ILTA
Since 1950

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Our Activities

- An Association with over 600 members from India and abroad working since last 70 years for the growth and development of Leather and its allied industries.
- Organize seminars, symposiums, workshops in order to share information, knowledge & latest development and interactions for the benet of all concerned.
- Organize Human Resource Development programmes on regular basis.
- Publish for over 60 years, a technical monthly journal namely "Journal of Indian Leather Technologists' Association" (JILTA), widely circulated through out the World.
- Publish books for the benet of the students at various levels of study, for the Research Scholar and the Industry.
- Work as interface between Industry and the Government.
- Assist Planning Commission, various Government Institutions,
- Ministry and autonomous bodies to formulate appropriate policies for the growth of the Industry.

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

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Happy & Prosperous

New Year - 2021

Executive Committee

Of

ILTA


Leather Fraternity 71 years of service to the International

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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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(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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Few manageable trifle issues at leather industry

It is to shed light on some of the issues; those are involved in the supply chain. There is a standard practicing mode of the supply chain up until the finishing of the material. Ironically most of the issues are happening furthest away from us /our direct influence. This does not mean that we do not have a responsibility, but it means that everything becomes a lot more difficult. It is of comfort to you, that we share the issues at the livestock and slaughter house level, with the food industry. Actually, it can be claimed that 99.9% percent of the leather that we use in our industry are by-product of the food industry. So, it would go without saying that there is a good scope for cross-industry collaboration.

The issues involved at the livestock level are :

The animals release a lot of methane into our atmosphere, making a huge negative impact on the climate change. We are currently seeing an increase in people going Vegan, to combat this – not only by what they eat, but also what they wear. To make room for cattle, forests are being cut down. 70% of the previous Amazon rainforest is now used for pastures, which naturally creates a shift in the biodiversity. Truth is, we know very little about whether Animal Welfare is secured in our supply chains, because we have very little traceability throughout the supply chain. Working as a CSR manager for fashion companies, we are often asked, by consumers, about the animal welfare of the cow that, supplied their purchased leather item. It is a big concern to consumers, and we would have a response ready for the conscious customers.

Unless we do become members of the Leather Working Group, there is not much we can say to reassure them, that the welfare of the animal has been secured. But we can always communicate our intentions and our good will. For example, that we have an animal welfare policy and that we are working to ensure more traceability and transparency in our supply chain, to truly implement it only if we have a policy and are trying to ensure traceability, of course. Then it is up to the consumer, if they want to support that, or skip their leather products. If they ask your competitors, they will probably have the same answer as you

.

In some production countries children are used for cattle herding, and since it is quite far away from our world, it is difficult to control the conditions at this stage of the supply chain and this also goes for forced labour and general working conditions. It is a major risk for us, as we cannot influence or control this area of our supply chain.

The issues involved at the slaughterhouse :

- Hazardous waste water for the surrounding environment can be discharged from the slaughter houses, if not treated properly.

- We use a lot of water at this phase of the leather production

- Again, we have issues around animal welfare. How the animals are transported to the slaughterhouse and the treatment of the animals prior to being killed. Of course, we can set up rules for this, but it is very difficult to control as this happens far out in our supply chain.

- Child labour, forced labour and poor working conditions

We know it is out there, and the risk of it being part of our supply chain is also present. So, we have to consider this as part of our risk assessments.

The issues involved at the beam house :

The next three phases can basically happen at the same place, but are sometimes also divided into different suppliers, why I have set it up like this.

In the preparation stage, the hides go through processes such as :

- Soaking
- Liming
- Splitting
- Washing
- Use of chemicals, and therefore the risk of the wastewater to be very hazardous to the environment if not treated properly.
- Also due to the use of chemicals, we have issues around working conditions, if the safeties of the workers, handling the chemicals are not managed properly.
- This stage of the supply chain is the most water intensive part.
- If waste – means flesh and hair from the animals at this stage, is not handled properly, but dumped somewhere, it releases again, a lot of methane, which is contributing negatively to climate change.

The issues involved at the tan yard :

- De-greasing, which is removing leftover grease from the hides – using solvents
- Then it is pickled to reduce the PH value to make the material ready for the next procedures
- Then the skin is sterilized, and the tanning process starts, using chromium salts.
- After that the skin is Sammed, which means that it is squeezed between rollers
- Then shaving in, which means that it is being slimmed and stretched.

Then we have what is called a "Wet Blue" – reason for it being called that, is due to the very specific colour it has after this process is done.

