IS: 15658-2021 Annex-E	20000	22000 mm³/5000 mm² Max.
5.	Flexural Strength MPa	IS: 15658-2021 Annex-G	6.2	3.5 min.
6.	Tensile Strength MPa	IS: 15658-2021 Annex-F	3.6	2.8 min.

The benefits of making paver blocks from CETP sludge are :

1. **Environmental Sustainability** : Utilizing CETP sludge in paver block manufacturing reduces the environmental impact by repurposing waste material that would otherwise be sent to landfills.
2. **Resource Efficiency** : By incorporating CETP sludge into paver blocks, Solidaridad conserves natural resources that would have been used in traditional block manufacturing, such as aggregates.
3. **Cost-Effectiveness** : Using CETP sludge as a raw material reduces production costs, making the paver blocks a more affordable option.
4. **Improved Waste Management** : Repurposing CETP sludge helps in managing waste effectively, contributing to a cleaner and healthier environment.
5. **Versatility** : Paver blocks made from CETP sludge can be manufactured to meet various strength requirements, making them suitable for a wide range of applications.
6. **Local Availability** : The raw materials required for manufacturing, including CETP sludge, Portland cement, and aggregates, are locally available, reducing transportation costs and carbon footprint.
7. **Durability** : When manufactured properly, paver blocks made from CETP sludge exhibit durability and can withstand heavy loads and varying weather conditions.
8. **Aesthetic Appeal** : These paver blocks come in various sizes, shapes, and designs, enhancing the aesthetic value of sidewalks, gardens, parking lots, and other public spaces.

GLOBAL PARTNERS

INTERNATIONAL UNION OF LEATHER TECHNOLOGISTS AND CHEMISTS SOCIETIES
(www.iultcs.org)

IULTCS FOCUSED ON THE 38TH CONGRESS TO BE HELD IN LYON, FRANCE IN 2025

IULTCS, the 126-year-old International Union of Leather Technologists and Chemists Societies, holds a world congress every 2 years. It set targets for the steps to be followed by the tanning industry in the 2024-2025 period and for the 38th Congress to be held in Lyon, France in September 2025.

Founded in London in 1897, IULTCS, the International Union of Leather Technologists and Chemists Societies, currently represents approximately 3000 individual members and 19 member associations worldwide. It is a scientific institution formed by leather engineering in the academy that determines strategies and produces solutions for the global leather industry. The union organization, which organizes international congresses in various countries every two years and enables the production of modern technologies and the development of chemical methods in leather production, has determined its strategies for the 2024-2025 period.

INTERNATIONAL UNION OF LEATHER TECHNOLOGISTS AND CHEMISTS SOCIETIES
(www.iultcs.org)

Its unique structure consisting of collagen fibers made by nature and providing extraordinary properties, which has ensured its compatibility with the high demands of leather quality requirements and within the framework of sustainable and environmentally friendly processes, is an inimitable science. Focusing on the congress it will organize in 2025, IULTCS has set principles for its sustainability goals for this unique craft since the existence of humanity:

Empowering the role of the IULTCS Commissions: to boost the effectiveness of our existing commissions and to explore the establishment of a new commission for sustainability to address the emerging challenges and to drive positive change within the industry:

- Communicating leather as an irreplaceable material:flpushing back against the falsehoods widely shared on social media, with facts and scientific arguments.

- Global collaboration for Research and Innovationflbetween international research institutions and industry partners to promote continuous innovation in leather technology and measurable impact in processing.

- Education and skill developmentflwithin the leather sector. Support programs that enhance the knowledge and capabilities of professionals, ensuring a skilled workforce for the future.

- Youth Engagement and Mentorship: cultivating the next generation of leather scientists and professionals by promoting youth engagement initiatives such as the YLSG. Collaboration between our experienced members and the emerging talent to ensure as seamless a transfer of knowledge as possible.

- Environmental stewardship and responsible practicesflalong the leather value chain.

(magazineleather.com – 06/04/2024)

INTERNATIONAL UNION OF LEATHER TECHNOLOGISTS AND CHEMISTS SOCIETIES

Carbon Footprint - Its Interesting Features

Dr. Goutam Mukherjee[1], Sayak Nag[2]

[1]Professor, Govt. College of Engineering & Leather Technology, Kolkata

[2]Student, Govt. College of Engineering & Leather Technology, Kolkata

ABSTRACT :

Excusing carbon had been one of the major challenges faced by all the sectors of human empowerment. It covers gentle aspects covering economics, pharmaceuticals, manufacturing, data science and medical fields. Despite of removing the greenhouse emissions, we can deny its effects through the application of awareness through contiguous improvement methodologies.

Here we covered the obtaining of the total carbon footprint and then curing it through various means. As plants are the only organic source through which we can reduce and judge the carbon footprints, therefore we discussed the various aspects of reforestation and also the startups and employment we can get through it.

INTRODUCTION :

Carbon footprint is the amount of carbon dioxide released into the atmosphere as a result of the activities of a particular individual, organization, or community.

In most cases, the total carbon footprint cannot be calculated exactly because of inadequate knowledge of data about the complex interactions between contributing processes, including the influence of natural processes that store or release carbon dioxide. For this reason, Wright, Kemp, and Williams proposed the following definition of a carbon footprint :

A measure of the total amount of carbon dioxide (CO_2) and methane (CH_4) emissions of a defined population, system or activity, considering all relevant sources, sinks and storage within the spatial and temporal boundary of the population, system or activity of interest. Calculated as carbon dioxide equivalent using the relevant 100-year global warming potential (GWP100).

DISCUSSION :

Carbon Footprint :

Carbon footprint is the total greenhouse gas emissions caused by an individual, event, organization, service, place or product, expressed as carbon dioxide equivalent (CO_2e). Greenhouse gases, including the carbon-containing gases carbon dioxide and methane, can be emitted through the burning of fossil fuels, land clearance and the production and consumption of food, manufactured goods, materials, wood, roads, buildings, transportation and other services.

Corresponding author E-mail : gmclt@hotmail.com / gmgcelt@gmail.com

The global average annual carbon footprint per person in 2014 was about 5 tonnes CO_2 equivalent. Although there are many ways to calculate a carbon footprint, the Nature Conservancy suggests that the average carbon footprint for a U.S. citizen is 16 tons. This is one of the highest rates in the world.

Methods :

Ways to reduce industry's carbon footprint

A product, service, or company's carbon footprint can be affected by several factors including, but not limited to :

- Energy sources
- Offsite electricity generation
- Materials

These factors can also change with location or industry. However, there are some general steps that can be taken to reduce carbon footprint on a larger scale.

In 2016, the EIA reported that in the US electricity is responsible for roughly 37% of Carbon Dioxide emissions, making it a potential target for reductions. The cheapest way to do this is through improvements energy efficiency. The ACEEE reported that energy efficiency has the potential to save the US over 800 billion kWh per year, based on 2015 data. Some potential options to increase energy efficiency include, but are not limited to :

- Waste heat recovery systems
- Insulation for large buildings and combustion chambers
- Technology upgrades, i.e. different light sources, lower consumption machines

Carbon footprint from energy consumption can be reduced through the development of nuclear power (a zero carbon emissions energy source) and alternative energy projects, such as solar and wind energy, which are renewable resources.

Reforestation, the restocking of existing forests or woodlands that had previously been depleted, is an example of Carbon Offsetting, the counteracting of carbon dioxide emissions with an equivalent reduction of carbon dioxide in the atmosphere. Carbon offsetting can reduce a overall carbon footprint of companies by offering a carbon credit.

Supply chain emissions are on average 11.4 times higher than operational emissions, more than double previous estimates, due to suppliers improving their emissions accounting. Therefore, there is an increasing focus on companies reducing their emissions coming from their suppliers as a way to reduce risks and capture opportunities.

A life cycle or supply chain carbon footprint study can provide useful data which will help the business to identify specific and critical areas for improvement. By calculating or predicting a carbon footprint of a process high emissions areas can be identified and steps can be taken to reduce in those areas. Collecting real data from suppliers emissions, setting a strategy focused on hot-spots and incentivizing suppliers are still barriers for companies. Nevertheless, solutions exist and the focus should be on improving year-on-year basis.

Carbon Footprint Management Market Analysis and Insights :

The Global Carbon Footprint Management market is anticipated to rise at a considerable rate during the forecast period, between

2021 and 2027. In 2020, the market is growing at a steady rate and with the rising adoption of strategies by key players, the market is expected to rise over the projected horizon.

The following report contains market size and forecasts of Carbon Footprint Management in United States, including the following market information :

- United States Carbon Footprint Management Market Revenue, 2016-2021, 2022-2027, (USD millions)
- United States top five Carbon Footprint Management companies in 2020 (USD).
- The global Carbon Footprint Management market size is expected to growth from USD 8834.8 million in 2020 to USD 13800 million by 2027; it is expected to grow at a CAGR of 6.1USD during 2021-2027.
- The United States Carbon Footprint Management market was valued at USD million in 2020 and is projected to reach USD million by 2027, at a CAGR of % during the forecast period.

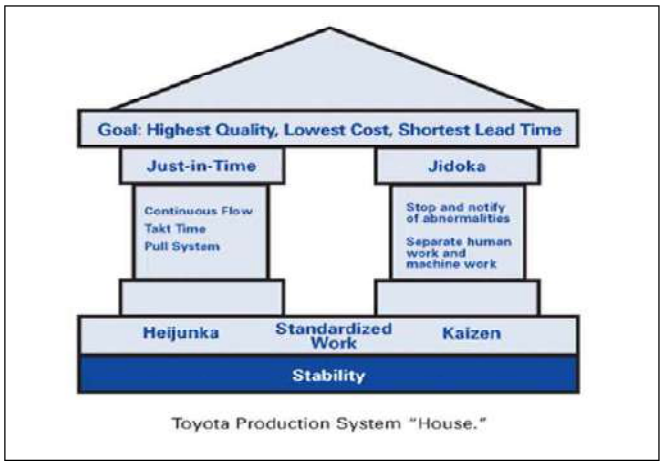
Researcher has surveyed the Carbon Footprint Management Companies and industry experts on this industry, involving the revenue, demand, product type, recent developments and plans, industry trends, drivers, challenges, obstacles, and potential risks.

Qualitative Analysis :

Reduction of carbon footprint through contiguous improvement methodologies :

Continuous Improvement Methodologies #1 : Lean

Lean is a management system designed around the premise of maximizing value to the customer while minimizing waste in the processes used to create value. The term "Lean" was coined by James Womack in his 1991 book titled "The Machine that Changed the World." It is based on the set of philosophies, tools, and way of working developed by the Toyota Motor Company, which is widely regarded as the greatest manufacturing company in the world. However, it should be noted that Toyota does not use the term "Lean" and constantly evolves their management system to address immanent challenges.

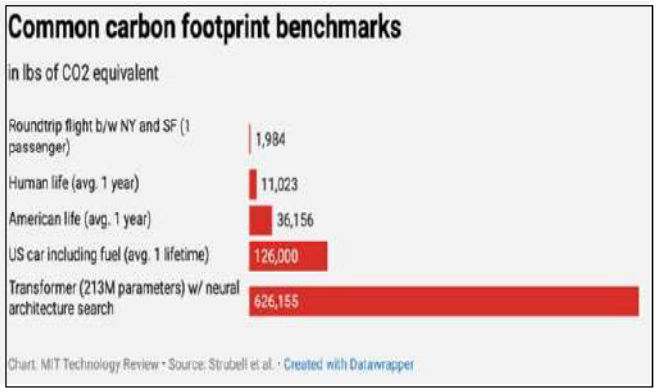


Toyota Production System "House."

1. OPTIMIZE THE WHOLE

Every business operates through a value stream, a system of activities and processes that take place in order to deliver the end result to the customer. A Lean business identifies those value streams and figures out how to optimize them as a whole. This is different from only looking at those that are not working.

Through this mechanism we can optimize the whole carbon footprint through artificial intelligence techniques.



Carbon footprint of data :

'Data is The New Oil'

According to Gerry McGovern's book *'World Wide Waste'*, 90% of data is not used – merely stored (which is cheap). He argues that because of this, the IT landscape is ~90% waste: 91% of pages analyzed got zero traffic from google and more people have been to the top of Everest than the 10th page of search results. It is no surprise that companies are seeking to capitalize on this unprecedented amount of data collection. AI provides a way to make sense of massive amounts of data, but the current state-of-the-art requires a massive amount of data

for training & validation. The more weights a model has, the more data it needs.

It has to be changed into gas, plastic, chemicals, etc., to create a valuable entity that drives profitable activity; so data must be broken down, analyzed for it to have value." These are the words of famous British mathematician and data science entrepreneur **Clive Humby, who coined the phrase "data is the new oil"**

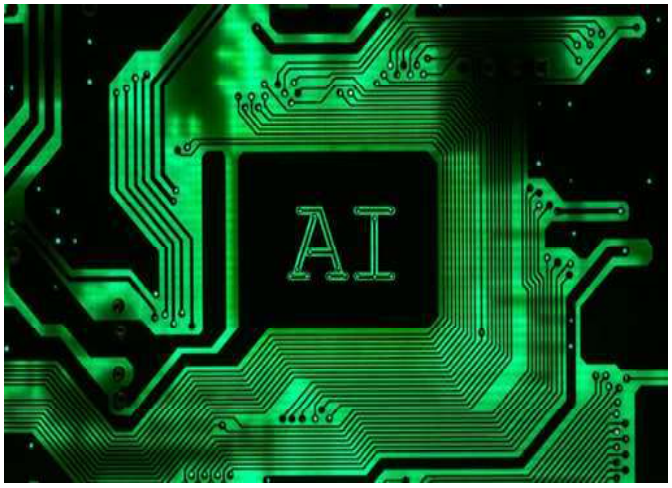
2. ELIMINATE WASTE

In knowledge driven work process, waste can mean too much work in process, or time spent manually completing a task that could be automated. A Lean business eliminates any activity that does not result in value for the customer.

Green AI :

There are ways to make machine learning greener, a movement that has been dubbed 'Green AI', initiated by Natural Language Processing researchers. This community is pushing for efficiency as a core metric. Some conferences (below) now require submissions to fill out forms that include information about the computational budget used to generate the reported results.

Green AI is in its infancy, and presents both numerous research opportunities and industry partnership potential. By bringing visibility & accountability into our ML efforts, we can begin to prioritize reporting and efficiency measures to incentivize sustainable AI practices. In future posts, I will dive into particularly promising approaches (such as reporting & efficiency methods). In the interim, here are some resources that can get you started in the community :



3. BUILD QUALITY IN

A Lean business uses strategies like testing and pair programming to ensure quality in the process. Rather than checking for quality at the end of a process, it is built in as early as possible as an ongoing focus throughout.

Leveraging AI in Quality Assurance

When it comes to digital transformation, most enterprises have a vision around customer experience, efficiency, agility and profitability that involves modernizing infrastructure, processes and applications. Quality assurance (QA) is often an afterthought.

However, every digital program invariably runs on the agile development framework or on DevOps and translates to shorter release cycles with additional pressure to deliver quality code within much shorter timeframes. To help this, organizations plan for additional controls on the DevOps side and overlook the QA strategy. There is a need for change in the way quality assurance operates in organizations.

Broadly there are two driving forces- agility in the way testing is done (continuous quality assurance) and faster time to market. For QA teams to keep pace with the agile mode of development, traditional test automation is no longer adequate, making AI in test automation inevitable.

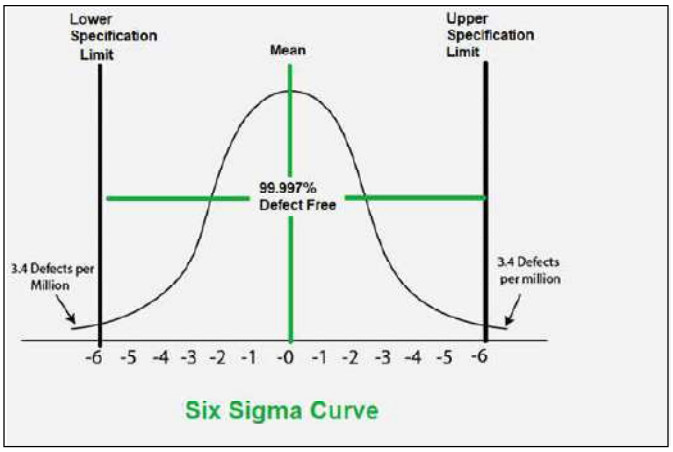
Testing organizations are being compelled to innovate with new and emerging technology solutions around automation.

4. CREATE KNOWLEDGE

Learning is a top priority in a Lean business environment and can be done through small, incremental experiments throughout a process. It is crucial to create an infrastructure to document and share these learnings across teams and organizations.

Artificial intelligence (AI) is intelligence demonstrated by machines, as opposed to natural intelligence displayed by animals including humans. Leading AI textbooks define the field as the study of "intelligent agents" : any system that perceives its environment and takes actions that maximize its chance of achieving its goals.

Continuous Improvement Methodologies #2 : Six Sigma



Six Sigma Curve

Six Sigma is a quality control methodology that seeks to reduce product defects to within 3.4 defects for every 1 million units produced. This method was introduced by Motorola engineer, Bill Smith, in 1986 and popularized by Jack Welch, who made it central to the company's management system during the successful run of General Electric during the 1990's.