- The use of Chromium salts, and controlling the chemical interactions of that, to prevent the Chromium III / VI to develop and being led into the local waters.
- Still the issue around water use continues to engulf us. Producing leather has a negative effect on our water resources. We are responsible for that directly.
- Due to the handling of chemicals and in particular the use of Chromium Salts, it can have a very negative effect on the working conditions if not managed properly.

And contrary to the issues from slaughterhouse and livestock, this is actually a reachable level of our supply chain and with a bit of effort, you can actually work with your suppliers to ensure more awareness and actions to improve conditions.

The issues involved at the Post tanning house :

- Neutralization, again to prepare the material for the next processes
- Re-tanning
- Dyeing
- Fat liquoring, which is a process to bring fat back into the material
- Drying
- Finishing
- Coating
- Wastewater issues, due to the re-tanning process, that is sometimes required. It has the same issues as with normal tanning – the use of chromium salts and chemicals. Especially for re-chroming – due to the chromium used in this process.
- For spraying and drying there may be use of VOC´s (Volatile Organic Compounds), which are hazardous to human health and the environment.

So, most of the issues are controllable and manageable by us with healthy intentions only.

Goutam Mukherjee

Dr. Goutam Mukherjee
Hony. Editor, JILTA

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Solidaridad Network is a global civil society organization providing efficient, scalable and economically effective and innovative sustainability solutions in various agricultural and industrial commodities such as:

Tea Sugarcane Soy Leather Livestock Gold Textile Fruits & Vegitable Dairy Cotton Aquaculture Castor Palm oil

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2020 -2023

Madam Mamata Banejee, Honorable Chief Minister of West Bengal launched the leather project of Solidaridad and partners for Kolkata leather cluster in september 2020

Circular Economy

Effective solid waste management

Capacity building programme

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KOLKATA LEATHER CLUSTER

Trainings on Occupational Health and Safety

Robust public- private partnership

Efficient water consumption practices

PROJECT PARTNERS IN ASIA

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From the desk of General Secretary

WEBINAR ON "FUTURE EMPLOYMENT OPPORTUNITY IN FOOTWEAR INDUSTRY"ORGANIZED BY ILTA

A Seminar on the topic "Future Employment Opportunity in Footwear Industry" was organized by our association as an initiative of ILTA HRD Committee on 9thDecember' 2020, at 7.00 pm on digital platform.

The program resumed with the introductory speech delivered by Mr. Susanta Mallick, General Secretary, ILTA, followed by the Welcome Address delivered by Mr. Arnab Jha, President ILTA.

Mr. Jha welcomed to all the dignitaries and participants from different sectors like members of ILTA and other associations, organizations, academic institutions, industry etc. His speech in words is printed on the following page of this segment.

Mr. Mallick then introduced the honorable speakers of the day, Mr. Irshad Mecca, MD & CEO, Farida Group and Mr. Jose R. Suarez, Founder & CEO, Impactive and called on them for their deliberation.

Mr. Mecca started his lecture emphasizing on the fact 'The Global Geo-Political and Socio-Economic Perspective'. He described how the consumer's behavior has been changed. Especially during Covid-19 situation the 'Options' have also been rapidly changed. His co-lecturer Mr. Suarez explained in details the current situation of World Leather Industry as well as Shoe Industry. Both of them then explained that how the scope and opportunity for future employment in Footwear industry (both leather and non-leather) could be generated by changing the attitude of the industries and the Govt.

After conclusion of their lecture both the speakers responded a lot of queries of the participants.

The programme came to end with offering Vote of Thanks by Mr. Ratan Chowdhury, Coordinator, HRD Committee of ILTA. He offered his sincere thanks to the Speakers of the day, President, General Secretary, Dr. B. N. Das, Mr. N. R. Jagannathan and Members of our association and all the participants.

There were around 100 participants over Zoom platform and more than 100 viewers participated on the ILTA HR Face Book Live.

This video recording of the entire program is also available on the official YouTube channel of ILTA **(ILTA Online)** and the website of the Association – www.iltaonleather.org

62nd ANNUAL GENERAL MEETING

The 62nd Annual General Meeting of ILTA was organized on24th December, 2020 at 03.00 PM IST on Zoom Cloud app for the first time due to situation created by COVID-19.

The Printed Annual Report & Audited Accounts for 2019-20, Notice of the 62nd AGM and Proceedings of the last i.e. 61st AGM was posted to the members through Indian Post on 1st December' 2020 and also sent the soft copy of the same via email on 2nd December, 2020 respectively.