Nowadays for business owners, acting sustainably can integrate with almost all aspects of operations. New hires look for it, current employees love it and customers and partners value it. There are many ways to go about sustainability, of course, but one of the easiest ways to boost your effort as an organization is to give back to the environment by planting trees.

A Benchmark : Six Sigma Methodology helps in improving process metrics. Once the improved process metrics achieve stability; we can use Six Sigma methodology again to improve the newly stabilized process metrics. For example: The Cycle Time of Pizza Delivery is improved from 60 minutes to 45 minutes in a Pizza Delivery process by using Six Sigma methodology. Once the Pizza Delivery process stabilizes at 45 minutes, we could carry out another Six Sigma project to improve its cycle time from 45 minutes to 30 minutes. Thus, it is a benchmark.

Ways to reduce carbon footprint :

Using Lean principles, Six Sigma can also help eliminate waste (Muda) in all its forms. When we talk about Six Sigma and waste, it is usually intangible waste, such as over-processing or time-related waste. But environmental waste also tolls heavily on efficiency and profits. Waste results from a high carbon footprint, producing a negative effect on the environment. By reducing yours, you can ensure your business stays efficient, profitable, and green. Today, learn how we can safeguard the environment by calculating your carbon footprint.

Six Sigma is incredibly useful here as it enables us to make lasting changes to your operations through intensive project work. Create a project team, including Yellow, Green, and Black Belts, targeted at reducing waste and inefficiencies. Techniques like DMAIC and root cause analysis will shed light on issues of waste and why they arise. For example, none-value-adding processes may be contributing to a buildup of waste, sapping cash, and reducing efficiency. If you don't know what to look for, you may not even notice these issues, which will then go unchecked.

Perhaps you too should move to create those results for your company, because plenty of companies already have :

Converse just recently launched its Renew collection, which features sneakers made from plastic bottles and upcycled denim. The hype and anticipation around that move translated to exciting press coverage for the brand.

How to Calculate our Carbon Footprint ?

Calculating your carbon footprint will give you a better idea of how your business operations affect the planet. It will also show you which of these actions are most damaging, many of which have a negative effect on your success. Our method for calculating carbon emissions focuses on the consumption of several key resources. These include electricity, natural gas, fuel oil, and water, as well as the level of waste produced. For electricity, the calculation is as follows :

(kWh/yr) x EF (kg CO_2e/kWh) = your emissions for the entire year (kg CO_2e/yr).

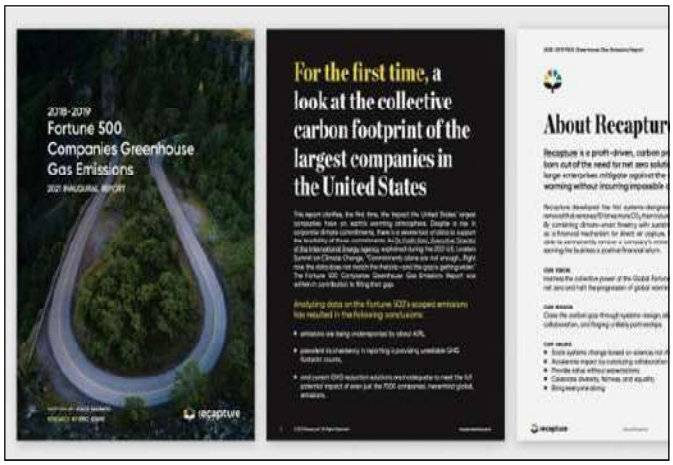
If we wish to calculate our footprint for other resources, such as natural gas or water, simply alter the above figures appropriately. Kilowatts per hour would become therms per year for natural gas, and liters per day for water. Similarly, you would need to multiply your water figure by 365 before multiplying again by your EF.

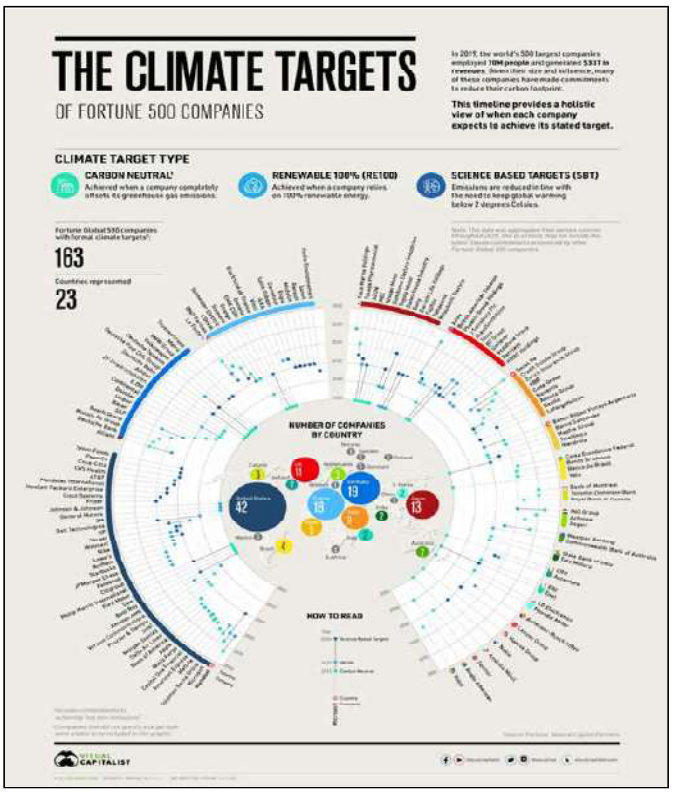
Case study :

Recapture :

Recapture is a carbon project developer. We pioneered the first systems-designed carbon removal project model that removes 10-times more CO, than fragmented, nature-based

approaches while generating net-positive financial, environmental, and community returns.





By utilizing sustainable timber harvesting as a financial mechanism, the Recapture Dedicated Carbon Removal System (CRS) can remove more than 100 t CO_2e from the atmosphere per hectare per year at a sequestration rate 10 times more efficient than standard reforestation alone, enabling a shift in carbon removal implementation from a line item to a profit area, and supercharging the scaling of Direct Air Capture infrastructure to meet global demand. These results are significant, and render the previous avoidance-based carbon offset model obsolete.

CONCLUSION :

We can create great startups that can withstand our carbon demands by maintaining the lean six-sigma principles.

- Support and commitment of the executive management team for Lean and Six Sigma efforts
- Understanding what resources are available prior to the start of the project
- For example in reforestation: Reforestation is one of the best ways to help the planet — along with its humanity and wildlife — thrive, and it's one of the easiest ways for businesses and startup founders to give back to nature, in part offsetting things like their own energy use.
- The amount of training received by the staff

On an internal level, something like planting trees (or pursuing other philanthropic actions) allows employees to connect with the company for a bigger mission. Engaging in sustainable efforts helps to increase morale, employee retention and overall workplace happiness.

- Staff acceptance of Six Sigma and Lean concepts
- The size and scope of the projects

Based on One Tree Plantings simple donation model (one dollar plants one tree) brands are able to share reforestation metrics based just on dollar amounts. If our startup donates $10,000, for instance, you now have tangible results.

Hence we discussed the various ways to increase employment through reducing carbon footprint.

REFERENCES :

- Reforestation: 4 Reasons Startup Founders Should Care (entrepreneur.com)
- https://www.simplilearn.com/sem-landing/master-program
- 7fa75e6912ab4e718b3903a758ce9358.pdf (iimranchi.ac.in) (IIM Ranchi lean and six sigma)
- https://en.wikipedia.org/wiki/Carbon_footprint

ANNOUNCEMENT

ILTA LAUNCHED HEALTH CARE BENEFIT SCHEME FOR ITS MEMBERS

Indian Leather Technologists' Association (ILTA), has now tied up itself with the renowned health care organization of the country M/s Narayana Health for rendering Indoor, Outdoor & Medical testing services to all of its registered members (both Life and Ordinary) at concessional rates.

As the Pilot Project, the scheme has been launched on 1st April, 2024, initially for rendering services to its members dwelling in Eastern Region.

Offers & Discounts:

1. **OPD Service:** 10% discount on Doctor's Consultation, Prevailing Health Check-ups available at hospital, day care procedures, Investigations except outsourced tests.
2. **IPD:** 5% on total IPD billing as per prevailing hospital tariff excluding medicine / consumable / implant / outsource & blood bank services. (Not applicable on insurance cases/ Govt scheme / ESIC and any other schemes & promotional package or offers & discounts).
3. **Ambulance:** As per Availability & as per Narayana Health ambulance policy & charges.
4. **Payment Terms:** Payment should be only in Cash Mode, Debit Card, Credit Card, NEFT/RTGS/ IMPS. No cheques shall be accepted.

These facilities will be extended to the existing members (both Life & Ordinary) only. Six family members including spouse, two children (below 25 years) and dependent parents will be entitled to avail these facilities under the scheme. For further details, members may contact Mr. Bibhas Chandra Paul, OSD, ILTA (Mob. No. 9432553949) and / or Mr. Subha Paul, Assistant Manager - Payor Relation, Narayana Health (Mob. No. 8334847000).

ILTA will issue a Health Card in favour of each entitled members. The prescribed Application format will be forwarded to the entitled members of the Eastern Region through Indian Post within a short while. If any member not received the said application format, he/she may collect it from ILTA office or by e-mail. They have to submit the duly filled up application format to ILTA office by hand or by email as soon as possible.

UPCOMING HEALTH CARE PROGRAMS

Sl. No.	Date	Health Day	Speciality	Activity Type
1	18.04.2024	-	Onco	Webinar
2	26.04.2024	-	Cardiac, Pulmo, BMD	Health Camp
3	19.05.2024	World Hepatitis Day	Gastro	Health Talk
4	24.05.2024	-	BLS	Health Talk and Demonstration
5	08.06.2024	World Brain Tumor Day	Neuro	Webinar
6	28.06.2024	-	Cardiac, Pulmo, BMD	Health Camp

**Note : *Date of the above programs are subject to be changed under special circumstances.*

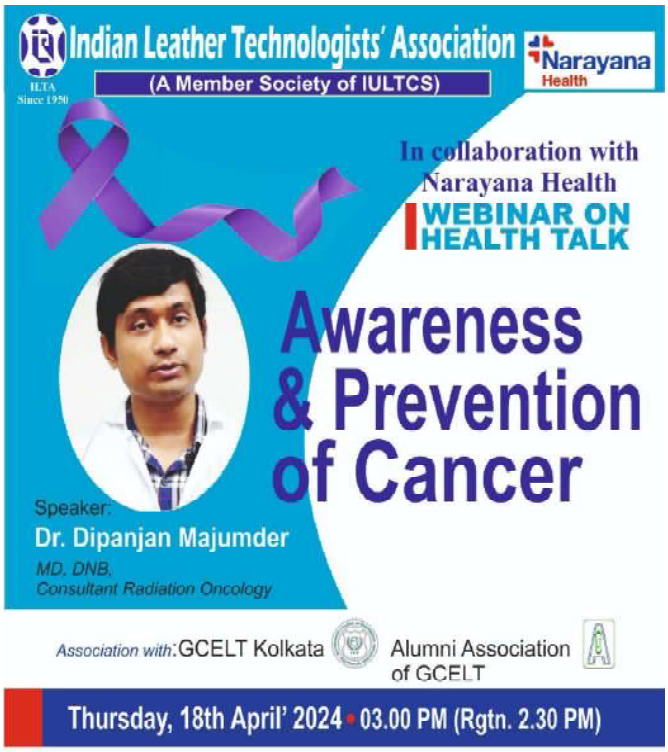
ILTA IS NOW ON DIGITAL PLATFORM

Indian Leather Technologists' Association is now set for digitalization of its all publications. The members and non-members alike are eligible for this facility. The association has been publishing number of books on leather & footwear technology since inception. Also, the Association has a great collection of number of articles from renowned personalities, scientists and research scholars of leather fraternity worldwide those have been publishing in the association's only technical journal namely "Journal of Indian Leather Technologists' Association (JILTA)".

All of these are now to be available on your fingertip and all interested people can avail this facility on digital platform through the official website of the Association very soon.

REPORT

WEBINAR ON COMPREHENSIVE CANCER CARE



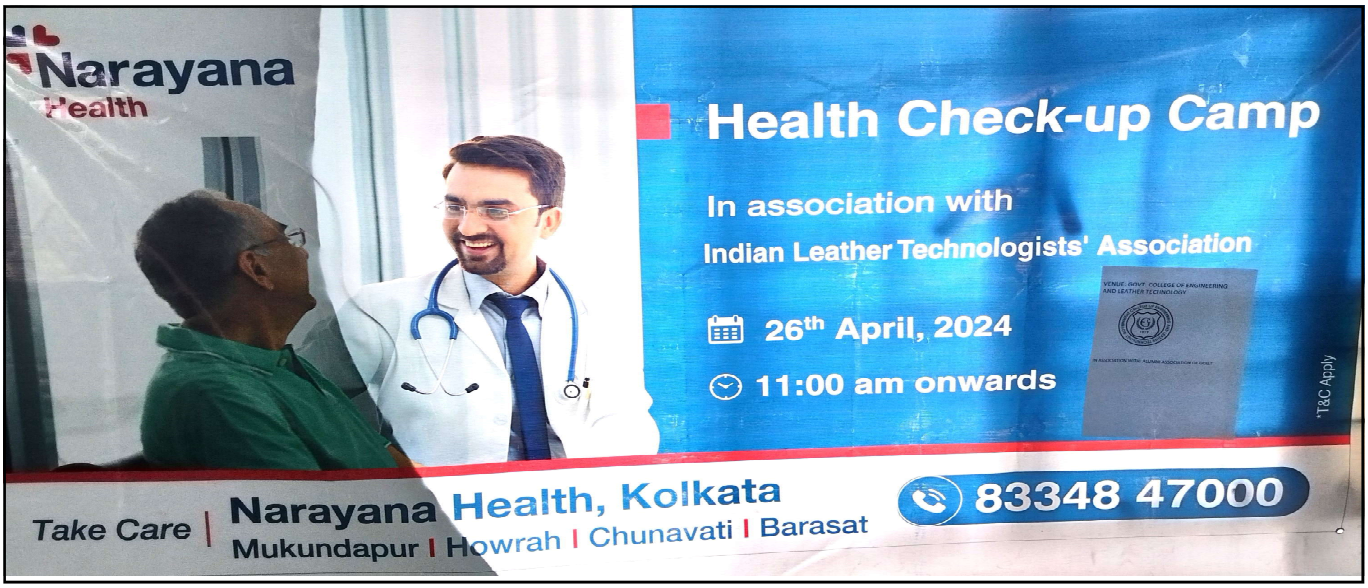
ILTA, a Member Society of IULTCS, is working as a non-profit making voluntary organization among the leather fraternity of India since 1950. Its tireless efforts have endeared itself among the peoples concerned with leather fraternity throughout the country.

Now, it has started its public awareness programme on health sector. In its maiden approach to the front, ILTA organised a "Webinar" (On Zoom Platform) on 18th April, 2024 where Dr Dipanjan Majumder, MD, DNB, Consultant Radiation Oncology, on behalf of Narayana group of hospitals, delivered a lecture on the dreaded disease 'CANCER' in a very lucid way to be understandable to general public.

He elaborately spoke on the subject and took questions from the audience and addressed everybody with answers in a lucid way. He spoke on at length on symptoms, its treatment and how early detection could be ascertained.

FREE HEALTH CAMP ORGANIZED BY ILTA

As a part of ILTA's initiative of various public awareness programme on health sector, a general health check-up program at free of cost was organized by ILTA in collaboration with Narayana Health and in association with GCELT, Kolkata & Alumni Association of GCELT, on 26th April, 2024 at GCELT Campus from 10.00 AM to 05.00 PM.



Around 130 people were participated in this Free Health Checking Camp as beneficiaries. The following tests were done in this health camp :

- Checking Blood Pressure (BP)
- Checking Body Mass Index (BMI)
- Random Sugar Test
- Pulmonary Function Test (PFT)
- Bone Density Test
- Consultation with Doctor
- Electrocardiogram (ECG), as per doctor's advice.

At last patients were given advise by Dr Debajyoti Dutta of R. N. Tagore Hospital. The overwhelming support obtained from all concerned have encouraged the organisers to kick up another such programme in the near future.

SNAPSHOTS of HEALTH CAMP

Valorisation of Invasive Species - For Leather, Fur, Bristle, Meat and By - Products

(Part -16)

Subrata Das, M.Tech (Leather Technology) Freelance Leather Technologist & Consultant, Chennai

Squirrels

Squirrels of various descriptions have gained infamy as notorious interlopers, in many countries of the world. Lovable features, flamboyant charisma and innate ability to endear themselves to humans, have resulted in their introduction as forest and garden accessories-lively, ornamental and aesthetically pleasing, in a variety of locations, in five of the seven continents of the world.

The exotic sciurine have displaced native squirrels, due to superior vagility, physical robustness and generalist diet, outmatching the latter in space and resource, and by infecting them with diseases, to which the indigenous species possessed no immunity. In their native ranges, however, these romping mammals are respected as catalysts of forest regeneration.