The following businesses were undertaken in the meeting :-

- Confirmation of the Proceedings of 61st Annual General Meeting held on 31st October 2019.
- Consideration and adaptation of the audited Balance Sheet and Statement of Accounts Year ending as on 31st March 2020.
- Consideration and adaptation of the Annual Report of the General Secretary on behalf of the Executive Committee.
- Appoint of Auditor in place of M/s Ray & Ray who was retiring but was eligible for reappointment.

Around 35 – 40 members participated in the meeting. Some important proposals and advices came from the participants befitting with the activities of our association.

WEBINAR ON "PREVENTION OF DIABETIC AMPUTATION:ACTIONS & REMEDIES" ORGANIZED BY ILTA

A Webinar on the topic "Prevention of Diabetic Amputation : Actions & Remedies" was organized by our association as an initiative of ILTA Welfare Committee on 29thDecember' 2020, at 7.00 pm on digital platform.

The program resumed with the introductory speech delivered by Mr. Susanta Mallick, General Secretary, ILTA, followed by the Welcome Address delivered by Mr. Asit Baran Kanungo, Vice-President, ILTA.

Mr. Kanungo welcomed to all the dignitaries and participants from different sectors like members of ILTA and other associations, organizations, industry etc. In his speech Mr. Kanungo put some data to draw the attention to the current situation in India which has made India the Diabetic Capital of the World.

Mr. Mallick then introduced the honorable speakers of the day, Dr. Vijay Vishwanathan the Head and Chief Diabetologist, M. V. Center for Diabetes, Chennai and Prof. M. Vishwanathan Diabetes Research Center and requested him to deliver his speech.

Dr. Vishwanathan then delivered an excellent informative lecture on the subject. He gave some new information on some mis-conceptions about diabetes. He elaborated that how certain small measures can be taken well before time which can prevent amputation of legs affected with diabetes. He emphasized that why taking oral medicine is better than taking insulin in case of acute diabetes. He advised few routine habits which can prevent diabetes. Dr. Vishwanathan significantly mentioned the role of CLRI in making of Diabetic Shoes. How it should be designed according to the shape and other medical necessity, he recalled the earlier days, when his organization took an important role along with Dr. T. Ramasami, the then Secretary, Department of Science & Technology, Govt. of India and Dr. A. B. Mondal, the then Director, CLRI in formation of Shoe Design &Development Center(SDDC) at CLRI.

However, after conclusion of his speech Dr. Vishwanathan answered to a lot of queries came from the participants.

The programme concluded with offering Vote of Thanks by Mr. Kaushik Bhuiyan, Coordinator, Welfare Committee of ILTA. He offered his sincere thanks to the Speaker of the day, President, General Secretary, Dr. B. N. Das, Ratan Chowdhury and Members of our association and all the participants.

There were around 50 - 55 participants over Zoom platform.

The video recording of the entire program is available on the official YouTube channel of ILTA **(ILTA Online),** ILTA HR Face Book Timeline and the website of our Association – www.iltaonleather.org

YOUTUBE CHANNEL OF ILTA

An official **YouTube** Channel of our Association **(ILTA Online)** has been launched from 1st November' 2020. You may follow and view all the video recording of different Seminar & Symposiums on this channel by opening it time to time.

You are requested to kindly do 'Like' the channel and 'Subscribe' it by pressing the Bell Icon beside it to get regular updates on priority basis.

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 communication, so that we can locate you easily in our record.

(***Susanta Mallick***)

General Secretary and the Members of the Executive Committee are available to interact with members at 19.30 hrs, over Phone / Conference call on every Thursday

Welcome Address delivered by President, ILTA at the Webinar on "Future Employment Opportunity in Footwear Industry" on 9th December, 2020

Good Evening!

Mr. Susanta Mallik, General Secretary, ILTA, Mr. Ratan Chowdhury, Co-ordinator, HRD, Mr. Irshad Mecca, Managing Director And CEO of Farida Group, Mr. Jose R. Suarez, Founder and CEO of IMPACTIVA; both being honourable speakers; members, students, colleagues and friends from Industry and other participants; I, on behalf of ILTA welcome you all to join the Webinar, titled **"Future Employment Opportunity in Footwear Industry"**.