These principally arboreal omnivores have a long history of being adored, by both the members of the public and the media. In many instances, emotive and compassionate citizens have carried injured, wild or non-captive squirrels to wildlife rehabilitation facilities for treatment.

A universal feeling of fondness for the nibblers, across all spectrums of society, has thwarted the conservation venture of scientists safeguarding native species, by creating passionate “vox populi” in their favour. Environmentalists, attempting to contain their unrestrained proliferation have been met with strident opposition and protracted legal battles. This is the primary reason, that as of 2021, a staggering twenty-three countries across five continents have been documented as having hosted or presently carrying as many as eighteen species of non-native squirrels.(1)

Once squirrels were wilfully or inadvertently introduced into North America, from game farms, or as unwanted, unfettered

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pets, their pathway has been as follows – The Philippines (2007),Belgium (2005), the Netherlands (1998), Argentina (1970), Canary Islands (1965), France (1960-74), China/Hong Kong (1960-70), Italy (1948), USA (1938), Japan (1936), Western Canada (1914),Ireland (1911), Australia (1898) and United Kingdom (1876). Following the "conquest" of Italy, sciurine obloquy as formidable "alien villains" became established.(2)(3)(4)(5)

UK

The ignoble distinction of liberating grey squirrels, which subsequently became an invasive alien species (IAS) in the British Isles, goes to the 11th Duke of Bedford, Herbrand Russell, the president of the Zoological Society of London (1899 -1936) and a keen supporter of animal conservation. He allegedly ferried 10 pairs of the nimble, bush-tailed rodents from New Jersey and set them loose in his estate, Woburn Abbey in Bedfordshire, and thereafter in Regents Park and Kew Gardens.

Between 1876-1929, grey squirrels were imported regularly from the USA and released in, as many as, thirty locations. In the century between 1920-2020, the number of native red squirrels in the UK declined sharply, as a result of the invasive alien greys, which became implicated in many other ecological and economic issues in the years to come.

Some of the devastating ramifications initiated by the spread of the grey squirrels were debarking, damage to irrigation systems and cables, power outages, reckless consumption of food and crop, which constituted bulk of their diet and the spread of the parapoxvirus (squirrel pox) - a disease to which grey squirrels are immune and unaffected but serve as vectors – causing widespread decimation of their red congeners. Presently, the UK timber industry suffers annual damages due to grey squirrel debarking to the tune of GBP 14 million. Fledgling mortality rates of many native British woodland avian species have been as high as 15% due to the action of the "alien villains".

Presently, inclusive of a miniscule number of 40,000 red squirrels in England and Wales, bolstered by 121,000 in Scotland, only 161,000 of the species remain in the UK. In contrast 2.5 million greys inhabit Britain, with England hosting 80%. (6)(7)(8)

Australia

With the altruistic intent of ameliorating the grounds and making the Perth zoo more attractive to visitors, a small number of five-striped Indian palm squirrels were let loose by the zoo authorities. Although they remained restricted to the zoo gardens for many years, individuals from the growing population scaled the perimeter fencing and established presence in an adjacent golf course. They then radiated onto suburbs, inhabiting an area of 30 sq km from the zoo grounds. The population peak was at around 1000 but following determined trapping action by the authorities, very few of the five-stripes remain in Perth.

Two other populations, one each in Melbourne and one in the vicinity of the Taronga Zoo in Sydney until 1976 were extirpated.(9)(10)

Ireland

Ireland was first introduced to grey squirrels from America, when, in 1911, a dozen was shipped, from the 11th Duke of Bedford's estate at Woburn, Bedfordshire, by the Earl of Granard, as a unique present for a wedding in the family. These were released into the woodland in Castle Forbes, County Longford. In the course of a century, the squirrel progeny have successfully colonized much of Ireland.

The arboreal mammals romped out from Castle Forbes to West Londonderry, West Antrim and Tyrone, in the north, to West Wicklaw, Louth and Dublin in the east, and Kilkenny and Tipperary in the South. River Shannon circumvented their westward spread. Frequent sightings are now being reported from the counties of Cork, Limerick and Waterford.(11)(12)(13)

Canada

It was in 1914 that Grey Squirrels were first introduced in Vancouver, Canada. Forty-six years later, sometime in the second half of 1960s, a few more rodents were released in southern Vancouver Island. Today, in Greater Victoria, alone, they number in excess of 75,000. The "sausage tailed" climbers flourished due to the diverse and broad diet range of the squirrels - roots, grains, fungi, leaves and grass, wild berries and their seeds, and even the occasional cricket and caterpillar. With minimal threat of competition or predation, proficiency at nesting in growing urban areas and greater and greater resistance of successive generations to punishing weather conditions, have contributed to the breeding success of the species as compared to British Colombia's indigenous red squirrels. (14)(15)

Japan

Japan has as many as three species of invasive squirrels – the Palla's squirrel ,(also known as the Formosan squirrel, after China Formosa – present day Taiwan) the Finlayson's squirrel and a few Palla's – Finlayson's hybrids.

The earliest inductees were the Palla's squirrel , which were imported from China Formosa (present day Taiwan) for "The Great Leap Forward Japan Exposition", held in Gifu. The tree covered mountainous areas in the north of Gifu city, dotted with strawberry and persimmon orchards were perfect for the Formosan squirrel, as the terrain and topography were very similar to that of their bio-diverse native habitat. They multiplied in this area and slowly expanded their distribution to Kinkasan 500km away.

According to another version, the first introduction of the animals was a year earlier, in 1935 when some individuals escaped from the zoological gardens on Izu-Oshima Island, Tokyo. Thereafter, liberation of pets and squirrel translocations, on several occasions, precipitated the establishment of a dozen populations along the Pacific Coast in Western and Central Japan.

Yet other narrative states that, in 1935, forty individuals were brought from Taiwan and introduced on the island of Izuoshima, Much later, 100 squirrels were collected from the Izuoshima population and translocated 400 km west to Tomogashima Island.

Pallas's squirrel is native to Southeast China, Taiwan, Laos, Vietnam, Cambodia, Malaysia (mainland), Thailand, Myanmar, Bangladesh, Northeast India and Bhutan. Due to its wide distribution, it lives in a broad and diverse range of habitats from subalpine conifer forests, sea-level regions and subtropical forests. The species is also indigenous to Taiwan.

Finlayson's squirrel is native to subalpine conifer forests in Myanmar, Thailand, Cambodia, Vietnam and Laos, thriving in croplands, plantations and subtropical forests.

Both invasive alien species are firmly established in Japan. The Palla's squirrel is renowned for its outstanding vagality, promiscuity, adaptability and fecundity, ensuing relentless increase in its distribution and population. Endowed with continuous annual breeding ability, as contrasted with the reproductive seasonality of indigenous species, Palla's squirrels have been successful in creating a new hybrid – the Pallas's – Finlayson's hybrid, through interbreeding with the Finlayson's invasive species, present on the archipelago. It is unclear if the hybridization is a result of the overlapping of their home ranges in Japan or a consequence of being housed in mixed species cages in pet shops, from where gravid females may have escaped.

Such is the proliferation capability of the arboreal mammal, that within a mere five years of being introduced in Tomogashima, they successfully established dominance over the entire island.

First reported in 2011, new investigations revealed the residence of a new population in Japan in Iruma City (Saitama Prefecture). A subsequent one was discovered on Mt. Kirishima on the border between Kagoshima and Miyazaki Prefectures (16)(17)(18)(19)

USA

Red-bellied squirrels also known as Mexican grey squirrels were introduced to Elliott Key, Florida, in 1938, by an island resident who purchased a brace, and set them free as ornamental animals on the island. With neither competition nor predator threat, the gambolling vertebrates occupied the length and breadth of the "squirrel paradise'. Very soon, they gravitated towards other areas by swimming or sailing on ocean debris and established themselves on many other adjoining islands. Today, there is a thriving population in the Biscayne National Park.

The introduced alien species numbers in Biscayne National Park (BISC) give every indication of being a grave threat to the Park's natural wealth. Primary areas of worry include: avian nest predation, feeding on the Florida tree snail, competition with the endangered white-crowned pigeon, parasite catalysed interaction with threatened Big Cypress fox squirrel, endangered Key Largo-cotton mice and wood rats and irretrievable damage to native vegetation, such as thatch palms and Sargent's palms, whose fibres it uses as food and nesting material, often leading to the plant's death.(20)(21)

Italy

It was in 1948 that grey squirrels were introduced into Italy. Two pairs of the agile and graceful creatures - a gift from the US Ambassador to Italy, were housed at Stupinigi, near Turin.

Unfortunately, no lessons had been learnt in Italy from the UK, which not only had issued cautionary advice, but also banned import of grey squirrels in 1930, due to their adverse impact on native red squirrels and indigenous flora. Due to an unlucky circumstance, the ambassador's "foursome" escaped to freedom and settled in the surrounding area, where their numbers rose exponentially in a short time.

The grey quartet remained contained in an area of approximately 12 km in the Stupinigi region, along with their descendants for the next 22 years (1948 -70). In the two subsequent decades, this area had swollen seventeen-fold to more than 200 square km, southwards towards Cuneo. Out of the total land area of the Italian peninsula of 301,340 square km, by 2000 the greys had established dominance in 900square km and in 2022 their range covered more than 2000 square km .Native red squirrels are severely threatened in 50% of this expanse, while in the remaining half, they were no longer exist.(22)(23)(24)

Hong Kong / China

Escaped and non-captive or intentionally released individuals of Palla's squirrel, from among the numbers being sold in Hong Kong and China as pets, for fur, gustatory requirements or Chinese traditional medicine, were responsible for small populations during the late 1960s to the early 1970s (4)

France

In France, around the same time, a small number of Pallas's squirrels were imported, in a single consignment, directly from their original habitat in Asia by a single private individual in the city of Antibes, on the Cote d'Azur. This batch was the bellwether of the French legion of "alien villains".

Another reported population, in France, in the town of Istres (Department of Bouches-du-Rhône),was probably created from the rodents purchased on the Internet, which escaped or set were free from captivity at the beginning of the 2000s.(4)

Canary Islands

The Barbary ground squirrel is found on the Barbary Coast of Algeria, Morocco and Western Sahara. They inhabit mountainous areas, reaching elevations of 13000 feet or higher to the seaward side of the Atlas Mountains. Barbary are the only species of squirrel indigenous to countries north of the Sahara, with the exception of small colonies of striped ground squirrel in southern Morocco.

A breeding pair was taken to Fuerteventura in the Canary Islands in 1965 as pets. By the 1980s, their progeny had colonized most of the island.

In the two decades, from 1996 to 2016, in three periods (1996 -98, 2006-2009 and 2014-2016) human intervention was responsible for the translocation of as many as thirty squirrels in twenty-three instances, between the islands of the archipelago. Four-fifths of the transference were to the principal shipping hub, Gran Canaria, with the remaining going to Lanzarote.

Although the cuddly mammals are gazetted by legislation in Spain as invasive, laxity of control measures at ports and the absence of strictly enforced governmental protocols have resulted in permeability of sea barriers, through which the squirrels were shifted to different places, by unscrupulous or irresponsible individuals. The bio-diverse Canary Island ecosystem was, thereafter effortlessly overrun by the Barbary squirrels, which thrived in the seven–island archipelago, climatically identical to the conditions in their native range. Today these medium – sized vertebrates are an invasive species in the remote biodiversity-rich Canary Islands.(25)(26)

Argentina

Only two introduced squirrel species have been reported in South America; the first case was the introduction of the red bellied squirrel in Argentina and the second case was the translocation within Peru, of the Guayaquil squirrel 500 km south of its original distribution.

Asiatic tree squirrels of the have shown a high likelihood of establishment from only few introduced individuals. The Palla's variety has been successfully introduced in Argentina, Belgium, France, Italy, Japan, and The Netherlands. In Belgium and the Netherlands, the populations were eradicated in 2011 and 2015, respectively.

In 1970, ten red-bellied squirrels (Palla's squirrel) were imported into Argentina, when a European rancher's family, travelled from Rotterdam to Buenos Aires with ten spry Pallas's squirrel, purchased at a pet shop in the Netherlands. The imported

mammals were housed in Lujan, 68 km North West of Argentina's capital city.

Within the next three years, some of these captive mammals having died, the surviving numbers were either liberated or escaped their enclosures – triggering their successful colonization of the region.

In Argentina, the scurry of squirrels, reported in the capital, Buenos Aires failed to establish a colony. Since then, a number of other translocated rodents have been sighted in both the provinces of Santa Fe and Buenos Aires. There are presently four invasion cores of the Palla's squirrel in Argentina: the epicentre where the first release occurred 52 years ago, and three new zones established in the last 20-27 years by specimens moved from the site of the original liberation to locations 40-600km away.

The spread of the Palla's squirrel in Argentina (1336 sq km in 40 years) was higher than reported in Japan (304 sq km in 52 years) and France (18 sq km in 40 years) (27)(28)(29) (30)

The Netherlands

In 1998, a number of Pallas's squirrels escaped from a local animal trader in the area of Weert in the Netherlands, but their presence was confirmed in the region only in 2008. The species was successfully eradicated in 2015.(31)(32)

Belgium

Some squirrels probably escaped from a pet shop or an abandoned zoo in Dadizele, Belgium, around 2005, The population was effectively extirpated from Belgian soil in 2011.

Early detection and determined governmental pre-emption of further proliferation of the "rogue" animals were instrumental in successful problem management in Belgium, Netherlands and Australia.(33)

The Philippines

The first squirrel sightings in Metro Manila, the Philippines were reported in 2007 in a village in Makati, according to the Protected Areas and Wildlife Bureau.

Naturally found in Thailand, Cambodia, Laos and Vietnam, Finlayson's squirrels are an introduced species in the "Pearl of the Orient", that have the potential to become invasive. They reproduce fast like other rodents and predate on native flora. In all likelihood, since there are no native squirrels in Luzon, they been introduced in the Philippines due to the pet trade-escaped, liberated or abandoned. Presently the grey-coated, white-under-bellied exotics thriving in parks and residential areas-ravenously feed on fruits, tender shoots of coconut trees berries, vegetables from kitchen, terrace and balcony gardens, and occasionally on eggs and fledglings of the island's native birds and a wide variety of insects.

The thirty-eight provinces of Luzon , do not possess any squirrel species. The scuirine are mostly found in Mindanao and Palawan. There are nine species of native Philippines squirrels - Philippine pygmy squirrel, Northern Palawan tree squirrel ,Southern Palawan tree squirrel Palawan flying squirrel, Palawan montane tree squirrel, Philippine tree squirrel / Mindanao tree squirrel Mindanao flying squirrel, Culion tree squirrel and the Busuanga tree squirrel (34)(35)(36)(37)

Singapore

A single, non-captive breeding population of The Finlayson's squirrel has been reported, though it is uncertain when the original animals began proliferating in the city state.(4)(38)

Switzerland

In 2021, a single Palla's squirrel was captured and euthanized in the village of Magadino in Switzerland, just 20 km from the established population in Northern Italy.(4)

South Africa

Cecil John Rhodes, as Prime Minister of the Cape Colony from 1890 to 1896, introduced Fallow Deer, Grey Squirrels, Chaffinches and Common Starlings to the Cape. By the 1970's their range had extended as far as Swellendam in the Western Cape.

Today grey squirrels which he imported from America, in 1890 and liberated in his Groote Schuur estate Cape Town, are invasive in Western Cape and Kwa Zulu Natal.

Grey squirrels in South Africa are serious pests with a pronounced propensity to remove tree bark, which is extremely damaging. In addition to outcompeting red squirrels, they also carry paradox virus, which affects indigenous species. They

build nests in buildings, destroying electrical wiring and woodwork. In addition, they've been recorded feeding on cultivated fruits from orchards and gardens, fungi, insects and eggs. They can be seen in abundant numbers in Tokai Plantation, a spacious picnic area managed as part of the Table Mountain National Park.

There are about 285-289 species of squirrel in the world, with the US being home to as many as 65 species. While the global population of some, critically endangered one's number in the hundreds, others exist in thriving, large dreys, with established ubiquitous presence across nations. The total number of squirrels worldwide, if a census were possible, would add up to a truly staggering aggregate.

There are three principal reasons why squirrel pelt is not interesting to hunters and trappers as an item of commerce. Firstly, some countries list the rodents as "furbearers", at par with other fur yielding animals such as, beaver, nutria, muskrat and mink. Therefore, a trapper's license is mandatory for taking squirrels from the wild. Conformance to the governmental regulation entails additional time, effort and money, which coupled with low price of squirrel pelts even during the fur harvest season in winter, when animals grow lush pelage; combine to render the exercise unprofitable. There is absolutely no demand for "warm weather" squirrel pelts.

Secondly, with squirrels being abundant, regular and dependable in supply and existing in prolific numbers, their pelts are not considered as exotic, "noble" or exclusive as those from other mammals and rodents in the fur trade.

Lastly, the small physical built of the animals, yields small skins, leading to lower cutting coefficient and high wastage, which severely limits their application in the manufacture of accessories.

So, there is virtually no commercial pressure on wild squirrel populations by trappers and hunters.

The art and technique of tanning squirrel skins is almost a lost talent in today's world. In the early and middle days of the fur trade, squirrel skins, tanned into long wearing, thin and strong, durable leather, were sewn into patterns to make winter wear such as coats, gloves and caps. They were also used as trims and linings.

It is customary to "case" squirrel skins, during flaying – allowing the pelt to be pulled off the animal like a sock from human foot. Once tanned fur-on, a squirrel pelt is versatile enough to be manipulated to almost any application. A common utilization was as lining inside heavy gloves, imparting extraordinary warmth in winter to the wearer. In some instances, the inside cuffs or collars of winter coats were lined with squirrel pelt. Stiffer version was used for baby shoes and hat linings and even ear muffs with the fur inside to protect the auricle and earlobes.

A myriad of squirrel-based accessories has been seen over the years. These include soft-sided spectacle cases, jackets, tail fringes, rugs pouches, drawstring bags, doll house upholstery and doll cloaks, tuque bobbles, caps and capes.

Fine squirrel suede has also been used for making gilders pads – a soft but unyielding board with squirrel leather top to place delicate gold leaves on before commencing gilding to convert objects into valuable heirlooms.

A small volume of squirrel pelt is produced annually in the USA – not for sartorial application but for use as inexpensive lining. Russia remains the global leader in the production and export of squirrel fur for clothing. Squirrel furs from Siberia, in the Russian Far East, are globally renowned for product excellence and quality control, rigorously enforced and maintained to make only the best squirrel pelts available to discerning fur buyers.

It is customary to allow the inviting, lush colour of grey squirrel pelts to remain with their natural cast .Solid colours such as mink, taupe or beige, are preferred for pelts of other species of squirrels.

When produced from animals sporting super heavy winter pelage, the resultant pelt is visually luxuriant and attractive and irresistibly haptic and tactile. Due to the smallish dimension of skins, manufacture of fur coats, comparable to those from other fur yielding animals, demands a high level of skill and competence. Expertise in matching small skins to obtain uniform colour, fur texture and pattern size, demands years of experience and knowledge. One of the most respected trendsetters of the fur-clothing industry, has produced squirrel fur garments, combined with mink, muskrat and ermine fur. Under conditions of normal use, a squirrel fur garment can last up to eight years.

Other known applications of squirrel pelts are in making durable knife sheaths and as repair material for broken or cracked powder

horns (container for gunpowder) - squirrel leather is sufficiently tensile, elastic and durable for lasting repairs.

Squirrel skin has been used for making bow strings on account of its flexibility, strength, softness and thin substance. It has been fashioned into laces for outdoor boots and moccasins by shoemakers.

Squirrel tails have been used ornamentally, as decorations and charms on fishing and hunting bags, on backpacks and carry bags.

They have a particularly unique application as fish catching lures. Globally renowned Mepps brand owner of fish lures, Sheldon's Inc of Antigo, Wisconsin, USA, have essayed the effectiveness of numerous natural and synthetic materials – Angus cow, badger, bear, skunk, deer, coyote and fox – but have found, nothing takes the place of squirrel tail hair.

Unlike most animals have fur tails with some guard hairs, squirrel tails are made of up solely of hair, due to which their rippling effect on still waters which lure fish is impossible to replicate with any other material.

Squirrel tails have also been used to make stuffed toys, leather jewellery, make up brushes, key chains and pet toys for dogs and cats to chase around the house.

Because of the unique manner in the way that they swaddle their tails around their bodies before they sleep, ancient Greeks called squirrels "skiouros" _ "in the shade of a tail. This endearing attribute was perhaps nature's indication that the fur of a squirrel would feel cozy and welcoming on human skin.

It was the exclusive prerogative of noblemen in the middle ages to wear clothing fashioned from squirrel pelts. High ranking Danish Vikings wore exotic fur, among them squirrel.

Even today, squirrel fur and leather clothing, manufactured to exacting requirements; exude the same elegance that was once exclusive to the nobility and royalty. (39)(40)(41)(42)(43)

The only option of extirpating or containing the invasive alien squirrel menace in many is by culling, capturing and euthanizing them, as it would be impossible and impractical to house them in zoos or sanctuaries.

In the event the governmental agencies proceed with this line of action, a large number of squirrel carcasses and consequently skins will become available, which may be commercially harnessed to earn valuable foreign exchange, by making many different products, precedence for which already exists.

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IN THE LEATHER MARKET HERE, LEATHER COMES FROM MUMBAI, DIFFERENT RATES OF ANIMAL SKIN, THIS IS HOW IT IS PREPARED – DHARAVI

There is a Dharavi township in Mumbai, which is known for leather trade. This area is no less than an eighth wonder. Thousands of foreigners also come here to roam.

In today's time, everyone uses leather shoes, belts, purses and jackets. The goods made from it are very good and durable to look at. Have you ever wondered how leather is made and where it is made? Let us tell you about it in detail today. Actually, there is a Dharavi *Busty* in Mumbai, which is well known for leather trade.

This area is not less than an eighth wonder. Thousands of foreigners also come here to roam. People here say that there is enough space to keep silver in Mumbai. But there is no space anywhere in Mumbai except Dharavi to store leather. The leather here is used to make purses, belts, bags, jackets, hand gloves, jeans, for which raw animal skins are sourced.

Animal skins come from here :

Abdul Aziz, a businessman from Dharavi and owner of Royal Leather, who trades leather said that, he has been doing leather business in Dharavi for the last 40 years. Salting (the process of applying salt to animal skin) works in leather. They have animal skins from Devnath Seth House. They buy a goat skin for Rs 50 and a buffalo skin for Rs 600. They have goat, sheep and buffalo skins and salt is applied to them. After that it is sent to Chennai, Kanpur and Kolkata, after which further processing is done.

Leather pressing and dyeing :

Abdul Aziz further tells that in Dharavi, apart from salting in leather, other works are also done. Here, the finished leather is also changed from the work of pressing, it is also changed into different colors. Leather is cut in a factory here. After that, the press is again done with the help of a machine. After this, it is measured on another machine. It is kept different according to size. Whatever leather is here, it is washed with chemicals, so that it does not get spoiled and becomes soft. He said that this leather is sold in different colors in the market. Its special thing is that different colors are also applied on white leather, which is painted with red, green, purple colors. Each leather is dyed 3 times, so that there is no possibility of discoloration on use.

Demand for this leather in Africa

Traders told that nowadays there is a trend in Africa, which is quite shocking to hear. From here, animal skin goes to Africa in large quantities. People there do not use this leather to make goods, but they eat it. People of Africa like to eat it. Day by day, its demand is increasing among the people there.

(News 18 Maharashtra – 19/04/2024)

FARIDA GROUP LAUNCHES GORDON & BROS LEATHER SHOES IN INDIA

The premium leather shoes have been in the German and Japanese markets for nearly 15 years.

The Rs. 2,000-crore Chennai-based Farida group has introduced its premium international leather shoe, Gordon & Bros, in the Indian market. The shoe brand has been well known in Germany and Japan for over 15 years.. Usually, a company tests the product in India and then introduces it in other markets. But the group has done the reverse as demand for premium shoes priced between Rs. 6,000 and Rs. 15,000 in India is on the rise, said Israr Ahmed, Director, Farida Group.

The brand is competing with global brands like Language and Clarks that are present in India, he told *businessline*. The shoes are available in nearly 100 stores across India, and the plan is to reach around 300 stores in a year's time, he added. Manufactured in Chennai, the company exports nearly two lakh pairs of Gordon & Bros that are priced between € 120 and € 250, said Ahmed.

The domestic market for the premium leather and dress shoe segment is around 500,000 pairs (mens). India has a strong transition of manufacturing leather shoes for brands like Johnston & Murphy, Allen Edmond and Cole Haan, he said.

Amr Mecca, Head of Gordon & Bros India, said the group, which employs nearly 27,000 people, has started the sale of the premium shoes with soft launch of around 7,000 pairs. The group has received inquiries that could potentially double our sales volume. However, the strategy is to prioritise steady and sustainable growth, emphasising brand development.

"We are targeting an ambitious growth of 200 per cent in the short term, balancing expansion with our commitment to quality and brand integrity," he added. While the total production of Gordon and Bros shoes was 100,000 pairs, the export volume is around 93,000, he said.

The name Gordon and Bros was inspired by the 'Gordon' machine, a cornerstone in the creation of the Goodyear welt - a hallmark of durability and excellence. The term "Bros." represents the suite of machines that accompany the Gordon, working in harmony to produce our distinguished goods, he said.

(Source : thehindubusinessline.com – 05/04/2024)

ICC SIGNS MOU WITH ILPA TO FOCUS ON LEATHER INDUSTRY

A Memorandum of Understanding (MoU) was signed between the Indian Leather Products Association (ILPA) and the Indian Chamber of Commerce (ICC). The Memorandum of Understanding seeks to promote cooperative efforts in the leather industry and cultivate an atmosphere that is favourable to the expansion of the leather industry. The establishment of the ICC Leather Committee, which will seek to advance the vibrant sector, was also announced at the conference. the establishment of the ICC Expert Committee on Leather, which will carry out diligent initiatives to protect the interests of the Indian leather industry. The group will organize foreign delegations and create a positive ecology for the industry shortly.

"This partnership aims to create a vibrant forum through policy advocacy, promote economic cooperation, and organize events that benefit our members and the leather product industry at large," said Md. Azhar, Senior Vice President of ILPA.

With the signing of the Memorandum of Understanding, members of ILPA will have access to the 15 international chapters of ICC for marketing and exporting their goods, according to Mr. Ameya Prabhu, President of ICC.

The event was informed about the subtleties of sustainable practices in the leather sector by Shri Anurag Srivastav, who currently serves as Partner Industry Promotion for PwC after serving as an Indian Administrative Officer in West Bengal.

The Memorandum of Understanding between the ICC and ILPA will offer a wide platform for networking and trust building among all stakeholders, according to Mr Naresh Juneja, Chairman of the ICC National Expert Committee on Leather. With the help of this agreement, cooperative

projects in the leather industry will be made easier, and the economy's business climate will be more favourable for expansion and growth.

Senior officials from SME SBI, MSME DFO, the Government of India, scientists from CLRI, and stakeholders in the leather industry were present at the conference in good numbers.

(Source : thekolkatamail.com – 10/04/2024)

LEATHER INDUSTRY FIGURE GEORGE DONATH PASSES AWAY

George Donath was born in a suburb of Budapest in 1930, where his father made machinery for tanneries and his mother's family owned a large tannery. During the Second World War, they were amongst 40,000 Jewish Hungarian beneficiaries of the generosity of the El Salvador government, who provided them with visas and Salvadorian birth certificates. When Hungary was occupied in 1944, the family was able to use them to escape the death squads and take refuge in the Swiss Embassy.

In 1947, after the Russian liberation, they decided to move to England, aided again by their Salvadorian documents. George won a British Council Scholarship to St. Bees School in Cumberland. His uncle, Andrew Vigodny, had established the famous West Coast Chrome Tannery in Millom, Cumbria in 1938 and, after school, George studied Leather Science at Leeds University as the first student to receive a scholarship set up by the Millom Tannery.

Subsequently, he worked for Millom before becoming Manager of a tannery in Puerto Rico. He subsequently worked around the world and moved into the leather chemical area joining Stahl Chemicals. He subsequently returned to the UK and will be remembered for his long period as Managing Director of Stahl GB.

During this time, he gave the 1973 B. M. Das Memorial Lecture in India and, about a decade later, he left Stahl to become Managing Director of the trading business Kauffman Demuth. He retired to London and spoke at the memorial luncheon at Leather sellers Hall for Dr Robert Sykes in 2019.

In early 2020, he thanked El Salvador for their wartime kindness at a packed event in London where he detailed his family's story and the immense difference the initiative had made to so many lives. George made it clear that we should forgive but never forget.

At that time, he started the process of getting a book written on the history of the UK leather trade. He put a great deal of effort into turning this into a reality and the project has now been set up with a small steering committee, headed by Jonathan Muirhead, who have contracted a historian for the work. George led the many personal donations, now supported by industry and others, that have laid the foundation for its completion and was in discussions about the book in the weeks and days prior to his passing.

George Donath used his years to the full and leaves a wonderful legacy in circles far beyond the leather industry. He is survived by his wife Lidia and two daughters.

(internationalleathermaker.com – 18/04/2024)

APLF ATTRACTS AROUND 12000 VISITORS

The organisers said it was a "successful" return to Hong Kong in an edition "tempered by slow market demand", which attracted around 12,000 buyers, with China and India topping the top 10 visitor countries

According to official figures released by the organisers of the leather trade fair, the last edition of APLF, held in Hong Kong from the 19th to the 21st of March, welcomed some 740 exhibiting companies– with 18 national pavilions from countries including Australia, Brazil, China, France, Japan, Korea, India, Italy, Mexico, Pakistan, Portugal, Spain, Thailand, Türkiye and the US–and 12000 buyers.

More significant yet is the top of 10 visiting countries and regions, namely China, India, Italy, Japan, Korea, Taiwan, Thailand, Türkiye, US, and Vietnam. As "China and India are the two major Asian economies with the highest forecasted GDP growth for 2024 and the highest levels of Consumer Confidence", "this is a clear illustration of how APLF reflects economics in the Asian region and the potential demand for supplies and products related to the leather and fashion sectors", said the organisation.

The trade fair was complemented by a series of conferences, forums and workshops to create a well-rounded and integrated event for all industry stakeholders. Some highlights were the seminar on deforestation and the third edition of the Global Footwear Executive Summit, which brought together industry leaders, executives and experts to discuss the latest developments in materials, manufacturing technologies, retail strategies and consumer behaviour.

The next edition is now scheduled to take place in Hong Kong from the 12th to the 14th of March.

(worldfootwear.com – 10/04/2024)

INDIANS TO HAVE NEW SHOE SIZING SYSTEM AS 'BHA', SET TO REPLACE EU/UK/US SIZES

For decades, Indians have squeezed their feet into shoes sized according to US or European standards. Often, this resulted in discomfort, blisters, and even foot deformities. But a revolutionary change might be on the horizon with the proposal of a new, indigenous shoe sizing system called 'Bha'.

Developed by the Council of Scientific and Industrial Research (CSIR) - Central Leather Research Institute (CLRI), Bha is named after 'Bharat', signifying its Indian origin. The impetus for this system arose from a nationwide survey conducted between December 2021 and March 2022. The study, utilising advanced 3D foot scanning technology, analysed over one lakh Indian feet across diverse locations.

Between December 2021 and March 2022, a survey was conducted covering 1,01,880 people in 79 locations across five geographical zones. The survey discovered that the average Indian woman's foot size reaches its highest point at around 11 years of age, while for Indian men, it peaks at about 15 or 16 years old.

The survey revealed a significant discrepancy between Indian foot morphology and the existing sizing systems. Indian feet tend to be wider than their Western counterparts, leading to a mismatch, especially for children and teenagers who often end up wearing shoes that are either too tight or too loose. This can cause long-term problems like bunions, hammertoes, and ingrown toenails.

Bha aims to rectify this issue. Unlike the current 10 sizes in the US system and 7 sizes in the European system, Bha proposes eight distinct sizes catering to various age groups and genders. These sizes will offer additional length and width for improved comfort. BHA proposes eight footwear sizes: I – for infants (0 to 1 year), II – for babies (1 to 3 years), III – for small children (4 to 6 years), IV – for children (7 to 11 years), V – for girls (12 to 13 years), VI – for boys (12 to 14 years), VII – for women (14 years and above), and VIII – for men (15 years and above).

The new system simplifies manufacturing by streamlining size categories. Currently, manufacturers need to produce a wider range to accommodate half sizes. Bha eliminates this need, potentially leading to cost reductions and improved efficiency. Initial trials propose focusing on sizes III to VIII, which would encompass a significant portion of the population. This would ensure a perfect fit for nearly 85% of Indians.

While Bha is still in its proposal stage, it has garnered significant interest from the footwear industry. Experts believe Bha's implementation could revolutionize the Indian footwear market. Here's a glimpse into the potential benefits:

- **Enhanced Comfort:** Shoes designed specifically for Indian feet will provide superior comfort and reduce foot-related ailments.
- **Improved Foot Health:** Proper fitting footwear is crucial for maintaining good foot health, especially for children whose feet are still developing.
- **Wider Variety:** Bha could encourage the creation of a wider variety of shoe styles catering to specific Indian needs, like wider sandals or more accommodating work boots.
- **Manufacturing Boost:** A standardized sizing system could streamline production and potentially lead to a cost reduction for manufacturers.

To revamp the current sizing systems, BHA plans to introduce new footwear sizes. Departments recommend providing footwear manufactured according to BHA standards to users for trial, testing, and feedback. BHA is anticipated to be implemented around 2025.

(Business Today – 23/04/2024)

WELCOME TO WORLD LEATHER DAY 26th APRIL 2024

On April 26, 2024, we come together as an industry to celebrate World Leather Day, honouring the enduring and unique qualities of leather. Our theme for this year's celebration is "**Repair, Reuse, Re-purpose**" emphasising the long-lasting, repairable, and versatile qualities of leather that make it the ideal material for a circular society.

Why?

Environmental sustainability:

emphasising the repair, reuse and repurposing of leather promotes more sustainable environmental practices. By extending the life of leather goods in these ways we can reduce environmental impact.

Reduction of Waste:

recycling of leather waste or repurposing into new products or materials helps close the loop and minimise waste generation.

Economic Benefits:

repairing and reusing leather goods can bring economic benefits to individuals, businesses, and communities. It allows consumers to extend the life of their leather items, which means they need to consume less so save money. For businesses, offering repair services or making reused leather products can open new sources of revenue and promote customer loyalty.

Promoting the circular economy:

adopting repair, reuse and repurposing practices is in line with the principles of a circular economy, using resources more efficiently and minimising waste.

About World Leather Day

On this special day, we come together as an industry to highlight the exceptional suitability of leather for **Repair, Reuse** and **Repurpose**. We believe that embracing these practices plays an important role in minimising our environmental footprint. Whether in fashion, furniture, car interiors or leather goods, leather stands as an enduring symbol of quality and circularity, embodying sustainability in various applications.

(Leather Naturally - 27/04/2024)

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ELEMENTARY KNOWLEDGE ON FOOTWEAR MANUFACTURE
PRINCIPLES OF FOOTWEAR, PART—1

SOMENATH GANGULY

Collage of Leather Technology, Calcutta

Historical background of footwear

Footwear was made more than two thousand years ago when people of ancient age felt its necessity to protect feet from various natural calamities they faced while living in the forest. Beside this the people living in Europe and America where climatic condition forced them to use footwear for protection of their feet from severe cold. Initially it was a piece of leather (not tanned, but dried on sunlight) tied up on the foot or up to ankle of foot. Gradually this simple forms of protection of feet started changing and till date we are changing the old and creating some new one. Pre-historical forms of footwear (XV-XII B. C.) (Fig. 1-5)

Footwear formerly developed from one piece leather

fig-2

and latter was made by more than one components. Accordingly the components were joined to-gether with straps and latter sewed with needle and thread. Gradually more parts of shoes were introduced like soles, heels and various upper components to make a shoe. (fig.-6)

fig-3

fig-4

fig-1

At the beginning of 19th century, the first step to mechanise the footwear manufacture was started by attaching sole with metal elements to the upper. It was Mr David

M. Ranilph patented sole fastening with rivets. In 1810 Sir Isambamel Prunel in London developed revetting machine. Almost at the same time Joseph Walker of America introduced fastening of sole by nails.

fig-5

The development of sewing machine was the next very step towards the rapid growth of shoe industry. Although the sewing machine of to-day in the various forms is largely of American origin, stemming from the invention made in the 10 years from 1845 to 1854, the earliest sewing machine was invented in 1790 by Mr Thomes Saint, a London cabinet maker. A chain stitch machine using an eye pointed needle was made by a German hosiery worker, Mr B. Krems in 1810, but the first chain stitch machine which has some degree of success was invented in 1830 by Mr Thimonnier, a French tailor. (fig. 7 & 8)

Then between 1832 and 1834 Mr Walter Hunt of U.S.A. invented a lock stitch machine. Mr Hunt however did not patent his machine, with the result, the patent was taken

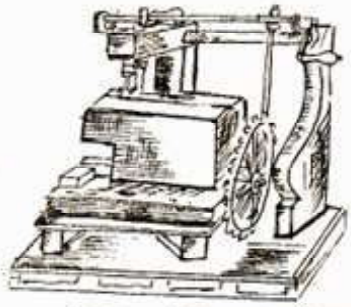


fig-7 THOMAS SAINT'S SEWING MACHINE

out in 1846 by Mr Elias Howe, for a machine which included the use of curved needle on a vibrating arm and a shuttle to

Modern sports shoe (fig. 6)

fig-8 ELIAS HOWE'S MACHINE

carry the locking thread, was held to be valid. Mr Howe's machine, which in some respect resembled Mr Hunt's one, seem to have been an independent invention, which in the event was the real start of the sewing machine industry.

In 1851 Mr Isaac M. Singer produced a rather crudely made but simpler shuttle using lock stitch machine, which had a horizontal table and yielding presser foot, and by employing Bachelder's vertically reciprocating needle bar, could use a straight needle. In 1952 Mr Allen B. Wilson found a new and supperior way of forming lock-stitch. A sewing machine with an electric motor in place of hand wheel was made available in the market by Singer Sewing Co. in 1889. This was not reached to the mass because individual electricity was not available during

that period. In 1862. the first staff sewing machine was made.

During last centuries footwear has come a part of the total fashion concept, an idea that spread through several price ranges to the mass market of in expensive shoes. thanks to modern materials and techniques. The merchandising of shoes changed to suit changing market. It bought in more apparel makers. and yet per capital consumption of footwear rose only slowly, barely keeping ahead of the natural population increase.

The style-conscious manufacturers of western countries in standard quality shoes cannot competes with developing countries where labour costs are cheap. Beside the environment at protection regulations forcing the footwear manufacturing slowly but steadily moving towards developing countries from developed countries.

To-day there is a tremendous competition for making better footwear. During this century the introduction of adhesives in the construction of footwear is a great achievement. The development of P.V.C. and P.U. as a soling material is also responsible for the rapid growth of shoe industry. The CAD-CAM facilities in fashion and shoe designing is the latest development in this respect. We are expecting more and more development in the coming centuries.

DEFINATION OF FOOTWEAR

Footwear is a man made outer covering of foot. It is generally made out of leather but the same can also be made with synthetic material. It protects feet from ground and other various aspects. It can also be defined as wearing apparel for the feet.

Depending upon the style, type and purpose the footwear can be broadly classified in to three groups.

fig-9

i. Chappal or open type footwear (fig. 9)
ii. Sandal or strap attached footwear (fig. 10)
iii. Boot and shoe or closed type footwear covering most part of the feet (fig. 11)

Footwear is the common name for all the above mentioned wearing apparel.

fig-10

FUNCTION OF FOOTWEAR

A) To protect the feet from heat, cold, dampness, dirt or roughness of the ground while standing, walking or even running.

B) To protect the feet and to some extent the lower part of the leg from cold, rain, thorns and insects or other bites.

C) To assist foot to perform some special tasks while playing foot ball, cricket, hockey etc. Beside these there are some trades as mining, deep-sea diving, fire fighting, oil fields etc

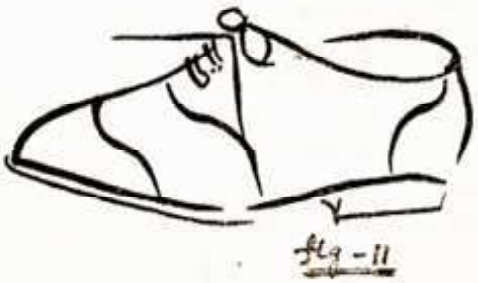


fig-11

need special type of footwear as per their requirements.

D) To over come the abnormalities in the foot itself such as orthopedic boot. This shoes are made according to the absolute necessary of a handicapped person.

E) Shoes for ceremonial occasions such as pump shoe, nagra joti, oxford shoe etc. etc.

FOOT'S BASIC STRUCTURE

The human foot is consisted of bones, muscles and tendons covered by skin. The whole system is capable of supporting the body while it is standing, as well as walking and even running. The foot is composed with 26 bones which are divided into three groups. (fib. 12)

As the feets are thw lower part of human limbs it plays a vital role in human life. Feet bear the total weight of the body and propel the body as required to keep it balanced. Feet need stability and flexibility to function properly. The soft tissues which surrounded the skeleton of feet play different roles.

fig-12

BONES

The skeleton of the body gives it strength, support its weight and protects the more vulnerable organs. The skeleton of feet is being formed by long bones and short bones.

Groups	No. of bones	Type of bones
1. Tarsus	7	Short
2. Meta tarsus	5	Long
3. Phalanges	14	Long

while the long bones are responsible for its movement, the short bones are associated with the weight bearing of the foot.

The short bones are usually irregular in shapes and inter lock well with each other. The long bones consists of a shaft separating a head and a base. The base is the end nearer the centre of the body. (fig. 13)

TARSUS

The back portion of the skeleton of human foot is termed as Tarsus. It has seven irregular short bones. The body weight is being transferred through heel bones to the ground. The heel bones situated at the back is called oscalsis (calcaneum). see (fig. 14)

It is the longest bone about 65 m.m. Next to oscalcis is the Astragalus. It links between foot and leg and distributes the body weight to the fore part and heel. The astragalus is partly supported by a ledge (sustentaculum tali) on the inside of the

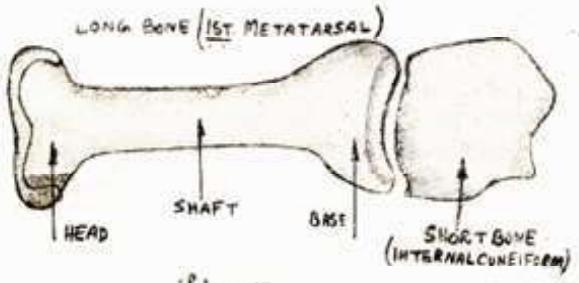


fig-13

oscalsis. In the front of the scapoid are the internal, middle and external cuniform. The external one lying beside the cuboid. The cuboid is on the outside of the foot just in front of the oscalsis. The prominence on the middle cuniform is used to locate the instep point.

METATARSUS

It consists of the five long bones called Metartarsals. The first three (3) of this joins with cuniforms and fourth and fifth with the cubold. The first metatarsal, which is inside part of the feet, is the thickest bone in this group. The fifth bone, which is in outside portion of this group has a tuberosity (prominence) on its base where it joins the cuboid.

PHALANGES

The toe portion of the foot is consisted with 14 nos. long bones. The phalanges group is again divided in three sub-groups known as (i) proximal phalanges (5 bones) (ii) Middle phalanges (4 bones) and Distal phalanges (5 nos. bones) as per (fig...12)

The proximal phalanges of each toe is joined with the appropriate metatarsal which forms the main joint of the feet-Metatarso-Phalangeal join. The four middle phalanges are then joined with five distal phalanges. The smallest bone of the distal phalanges is about 10 m.m. The joints between the phalanges is known as Interphalangeal joint. There are two small bones called Sesamoids under the head of the first metatarsal.

Tibia and Fibula are the two main long bones which join the leg with the foot. The thicker bone Tibia is connected with Astragalus (Talus) at the front and inside the leg. At the bottom of the each bone is a prominence (ankle bone) on the tibia called the inner malleolus and on the fibula the outer malleolus. The inner malleolus is slightly higher and further forward than the outer malleolus. The position of this ankle bones may affect the styling of footwear since a top line or seam that crosses them, or is just under them, often causes discomfort. The bases of the two bones together form a socket into which the astragalus fits—thus forming the ankle joint. (fig. 15)

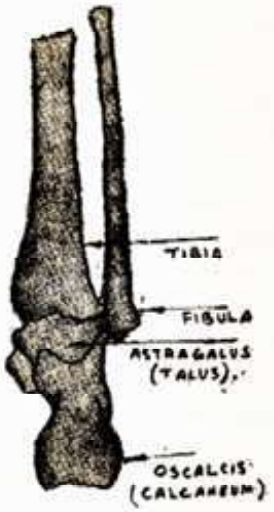


fig 15

JOINTS

When one is standing, walking, running or dancing the foot requires some sorts of flexibility so that bones do not crack easily. If the foot had only one or two solid

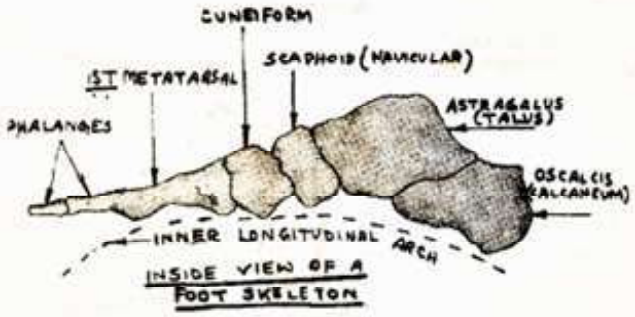


fig - 14

bone with no flexible character, the jerk of sudden impact as the foot strikes the ground would result the fraction of bone or damage of tissues. Our bones had one hundred thirty seven (137) joints or articulation which helps the movements of the foot. It also functions as shock absorber and maintain flexibility while the foot is on movement. Our foot consists of many bones and a wide range of joints which protects our feet from displacement of bone easily.

Among the joints between two or more bones some bones require a little or no movement. These bones are held firmly together by strong non-elastic tissues called Ligaments.

Other joints, where movements is necessary are called Synovial joints. (fig. 16)

The mechanical movements at the joints could be

1) Ball and socket-eg. hip movement in several planes (3 degrees of freedom).
2) Hinge-eg., Knee movement in one plane only (turn in one plane only one degree of freedom).
3) Sliding (3 degrees of freedom)-The synovial joints provides lubrication (the synovial fluids secreted by the synovial membrane) and shock absorption and protection and and protection against wear of the bone (cartilage). The whole joint is then contained by ligaments.

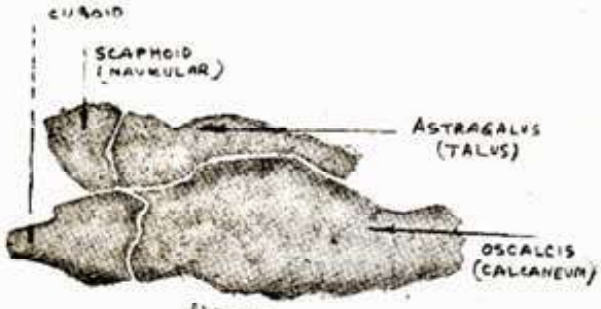


fig-17

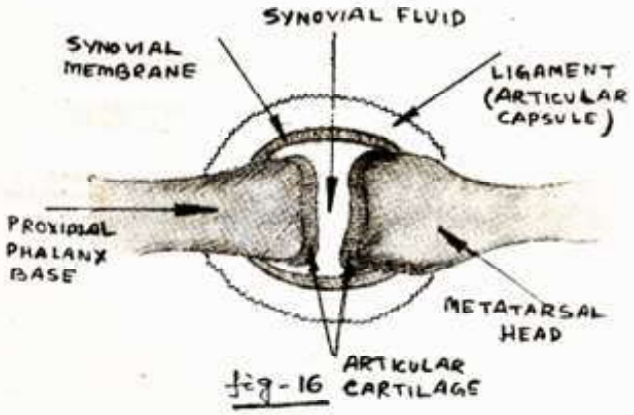


fig-16

The following are the main joints of foot. (fig....17)

A) ANKLE JOINT—HINGE : Tibia and fibula form a socket into which the top of the astragalus fits.

B) SUB TALER JOINT : Gliding. Astragalus glides on the oscalcia.

C) MID TARSAL JOINT : Gliding and ball and socket.

Cuboid glides against the oscalcis, scaphoid forms a socket for the astragalus.

The ankle joint allows the foot to move up and down and the sub taler and mid tarsal joints allow it to move side to side.

D) METATARSO-PHALANGEAL JOINT : ball and socket during childhood-later hinge action only.

Heads of Metatarsal and base of proximal phalanges.

E) INTER PHALANGEAL JOINT : Hinge joints between the bones.

LIGAMENTS

1) CAPSULAR LIGAMENTS These are formed of strong, fibrous tissues placed around the joints. It prevents the bones from separating and protecting them from other than normal movements. If there is a heavy pressure from outside on foot, one of the ligaments is likely to tear. When there is a continuous pressure on foot the ligaments may stretch, which results the displacement of bones from its correct position.

2) ARTICULAR LIGAMENTS It covers the joint surfaces on joints where there is no movements.

3) FACIA LIGAMENTS : It holds in the tendons a spring ligaments joins the oscalsis to the scaphoid and plantarligaments connect the oscalcis underside of the cuboid and the metatarsal bases.

MUSCLES

It provides the forces for movement of the bones. Muscles are capable only to contract or relax so there must be at least two antagonistic muscles controlling the movement at each joint and holding the joint in balance. Skeletal muscles consist of boundless of muscles fibres enclosed in a asheath. One of the muscle is connected to a bone but at the other hand the sheath is extended and becomes a tough non elastic cord called a tendon. This tendon them transfers the power of the muscle to the point on another bone where it is to be applied.

The joints, bones and muscles allow the feet to move in different directions necessary ment is necessary, are called for standing on different surfaces and moving in various conditions.

There are nineteen muscles in the foot. Out of these muscles eighteen are located in the sole of the foot and one under the top surface of the foot. The muscles on the sole of the foot are divided into four layers.

1) 1st layer—Three muscles
2) 2nd layer—Five muscles
3) 3rd layer—Three muscles
4) 4th layer—Seven muscles

MUSCLES (fig-21)

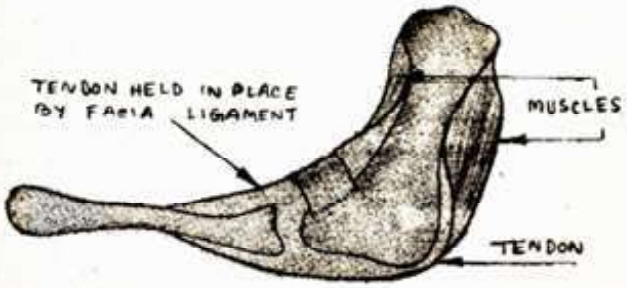


fig-18

How the muscles act on feet. There are four (4) groups of muscles in the leg that act on the foot. (fig. 21)

1) The front group : Four muscles in front of and between the tibia and fibula whose tendons pass in front of the ankle joint. They raise the foot, turn the sole in and out and extend the toes up.

2) The outside group : Two muscles which join the fibula. The tendons pass behind the ankle joint, so they bend the foot down and turn the foot out.

3) The surface back group (the calf) : One muscle joined to the thigh bone (femur) and the other to the tibia and fibula. They pass via the chilles tendon, over the back of the ankle and bend the foot down.

4) The deep back group : Four muscles under the calf whose tendons pass behind the ankle to flex the toes down and turn the foot in.

Of all the muscles of the foot, one above the skeleton extends the toes. The others under the skeleton control the other movements of the toes.

ARCHES OF THE FOOT

The bones of a strong healthy human foot are held together by a network of ligaments, tendons and muscles. These bones are arranged in such a way that they form four separate natural arches which run length wise and cross wise of the foot. These arches of the foot are not at all rigid as they do not anchored to permanent, immovable abutments. The arches give support to the foot. These are resilient, pliable and also responsive to the thousand angulations of the human foot when it is in motion and action.

The foot is arched longitudinally on the inside and outside and transversly at either end of the metatarsals. These can also be viewed when looking at the impression made by a pair of foot. (fib. 19)

fig-19

INNER LONGITUDINAL—ARCH

This arch is between oscalcis and first three metatarsal which includes scaphoid and cuneiforms. It has flexibility and provides for shock absorption and propulsion.

OUTER LONGITUDINAL—ARCH

This arch is between oscalcis and 4th and 5th metatarsal passing through cuboid. This arch is more or less flat and lacks mobility. This arch is very much suited for supporting the weight of the body.

TRANSVERSE—ARCH

This arch is between the feet (both) crosses through the base of the 5th metatarsal, the cuboid and cuneiforms. It is independent with inner longitudinal arch, but more rigid than the inner longitudinal arch and protects the main blood vessels and nerves supplying the sole.

ANTERIOR—METATARSAL—ARCH

This arch is only visible (apparent) when there is no weight on the forepart of the feet. This arch is formed across the head of the five metatarsals. The strong ligaments in this metatarsals which joins them together prevents the arch spreading too much and a disproportionate amount of pressure going on to the middle metatarsals heads when the foot

bears the weight of the body).

LAST

The word "last" came from the word "LAEST" which means a foot print, a foot track, a foot trace. Last is not the exact replicas of the foot but resemble them in out line. (fig. 25) It is a reproduction of approximate shape of the human foot. It provides the shape and fittings of a shoe made on it. As lasts are the fundamental of manufacturing a shoe it carries a great responsibilities. Before modelling a shoe last one should strictly consider the following points.

a) The anatomy of foot
b) The trend of the fashion

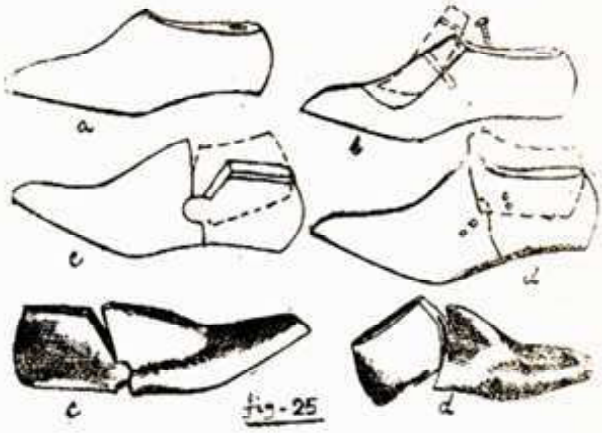
Last is a three dimensional (3-D) form based on the shape and movement of the foot. It therefore determines shape, size and inner dimensions of the shoe. To provide foot comfort while wearing a shoe, the last is designed with several special features. Two major features are (1) Toe spring (2) Heel pitch

Beside these the ball, instep and heel girth play a major role while making a pair of shoe last.

TYPES OF SHOE LAST

There are four types of shoe lasts which are being used by the shoe industry as a whole. (fig. 25)

a) Solid block last
b) Scoop block last
c) Ordinary or conventional hinge last
d) Telescopic hinge last



a) SOLID BLOCK LAST

This is a last made with single block of material. It is mainly used for modelling and manufacturing of chappal, sandal and wide open ladies bellies. (fig. 25a)

b) SCOOP BLOCK LAST ...

It is a two part last. A cut is made as shown in (fig. 25b) by a saw machine which removes a large portion from the top. The fastening is made by means of a spring and a plug. For unlasting a shoe from the last the uper portion of the last is separated first, then it becomes easy to unlast the shoe from the last. Most of the hand made shoe makers are using this last

c) ORDINARY OR CONVENTIONAL HINGE

It is also a two part last but differs entirely from scop last. A 'V' cut is made on the block as shown in (fig. 25c) to facilate the hinging system. A metal piece connecting the front and rear section of the last to provide a tensioning force to keep the sections together and in the desired position while breaking the last to shorten it and facilate removal of the lasted shoe.

d) TELESCOPIC-HINGE

The system of shortening the last is some how differs from the ordinary hinge last as shown in (fig. 25d). There is no gap in between two blocks of the last. It shortened upward direction.

CLASSIFICATION OF LAST

Material wise	Construction wise	Purpose wise	Plating wise	Heel wise
1. Wooden	Solid Block	1. Lasting	1. Heel Plated	1. Without heel
2. Plastic	Scoop Block		2. Toe Plated	2. Low heel (10-25 m.m)
3. Metalic	Conventional Hinge		3. Half Plated	3. Medium heel (26-40 m.m)
	Telescopic Hinge	2. Finishing	4. Full bottom Plated	4. High heel (40 m.m and above)

INTRODUCTION WITH VARIOUS PARTS OF A SHOE LAST

(fig. 22, 23a, 23b, 24, 25, 26)

1) FORE PART—The portion of the last extending forward from the break of the joint to the toe.

2) BACK PART—The portion of the last extending rearward from the break of the joint to the back of the last.

3) BACK CONE—That portion of the cone surface between 'V' cut and the back end or back curve of the last.

4) BACK CONE HEIGHT—The vertical distance between the heel feather line plane and the back cone top lane.

5) BACK SEAM TACK HEIGHT—The vertical distance between the heel feather line plane and the back seam tack.

6) BASE PLANE—That plane to which the last in its proper attitude is referred for the purpose of defining certain terms.

7) BREAST LINE—An arbitrary line defining the forward boundary of the heel seat.

8) FRONT CONE—That portion of the cone surface between the vamp point and the 'V' cut.

9) HEEL CURVE—A side view profile of the back and of the last from the top of the last to the heel seat of the feather line.

10) HEEL CURVE ANGLE—The angle between the heel feather line plane and a line drawn from the heel point which interects the heel curve

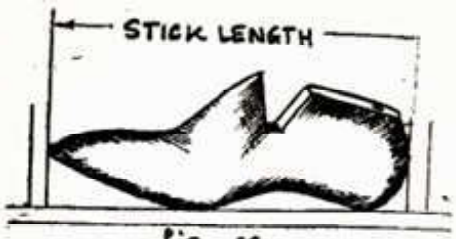
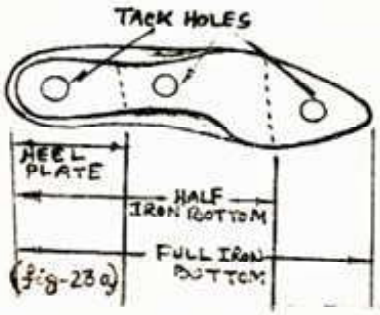


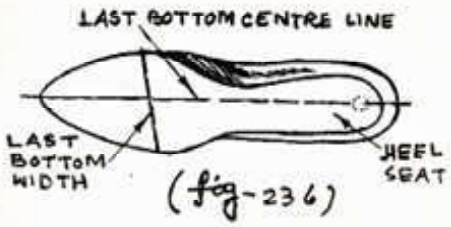
fig- 22



(fig-23a)

2½ inch (63 m.m) up from the heel point.

11) HEEL ELEVATION—The last being positioned on the base plane, the vertical distance between the base plane and the heel point is the heel elevation.



(fig-23 6)

12) HEEL FEATHER LINE—A line that defines the heel seat shape. The heel feather line plane is perpendicular to last centreline plane and is perpendicular to the thimble hole centre line.

13) INSTEP POINT—An arbitrary point established by the model maker for grading purposes. It is located at the approximate midpoint of the last length of the front cone profile. The instep point refers to the instep girth and the long heel girth.

14) INSTEP GIRTH—The dimension around a last (as per figure) passing through the instep point.

15) JOINT GIRTH—The greatest dimension around pendicular to the last centre line plane.

16) LAST JOINT BREAK—A point located at the intersection of the last bottom feather line and the forepart, tangent to a plane passing through the heel point, and per-

17) LONG HEEL GIRTH—The dimension around a last passing through the instep and heel feather line point.

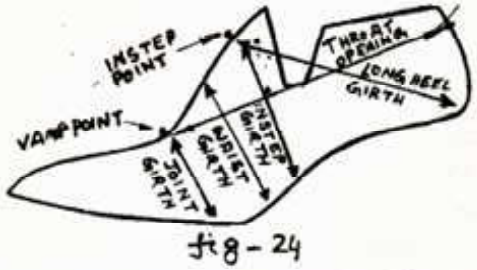


fig-24

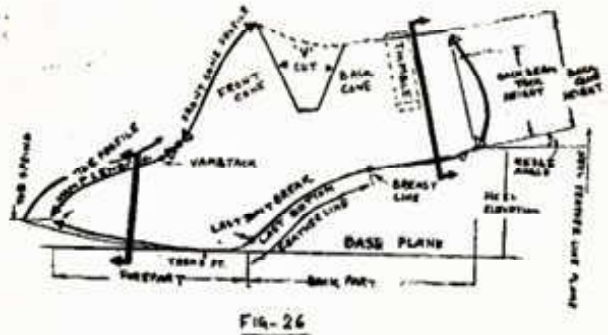


FIG-26

18) LAST BOTTOM CENTRE LINE—A line defined by joining the toe point and heel point.

19) LAST BOTTOM FEATHER LINE—The line which produce the bottom shape of the last.

20) SHANK—The bottom area of the last between the breast line and last joint break.

21) THIMBLE—The thimble is a metal sleeve inserted in the top heel end of a last, providing an opening for a mounting spindle or last pin.

22) TREAD POINT—The point of the bottom forepart in contact with the base plane.

23) TOE SPRING—The vertical distance between the

base plane and the toe point of a last having the desired heel elevation.

24) WAIST GIRTH—The smallest dimension around a last between the joint girth and instep girth.

25) WALL—The portion around the periphery of the forepart of the last of a certain style characterized by relatively straight sides.

26) WEDGE ANGLE—The last being positioned at base plane, the angle between the heel feather line and the base plane is the wedge angle.

LAST MANUFACTURE (Bulk)

A large stock of last blocks should be maintained to meet sudden demand, such as a radical change in fashion. (fig. 27)

A typical sequence of operations for a standard hinge type last is :

1) Cut the last block to the rough shape of the required last, using a band saw.
2) Rough—turning. The latest "Incoma" machine turns two pairs (lefts and rights) at once.
3) Drill hinge pin holes and cut 'V' gap in comb (one machine does all this).
4) Using a jig, saw the circle and divide the last.
5) Cut the hings slot.
6) Make up and insert the hinge.
7) Insert the hinge pins, knocking well in to prevent damage to knives on the smooth turning lathe.
8) Smooth turning (two pairs at a time).
9) Remove the toe stud.
10) Cut the toe plate rebate if necessary
11) Remove the heel stud
12) Shape heel to template
13) Rivet on top piece (back comb) and trim.
14) Drill thimble and ferrule holes (or combination thimble hole).
15) Insert thimble
16) Rivet on bottom plates, mould if necessary and smooth edges
17) Drill through seat plate in line with thimble or ferrule (if specified for temporary heel attachment).
18) Examine
    a) Accuracy of bottom—check with pattern
    b) Heel curve—check with template
    c) Stick length
19) scour (as little as possible).
20) Colour mark for size fitting
21) Stamp size, fitting and last code number
22) Insert counter point and vamp point tacks. Locate the counter point by means of a template and the vamp point with dividers.
23) Check pairage, check colour coding and pack for despatch.

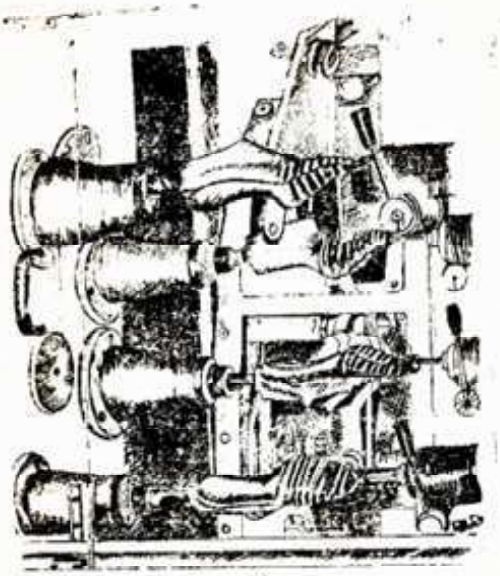


fig-27)

The differences between the human feet and shoe making Last :

HUMAN FOOT	SHOE MAKING LAST
A) The surface of the human feet are irregular and it varies from one to others.	A) The surface of the last is being kept smooth to enable the closed shoe upper to be moulded smoothly to get the shape of the shoe.
B) The foot has no feather edge or outline	B) The outline of the last is regular and has a sharp feather edge around the seat and fore part visible on the bottom of the last.
C) Foot is a composition of flesh and bones. As such it is softer and more flexible.	C) Last is made of wood or high density plastic. It is hard and firm.
D) The foot has five individual toes and it can move while wearing a shoe.	D) The toe portion of the last is kept solid. Only chappal last has got an indidividual big toe for fitting the front strap.
E) Back of the foot develops as per the anatomy of foot of the individuals.	E) Back of the last is being kept more curve for the better gripping of the shoe.
F) No heel pitch on foot.	F) Heel pitch exists on last.
G) Comb area of human foot is different in shape between inside and outside.	G) Comb area is being kept thinner on the last in respect of foot for better gripping.
H) The length of the foot is fixed.	H) The length of the last is more than that of individual foot.
I) No toe spring on foot.	I) Toe spring in the last depends on the heel height. Each last has got toe spring.
J) Girth and size interval are irregular on feet.	J) It is regular on last.

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K) Dimension of human feet is rarely found identical on a pair of feet.

K) It is identical on a pair of last.

L) For styling or modifying a shoe the foot is not at all considered.

L) Last is being modified and changed its style as per customer's choice of shoe keeping basic anatomy of foot in the mind.

M) The foot is being used for weight bearing and propulsion of the body.

M) The last is being used as a basic tool for manufacturing shoe.

IMPORTANT REQUIREMENT OF WOODEN LAST

1) Moisture content of finished last should not be more than 12%.
2) The sap of the wood be included in the soles of the last.
3) The wood must be free from the following defects—
   a) dirt of any sort
   b) decay and rot
   c) fungal attack
   d) worm holes and insects damage
   e) cross grain
   f) pith or the central weak portion of the wood
   g) split or honey combing

MATERIAL FOR SHOE LAST

The following basic kind of raw materials arde mainly used for the making of shoe lasts.

A) Wood—The best woods of foreign origin-maple, beech and horn beam
—The usable woods of indigenous origin and recommended by I.S.I. are—
Sisso, Black, Siris, Haldu, Mango, Amaria, Chikrassy Bola

B) Metal—Usually an aluminium alloy.

C) Plastic—High density poly ethylene

D) Iron—Cast iron.

Desired Characteristics of Last Timber—

The quality of the timber to be used for last making has important role as the following points mostly depend on them.

1) The life of the last
2) The work ability and behaviour of last during use

The quality of timber implies the following properties :

1) It should cut or turn on machine without tendency to fray
2) It should be reasonably free from knots
3) It should not be liable to split when nails and screw and thimbles are driven in
4) The texture should be firm enough so as to dent from blows and should be able to retain its definite edges
5) The grain should be close enough to take the high polish
6) It should neither shrink nor absorb moisture.

TIMBER FOR SHOE LASTS

The following indigenous timbers are recommended for making shoe lasts :

A) LASTING LASTS :

Himalayan maple
Pitraj
Kala-siris
Amari
Sisso
Benteak

B) FINISHING LASTS :

Chikrassy
Gamari
Bola

Out of the above mentioned timbers sisso is most widely used for making lasting lasts. Sisso is available in Northern and Central India. It is noted for its beauty and rapid growth in every soil. This is largely needed for avenues along roads and canals. The wood is hard dark brown in colour, with well-marked coarse grains. The wood weights approximately 780 Kg/m^3 at 12% moisture content.

The logs for the preparation of blocks for shoe lasts shall be free from the following defects.

1. Flutes
2. Spiral or wavy grain
3. Knots
4. Shakes
5. Cracks
6. Decay or rot
7. Insect attack

The logs are converted into blocks of triangular section in various sizes to cover the size range of footwear.

SEASONING OF SHOE LAST BLOCKS

The dimensional accuracy is of prime importance in shoe lasts. The wooden blocks for manufacture of shoe lasts, therefore, should be perfectly seasoned, so that the shrinkage, warping, distortion and splitting do not occur in the finished lasts.

The blocks for shoe lasts may be fully air seasoned, partly air and partly kiln seasoned or completely kiln seasoned to keep the moisture content between 8-12%.

The drying or seasoning of green wood is a critical step in the conversion of logs into finished woods because it is a potential source of degrade. For perfect seasoning it is necessary to follow the particular kiln schedule depending on the thickness of the blocks and species of the timber. The higher the thickness of the timber the slower will be the drying schedule. The seasoned timber should be free from the defects like checks, case-hardening, honey combing and collapse.

CHARACTERISTICS OF DIFFERENT LASTS.

Characteristics	Women's	Men's	Boot's	Children
Toe	Variable	Variable but wider	Wide & round	Rounded
Toe spring	Little	Moderate	Large	Depend on sole flexing
Waist	Narrow	Wide	Still more wider	Wide
Heel curve	Great	Moderate	Very little	Very little
Cross-section of heel brash	Almost triangular	Less triangular	Still less tapend	Almost rectangular

Category of Last	Model/Size	Distance in mm (Ball pt. to instep pt.)
(1)	(2)	(3)
Men's	7	60
Ladies/Youth	4	55
Children	10	45
Boys	13	50
Infant	7	40
Babies	4	35

(fig.—20)

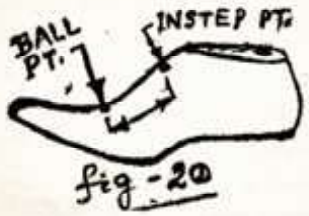

fig - 20

IMPORTANT CHECK POINTS

Whether the shape, dimension and profiles of a last are correct or not are ascertained by taking physical measurement at the following check points and by comparing with appropriate tamplets.

1) Overall length (OVE FALL)
2) Accuracy of bottom shape
3) Accuracy of joint measurement
4) Accuracy of instep measurement
5) Accuracy of bottom and back profiles
6) Accuracy of toe profile
7) Accuracy of location point for counter, vamp and instep as well these marked for taking measurement.

The standard amount of toe spring in relation to pitch (height of the heel) shall be as follows according to the nature of the shoe which is measured in mm.

Heel height	Toe spring (mm)
Normal Men's shoe	12-14
Popular shoe on low heel	10
Ladies' shoes on medium heel	8
Ladies' shoes on high heel	6

Where other heights of heels are employed the toe spring shall be as follows :

Height of heel (mm)	Toe spring (mm)
10	13
20	12
30	11
40	10
50	9
60	8
70	7

The relation between the toe spring and height of heel during the increase and decrease for size to size shall be as follows :

Height of heel (mm)	Toe spring (mm)
10 to 30	0.5
30 to 60	1.0
Over 60	1.5

HEIGHT OF QUARTER

In order to have a uniform and accurate quarter height in finished footwear and to minimize the effort in the footwear manufacturing processes, a demarcation along the centre line of the heel curve, from the seat edge position shall be made as to conform to the requirement given in quarter height.

Category	Quarter height
Men's (7)	58.0 mm
Ladies (4)	54.00 mm
Boy's (13)	47.5 mm
Infants (7)	30.0 mm
Children (10)	42.5 mm
Babies' (4)	33.5 mm

Height of the last excluding the thickness of the top plate shall be as follows :

Category	Size	mm
Men's	7	68
Ladies	4	63
Children	13	55
Boys	10	50
Infant	7	45
Babies	4	40

The difference of height for the sizes is ± .1 mm

The length and width grades for incole of last shall be as follows :

Grade (English scale)	Adults & Youth	Children
Length grade	8.4	8.4
Width grade	2.0	1.6

Each fitting shall be identified as given below (English size)

Fittings	Letter of Identification
Extra narrow	A
Narrow	B
Very slender	C
Slender	D
Very small	E
Medium	G
Large	H
Extra Large	XH

Size of last	ment Measure / of Block Lenth cm.	Breath cm.	Height cm.	Required dia of log	Volume / pair mm.	Used for
6-12	34.00	11.5	13.0	40.0	0.0102	Men's
5-8	30.5	11.0	13.0	36.5	0.0086	Men's/Ladies
11½-5	28.0	10.0	11.5	34.0	0.0064	Boys/girls
11½-1	25.0	9.5	10.0	32.0	0.0048	Children
6-11	21.5	9.0	9.0	28.5	0.0034	Children
1-6	18.5	8.5	9.0	25.0	0.0028	Infants

In the production of last for Oxford shoe (low shoes) instep girth shall be reduced by 3 mm. and the upper heel part must be thinner than that of last for boots.

INSTEP GIRTH SHALL BE INCREASED

a) in the production of lasts for marsh and fishing boots by 20 mm

b) in the production of last sandals by 10 mm.

c) in the production of chrome leather (box calf) boots by 7 mm.

SEASONING OF SHOE LAST BLOCKS

WHAT IS SEASONING : Seasoning is the process of dividing out the moisture from wood to the desired extent at controlled relative humidity.

MOISTURE CONTENT (ACTUAL) :

(i) Green log 80-90%

(ii) Seasoned Shoe Last Blocks 8-12%

During the seasoning of Shoe Last Blocks made of shisham wood it takes from 3-3y2 months to reduce moisture content from 80-90% to the desired extent of 8-12%

PROCESS OF SEASONING TIMBER BLOCKS FOR SHOE LASTS : Except a very mechanised last making factories most of the Shoe Last making in India is based on hand made last manufacturing process. These units are under small scale and cottage industry in our country. They have got neither any seasoning plant nor can afford to season the timber naturally as it takes very long time and calls for excessive inventory of raw material. The craftsmen engaged in this trade do not have any clear conception about timber or the inner structure of timber and the moisture content. As a result they generally follow some indigenous crude method for seasoning the timber.

APRIL, 1996

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(i) OIL PROCES : Used automobile oil or any cheaper type of lubrication oil is used for this purpose. The oil is poured in a big container and boiled. The lasts made out of indigenous process put into the boiling oil in the container and kept for 5-6 hours. In this process the moisture of the outer layer of the last is replaced by the oil but the core of the timber remains almost unaffected. The differential drying causes stress and so the lasts crack. It also gives a very poor look for the finished last as the polishing is marred by the oil in the timber.

(ii) DRYING IN THE BAKERY OVEN : The small baking industry producing loafs, biscuits etc. is generally work during the day time. The bakery oven remains heated throughout the night. The lasts are placed inside the oven and kept over night. But in this case also only the outer surface of the timber gets moisture reduced and the inner layers remain as it is, The drying stresses are induced in the timber because of differential drying and lasts crack.

(iii) KILN SEASONING : The processes described above are nowhere near the seasoning. Hence the lasts made can not be termed as quality lasts.

The Shoe Last Blocks may be properly seasoned with the help of seasoning kilns. Now-a-days various types of seasoning kilns are available depending on the method of generating steam, chamber construction and method of heating the circulating air.

The approximate cost of kiln with capacity of seasoning 4-5 thousand pairs of Shoe Last Blocks is about Rs. 15 lakhs includinb the civil work involved.

The process of seasoning timber in a kiln is outlined below.

A. DETERMINATION OF INITIAL MOISTURE CONTENT OF SHOE LAST BLOCKS :

It is necessary to ascertain the moisture content of timber blocks before these are loaded in the seasoning chamber after air drying because following the particular drying schedule demands it.

In the laboratory specimen of wooden block is taken from the lot. Oven samples of thickness 15 mm are cut from the specimen and weighed. The oven samples are put into the oven which has a thermostatic heat control system. The oven is operated between 90°C and 105°C thermostatically till the weights of samples are constant. From the initial and final constant weights of the even samples are initial moisture content of the lot is computed as follows :

$$M.C\% = \frac{\text{G. Weight-D. Weight}}{\text{Dry Weight}} \times 100$$

B. KILN OPERATION : The blocks are then loaded in the kiln with 25 mm thick crossers in between the layers of blocks.

Initial steaming is done and drying schedule started. During the process of kiln operation the difference of reading of moisture content in core and shall should not be more than 3-4%. But if it is found more intermediate steaming is to be done to reduce the difference.

The kiln samples should be weight periodically and moisture content determined. At the end of the cycle steaming should be done and then the lot should be taken out of the kiln.

WOOD FOR SHOE LASTS : The following indigenous timbers have been recommended for the Shoe Lasts :

1. Himalayan maple
2. Pitraj

3. Kala-siris
4. Aman
5. Sisso
6. Benteak

Out of the above sissoo is the most widely used timber for the last making as it is available almost all over the country.

DEMERITS OF NATURAL SEASONING

(i) Time and storage space required in this process are too much involving heavy expenditure in raw material.

(ii) This process without any control causes warping and deshaping in the timber.

(iii) End splitting occurs due to the faster evaporation of moisture from the ends.

(TO BE CONTINUED)

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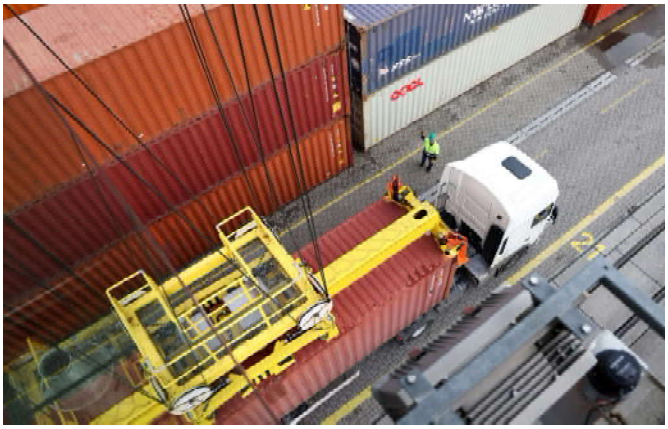
iv) All the diagrams in this articles have been made by Sri Budhadev Sinha.

INCREASING GLOBAL UNCERTAINTIES MAY IMPACT DEMAND, INDIA'S EXPORTS: FIEO



The global uncertainties caused by continuing war between Russia and Ukraine has impacted India's outbound shipments in 2023-24, which recorded a decline of 3.11 per cent to USD 437 billion. Imports too dipped by over 8 per cent to USD 677.24 billion.

The escalating geopolitical tension may have implications for the country's exports in the first quarter of 2024-25 as it is likely to impact global demand, apex exporters body FIEO said. The global uncertainties caused by continuing war between Russia and Ukraine has impacted India's outbound shipments in 2023-24, which recorded a decline of 3.11 per cent to USD 437 billion. Imports too dipped by over 8 per cent to USD 677.24 billion.

"If the global situation continues to be like this, it would impact global demand. In the first quarter numbers, the demand slowdown may be visible," FIEO Director General Ajay Sahai said. He added that despite all the challenges, freight rates are softening and it is giving an indication that demand may be impacted in the times to come.

He cautioned that further escalation of the current situation could have serious implications on the world trade. The escalating geopolitical tension may have implications for the country's exports in the first quarter of 2024-25 as it is likely to impact global demand, apex exporters body FIEO said.

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(moneycontrol.com – 26/04/2024)

DELOITTE PROJECTS INDIA'S FY25 GDP GROWTH AT 6.6%

In its India's economic outlook report, Deloitte said the rapid growth of the middle-income class has led to rising purchasing power and even created demand for premium luxury products and services. Deloitte India on Friday said it estimates India's GDP growth at 6.6 per cent in the current fiscal helped by consumption expenditure, exports rebound and capital flows.

In its India's economic outlook report, Deloitte said the rapid growth of the middle-income class has led to rising purchasing power and even created demand for premium luxury products and services. With the expectation that the number of middle-to-high-income segments will be one in two households by 2030/31, up from one in four currently, we believe this trend will likely become further amplified, driving overall private consumer expenditure growth, it said.

Deloitte has revised India's economic growth prediction for last fiscal to a range of 7.6 to 7.8 per cent. In January, the firm had projected growth for 2023-24 fiscal in the range of 6.9-7.2 per cent. The country's GDP growth is estimated to reach around 6.6 per cent in FY 2024-25 and 6.75 per cent in the year after, as markets learn to factor in geopolitical uncertainties in their investment and consumption decisions, Deloitte said in its quarterly update to its economic outlook.

"The global economy is expected to witness a synchronous rebound in 2025 as major election uncertainties get sorted out and the central banks of the West may announce a couple of rate cuts later in 2024. India will likely see improved capital flows and a rebound in exports" said Deloitte India Economist Rumki Majumdar.

Strong growth numbers over the past two years have helped the economy to catch up with the pre-COVID trends. Investment, backed by strong government spending on infrastructure, has helped India maintain a steady recovery momentum, she added. That said, there are concerns about inflation and geopolitical uncertainties feeding into higher food and fuel prices. At the same time, the prediction of above normal monsoon will likely provide some respite by positively impacting agriculture output and easing pressure on food prices.

Inflation is expected to remain above the Reserve Bank of India's target level of 4 per cent over the forecast period due to strong economic activity, Majumdar said. Deloitte's FY25 GDP growth estimate is similar to the projections made by the World Bank. It is, however, lower than the projections by the RBI and other agencies. The RBI has projected the Indian economy growth at 7 per cent in the current fiscal.

While the Asian Development Bank (ADB) and Fitch Ratings have estimated growth at 7 per cent, the International Monetary Fund (IMF), S&P Global Ratings and Morgan Stanley projected a 6.8 per cent growth rate for FY25. Deloitte said even as growth in consumer spending post-pandemic has been fluctuating, there is a visible shift in consumption patterns, with demand for luxury and high-end products and services growing faster than demand for basic goods.

"India is seeing a prominent shift in consumer behaviour toward aspirational spending, which is inevitable in any nation that experiences growing economic prosperity. India's spending share in the luxury and premium goods and services category (such as spending on transport, communication, recreation, etc.) has traditionally been lower than nations such as the United States, China, Japan, and Germany. So, there is, therefore, potential for this ratio to increase further as consumer income grows." Majumdar said.

The report further said that to sustainably boost household spending amidst wealth concentration, declining savings, and rising debt levels, several corrective measures can be implemented. Increasing employment opportunities in rural and semi-urban areas could elevate savings, particularly as employment transitions from agriculture, which represents 44 per cent of employment but only about 18 per cent of GDP, to sectors like manufacturing, services, and construction.

Government investments in infrastructure and initiatives such as Future Skills Prime 2021 for skill enhancement and Ayushman Bharat for health improvements are expected to enhance employability and productivity. Despite the necessity for credit growth to stimulate economic activity, the RBI will have to monitor rising household debt and encourage banks to leverage data analytics for smarter lending decisions, Deloitte said.

(moneycontrol.com – 26/04/2024)

MPC REFUSES TO DROP ITS GUARD ON INFLATION

Most members of the Reserve Bank of India's monetary policy committee (MPC) decided to stick to the course on bringing retail inflation to the target of 4 per cent while voting for maintaining status quo in the April review, except external member Jayanth Varma who voted for a 25-bps cut in the repo rate.

"I believe that the extant monetary policy setting is well positioned," RBI governor Shaktikanta Das said in the minutes of the policy review, which came out on Friday. "Monetary policy transmission is continuing and inflation expectations of households are also getting further anchored. "At this stage, we should stay the course and remain vigilant.

"The gains in disinflation achieved over last two years have to be preserved and taken forward towards aligning the headline inflation to the 4 per cent target on a durable basis," Das said while adding strong growth momentum provides the policy space to "unwaveringly" focus on price stability.

External member Shashanka Bhide also pointed that due to strong economic growth, it is necessary to maintain monetary policy focus on aligning the inflation trends with the target. Deputy governor Michael Patra said headline inflation is expected to remain in the upper reaches of the tolerance band until favourable base effects come into play in the second quarter of 2024-25.

"Hence, conditions are not yet in place for any let-up in the restrictive stance of monetary policy. "Downward pressure on inflation must be maintained until a better balance of risks becomes evident and the layers of uncertainty clouding the near-term clear away," he said. The six-member monetary policy-maintained status quo on rate for the seventh consecutive policy in April. The withdrawal of the accommodation stance of the policy also remained unchanged. Varma voted for the change in stance to neutral. He said a real interest rate of 1 to 1.5 per cent would be sufficient to glide inflation to the target of 4 per cent and that the current real policy rate of 2 per cent (based on projected inflation for 2024-25) is excessive.

"The fact that economic growth in 2024-25 is projected to slow by over half a percent relative to 2023-24 is a reminder that high interest rates entail a growth sacrifice. "Monetary policy should try to reduce this sacrifice while ensuring that inflation (a) remains within the band and (b) glides towards the target," he added.

External member Ashima Goyal said real interest rates are higher than the natural or neutral interest rate (NIR) compatible with keeping inflation at target and output at potential. She said this is lesser worry at present due to high corporate profits with credit growth continuing to be robust. "But there has to be a limit to squeezing core inflation to compensate for periodic headline shocks."Core sustaining below 4 per cent implies real policy rates are in the contraction zone," she said.

Goyal said since there are uncertainties maintaining stability must have priority while justifying her decision for a status quo. Internal member Rajiv Ranjan observed that it is too early to drop guard against inflation. "Going ahead, while monetary policy seems to be on the right track, it is too early to ease guard against inflation. "It is important that we gain more confidence on our macro numbers for 2024-25 and their nuances." The next review of the policy is scheduled between 5-7 June, after the general election results.

(Rediffmail.com – 22/04/2024)

INDIA MUST INVEST MORE IN EDUCA-TION, HEALTH TO CAPITALISE ON DEMOGRAPHIC DIVIDEND: IMF

International Monetary Frund Director of the Asia and Pacific Department Krishna Srinivasan holds a press briefing at IMF headquarters during the IMF/World Bank Spring Meetings in Washington, D.C. on April 18, 2024.

If India wants to benefit from population being added to the labour force, it has to prioritise substantially higher spending on both education and health, says Krishna Srinivasan, who directs the IMF's Asia and Pacific Department

India should focus on investing heavily in education and health to ensure that its growing, young population is adequately employed, the International Monetary Fund (IMF) has suggested. The World Bank, the IMF's 'twin' multilateral institution, had said earlier in April that India and other South Asian countries were squandering their demographic dividend.

"We have 15 million people being added to the labour force every year," observed Krishna Srinivasan, who directs the IMF's Asia and Pacific Department. "If India really wants to benefit from this population adding to the labour force, it has to invest big time in both education and health," he said at a press briefing on Thursday in response to a question from The Hindu on the employment situation in India and policy recommendations.

"I would prioritise that much more so than other kinds of spending," he emphasised. Some 65% of Indians are under the age of 35.

(thehindu.com – 18/04/2024)

CBIC GOES SOFT ON GST INVESTIGATIONS

The principal commissioner has been made responsible for developing and approving any intelligence, conducting search, and completing investigations and relevant subsequent actions, including at the lower field formations, points out T N C Rajagopalan. In a welcome move, the Central Board of Indirect Taxes and Customs (CBIC) has issued guidelines to its Goods and Services Tax (GST) field formations for maintaining ease of doing business while engaging in investigation with regular taxpayers.

Essentially, its instruction no. 01/2023-24-GST (Inv.) dated March 30, 2024, places the power of initiating investigations at a very senior level and directs seeking any information or documents not available digitally/online from the GST portal from regular taxpayer through letters (instead of summons), disclosing specific nature of enquiry/investigation in the communications to the taxpayer, and conclusion of investigations within one year.

At each GST Commissionerate, the principal commissioner has been made responsible for developing and approving any intelligence, conducting search, and completing investigations and relevant subsequent actions, including at the lower field formations.

Any information or intelligence which pertains to another GST Commissionerate that may be or have been generated/ collected/received/recorded by a field formation shall be forwarded by the principal commissioner to the concerned Commissionerate or Director General of GST Intelligence (DGGI), as necessary or required.

Where investigation to be initiated involves interpretation regarding levy of tax/duty on any sector/commodity/service for the first time or levy of tax/duty on any big industrial house or major multinational corporation or any sensitive matter(*s*) with national implications or matters that are already before GST Council, prior written approval of the zonal principal chief commissioner must be obtained.

The said instruction no. 01/2023-24 also deals with situations such as another investigating office or tax administration investigating the same subject matter with respect to the same taxpayer, the DGGI or the State GST department simultaneously undertaking record-based investigation of the same taxpayer on different subject matters, the issue being investigated has relevance to some or all of that taxpayers GSTINs registered (under the same PAN) in multiple jurisdictions, the issue being investigated involves an interpretation of the CGST laws, notifications or instructions etc. and the taxpayer(*s*) is/are following or have followed a prevalent trade practice based on particular interpretation etc.

The CBIC has prescribed strict disciplines for seeking information from the taxpayers. The letters must detail the reasons for the investigation and the relevant legal provisions and call for only relevant specified details. The letter/summons should avoid vagueness and should disclose the specific nature of the inquiry being undertaken and should not be used to seek information filled in formats or proforma specified by investigators.

The summons must not convey requests for information/ documents outside the scope defined in the summons. For issue of summons, prior approval of an officer not below the rank of assistant/deputy commissioner must be obtained and the relevancy and propriety of information/documents being sought must be recorded.

The CBIC has also asked the taxpayers to approach the additional/joint commissioner in charge of the investigation with any grievance related to investigations and seek appointment with the principal commissioner, if necessary. The CBIC deserves appreciation for issuing these instructions. Now, the CBIC should ensure effective implementation of its instructions.

Its similar instructions on issuing summons as a last resort only if the party does not respond to letters asking for any information or documents have been repeatedly ignored by the

field formations, especially the Department of Revenue Intelligence (e.g. in matters relating to pre-import condition in advance authorisations).

The CBIC should not tolerate such insolence.

(Rediff.com – 23/04/2024)

RBI HOLDS BACK US DOLLAR SALES IN FEBRUARY AMID PRESSURE ON RUPEE

The Reserve Bank of India (RBI) abstained from selling any US dollars throughout February, for the first time in nine months.

The decision comes amid increasing pressure on the rupee, as expectations of rate cuts by the US Federal Reserve keep pushing back.

The last time the RBI did not sell dollar over a month was in May 2023. The RBI had sold $8.5 billion in the spot market in January 2024.

The central bank purchased $8.5 billion over the month in February to build the foreign exchange reserves and to protect the rupee from further depreciation as the US CPI data for January was higher than expected, said market participants.

India's foreign exchange reserves have been hitting new peaks for the past seven consecutive weeks. It reached a new peak of $648.56 billion in the week ended April 5, latest data by the Reserve Bank of India showed.

The reserves surged by $2.98 billion in the week. "RBI was intervening in the foreign exchange market both through spot and forwards to contain volatility in the rupee," said a treasury head at a private sector bank.

"Dollar was getting stronger as the data was unsupportive and rate cut was pushed back to June," he said.

The rupee depreciated by 0.6 per cent in February. Before the release of the US inflation data for January, the first rate cut by the US Fed was expected in March, later it was pushed to June.

Currently, after a slew of unfavourable data, the market expects the US Fed to start cutting rates in the second half of the current calendar year.

A segment of the market expects only one rate cut in December. "The intervention was more to do with keeping the rupee in a range than building reserves," said a treasury head at another private bank.

The net outstanding forward purchases stood at $9.6 billion by the end of February, against $9.9 billion in January.

(Rediff.com – 24/04/2024)

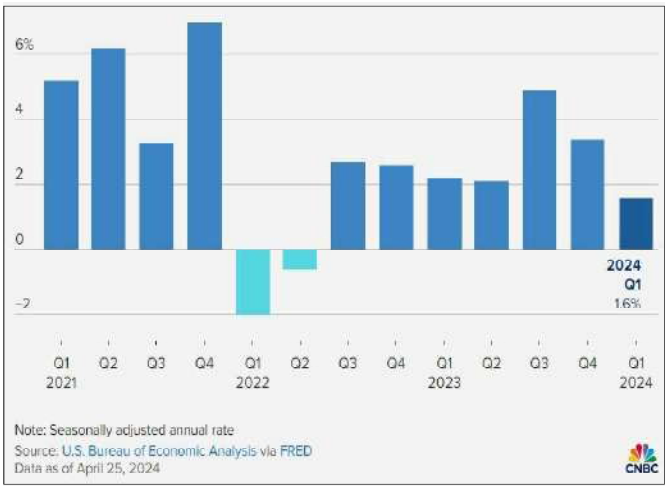
GDP GROWTH SLOWED TO A 1.6% RATE IN THE FIRST QUARTER, WELL BELOW EXPECTATIONS

U.S. economic growth was much weaker than expected to start the year, and prices rose at a faster pace, the Commerce Department reported Thursday. Gross domestic product, a broad measure of goods and services produced in the January-through-March period, increased at a 1.6% annualized pace when adjusted for seasonality and inflation, according to the department's Bureau of Economic Analysis.

Economists surveyed by Dow Jones had been looking for an increase of 2.4% following a 3.4% gain in the fourth quarter of 2023 and 4.9% in the previous period. Consumer spending increased 2.5% in the period, down from a 3.3% gain in the fourth quarter and below the 3% Wall Street estimate. Fixed investment and government spending at the state and local level helped keep GDP positive on the quarter, while a decline in private inventory investment and an increase in imports subtracted. Net exports subtracted 0.86 percentage points from the growth rate while consumer spending contributed 1.68 percentage points.

U.S. real gross domestic product

Percent change from previous quarter:



There was some bad news on the inflation front as well. The personal consumption expenditures price index, a key inflation variable for the Federal Reserve, rose at a 3.4% annualized pace for the quarter, its biggest gain in a year and up from 1.8% in the fourth quarter. Excluding food and energy, core PCE prices rose at a 3.7% rate, both well above the Fed's 2% target. Central bank officials tend to focus on core inflation as a stronger indicator of long-term trends.

The price index for GDP, sometimes called the "chain-weighted" level, increased at a 3.1% rate, compared to the Dow Jones estimate for a 3% increase. Markets slumped following the news, with futures tied to the Dow Jones Industrial Average off more than 400 points. Treasury yields moved higher, with the benchmark 10-year note most recently at 4.69%.

"This was a worst of both worlds report – slower than expected growth, higher than expected inflation," said David Donabedian, chief investment officer of CIBC Private Wealth US. "We are not far from all rate cuts being backed out of investor expectations. It forces [Fed Chair Jerome] Powell into a hawkish tone for next week's [Federal Open Market Committee] meeting."

The report comes with markets on edge about the state of monetary policy and when the Federal Reserve will start cutting its benchmark interest rate. The federal funds rate, which sets what banks charge each other for overnight lending, is in a targeted range between 5.25% to 5.5%, the highest in some 23 years though the central bank has not hiked since July 2023.

Investors have had to adjust their view of when the Fed will start easing as inflation has remained elevated. The view as expressed through futures trading is that rate reductions will begin in September, with the Fed likely to cut just one or two times this year. Futures pricing also shifted after the GDP release, with traders now pointing to just one cut in 2024, according to CME Group calculations.

"The economy will likely decelerate further in the following quarters as consumers are likely near the end of their spending splurge," said Jeffrey Roach, chief economist at LPL Financial. "Savings rates are falling as sticky inflation puts greater pressure on the consumer. We should expect inflation will ease throughout this year as aggregate demand slows, although the path to the Fed's 2% target still looks a long way off."

Consumers generally have kept up with inflation since it began spiking, though rising inflation has eaten into pay increases. The personal savings rate decelerated in the first quarter to 3.6% from 4% in the fourth quarter. Income adjusted for taxes and inflation rose 1.1% for the period, down from 2%.

Spending patterns also shifted in the quarter. Spending on goods declined 0.4%, in large part to a 1.2% slide in bigger-ticket purchases for long-lasting items classified as durable goods. Services spending increased 4%, its highest quarterly level since the third quarter of 2021.

A buoyant labor market has helped underpin the economy. The Labor Department reported Thursday that initial jobless claims totalled 207,000 for the week of April 20, down 5,000 and below the 215,000 estimates. In a possible positive sign for the housing market, residential investment surged 13.9%, its largest increase since the fourth quarter of 2020.

Thursday's release was the first of three tabulations the BEA does for GDP. First-quarter readings can be subject to substantial revisions — in 2023, the initial Q1 reading was an increase of just 1.1%, which ultimately was taken up to 2.2%.

-: JILTA : -

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History and Activities of Indian Leather Technologists' Association #1

The Indian Leather Technologists' Association (ILTA) was founded by Late Prof. B. M. Das, the originator of Das-Stiasny theory and father of Indian Leather Science on 14th August' 1950. ILTA is the Member Society of IULTCS (International Union of Leather Technologists & Chemists Societies) representing India.

The primary objectives of the oldest Leather Technologists' Association which celebrated its Diamond Jubilee year in 2010, are :

- To bring all concerned with the broad spectrum of the leather industry under one umbrella.
- To organize seminar, symposium, workshop in order to create information, knowledge and latest development for the benefit of all concerned. To offer a common platform for all to interact with each other in order to understand each other's problems and prospects.
- To publish monthly journal as a supplement to those above objectives. The monthly journal of ILTA is known as journal of Indian Leather Technologists' Association and is the most widely circulated technical journal concerning leather technology.
- To publish text books for the benefit of students at various levels of study, for the researchers and industry.
- To have interface between urban and rural sector.
- To assist various Government Institutions, Ministry and autonomous bodies to formulate appropriate policies acceptable and adoptable to the industry.
- To organize practical training and to provide skilled manpower and to motivate good students for study.
- To conduct activities related to the growth of the export of leather and leather goods from India.

ILTA also organizes Prof. B. M. Das Memorial Lecture every year during the Foundation Day Celebrations on 14th August, Sanjoy Sen Memorial Lecture on 14th January, the birthday of our late President for several decades, Prof. Moni Banerjee Memorial Lecture on 15th March, the birthday of our late Founder-General Secretary of our Association and Prof. S. S. Dutta Memorial Lecture on 2nd February every year during IILF at Chennai. Many reputed scientists, industrialists and educationists have delivered these prestigious lectures. Foreign dignitaries during their visits to India have addressed the members of ILTA at various times.

ILTA have published the following books :

1. An Introduction to the Principles of Physical Testing of Leather by Prof. S.S. Dutta
2. Practical Aspects of Manufacture of Upper Leathers by J. M. Dey
3. An Introduction to the Principles of Leather Manufacture by Prof. S .S .Dutta
4. Analytical Chemistry of Leather Manufacture by P. K. Sarkar
5. Comprehensive Footwear Technology by Mr. Somnath Ganguly
6. Treatise on Fatliquors and Fatliquoring of Leather by Dr. Samir Dasgupta
7. Synthetic Tanning Agents by Dr. Samir Dasgupta
8. Hand Book of Tanning by Prof. B. M. Das

ILTA presents awards in the name of Prof. B. M. Das Memorial, Sanjoy Sen Memorial, Prof. J. M. Dey Memorial, Prof. Moni Banerjee Memorial and Prof. S. S. Dutta Memorial Medals to the top rankers at the University Graduate and post graduate levels. Prof. J. Sinha Roy Memorial Award for the author of the best contribution for the entire year published in the monthly Journal of the Indian Leather Technologists' Association (JILTA). From the year 2023, ILTA has started to present a Scholarship namely Prof. Moni Banerjee Memorial Scholarship to a student of B.Tech / M.Tech in Leather Technology who is meritorious but financially crippled.

contd.

History and Activities of Indian Leather Technologists' Association #2

Registration No. KOL RMS/074/2022-24

The International Congress of IULTCS used to held in different locations of the world once in two years. In its 125 years long history, for the first time the Congress was held in January 1999 outside the developed countries and that too in India at CLRI, Chennai. Indian Leather Technologists' Association organized the Congress under the able leadership and guidance of Late Sanjoy Sen, the then President of ILTA and IULTCS and Dr. T. Ramasami, the then Vice-President of ILTA and Director, CLRI, Chennai. In 2017 IULTCS Congress was successfully held again at Chennai, India for the second time.

In order to promote and provide marketing facilities, to keep pace with the latest design and technology, to have better interaction with the domestic buyers, ILTA has been organizing LEXPO fairs at Kolkata from 1977, Siliguri from 1992 and Durgapur from 2010. To help the tiny, cottage and small-scale sectors industries in marketing, LEXPO fairs give the exposure for their products. Apart from Kolkata, Siliguri and Durgapur, ILTA have organized LEXPO at Bhubaneswar, Gangtok, Guwahati, Jamshedpur and Ranchi. It commensurate with the time, demand and new perspective of the modern-day leather users. ILTA has started to organize LEXPO at Kolkata from 2022 in a new shape with the Manufacturers and Exporters of Leather Goods from all over India.

ILTA celebrated its Golden Jubilee with a year long programme from 14th August' 2000 to 13th August' 2011 along with the first conference of South East Asian Countries at Netaji Indoor Stadium, Kolkata.

The Association's present (as on 31.03.2024) strength of members is around 550 from all over India and abroad. Primarily the members are leather technologists passed out from Govt. College of Engineering & Leather Technology, Kolkata, Anna University, Chennai, Scientists from Central Leather Research Institute (CLRI), Harcourt Butler Technical University, Kanpur, Govt. Institute of Leather Technology, Jalandhar, Central Footwear Training Institute, Agra, Central Footwear Training Centre, Budge Budge, Footwear Design & Development Institute, Kolkata, National Institute of Fashion Technology, Kolkata etc.

In order to strengthen its activities, ILTA have constructed its own six storied building at 44, Shanti Pally, Kasba, Kolkata – 700107 and have named it "Sanjoy Bhavan".

This Association is managed by an Executive Committee duly elected by the members of the Association. It is absolutely a voluntary organization working for the betterment of the Leather Industry. None of the Executive Committee members gets any remuneration for the services rendered but they get the satisfaction of being a part of this esteemed organization.

ILTA
Since 1950

Indian Leather Technologists' Association
[A Member Society of International Union of Leather Technologists and Chemists Societies] (IULTCS)]
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