India is the second largest producer of Footwear after China accounting 13% of the Global Footwear Production of about 16 billion pairs. Our country produces 2065 million pairs of different categories of Footwear where share of Leather Footwear is 909 million pairs and 100 million pairs of Leather shoe upper and Non leather Footwear covers 1056 million pairs. Thus the Footwear Sector is one of the most significant segments of the Leather industry in India and considered as prime mover for the growth of the entire Leather Industry.

India exports about 115 million pairs of footwear. Thus nearly 95% of its production goes to meet its own domestic demand. India is the third largest Footwear consuming Country after China and USA with consumption of nearly 1.66 pairs while average global consumption is 3.0pair per annum.

Footwear exported from India are – Dress Shoes, Casuals, Moccaisins, Sport Shoes, Horachhi, Sandals, Ballerinas, Boots and Chappals etc. made from rubber, plastic PVC etc. In spite of so much export India's share in the global market is only 2%.

We have now nearly 1500 units engaged in manufacturing Footwear with total estimated turnover of Rupees 50000 crores, where 32000 crores goes for domestic market and 18000 crores for exports.

The Footwear Industry is now de reserved, paving the way for expansion of capacities on modern Links with state of the art machinery. To further assist the process the Govt. has permitted 100% Foreign Direct Investment through the automatic root for the Footwear Sector. The Govt of India is setting up dedicated Footwear Complex and Footwear Component Park where footwear clusters are located.

Now at this juncture, on 11th Sept.2020, Department for Promotion of Industry and Internal Trade, Ministry of Commerce and industry, Govt. of India has established the "Development Council for Footwear and leather industry comprising of 25 persons who cover all required corners of the Trade and Industry.

Today we have Leaders of the Footwear industry, Honourable Mr. Irshad Mecca and Mr. Jose R. Suarez with us and we will learn about growth and utilization of Indian Human Resources. Our special thanks to them to spare valuable time for us and agreeing to deliver Lectures.

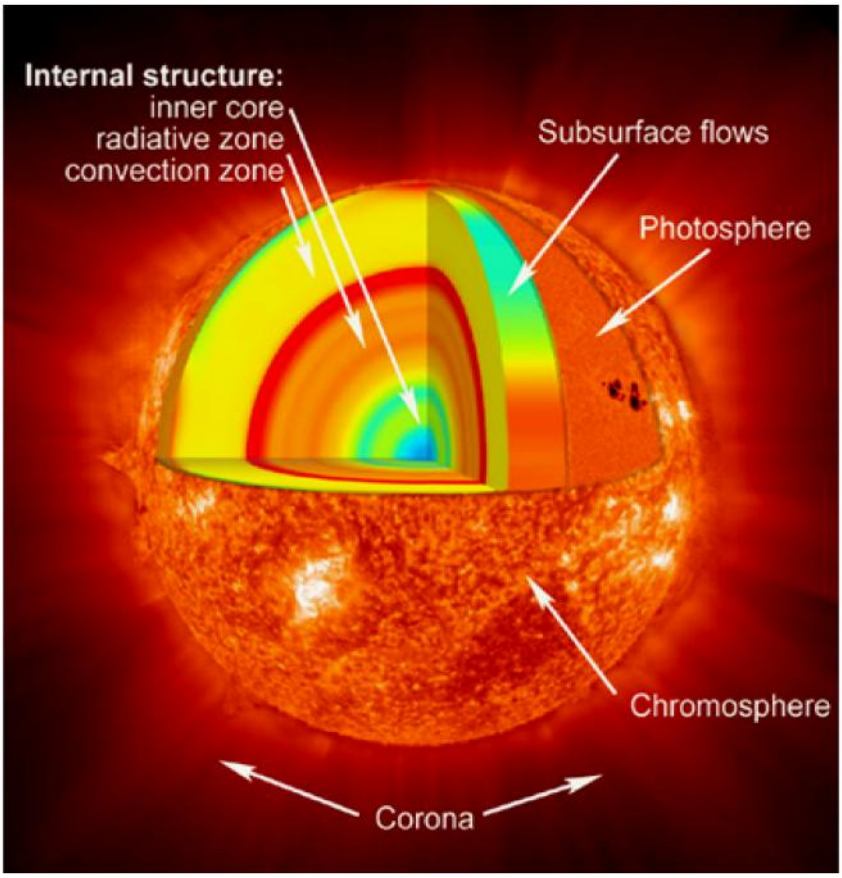
With this I once again welcome you all and Thank you.

Arnab Jha
President, ILTA

The Story And The Fate Of The Solar System

Dr. Buddhadeb Chattopadhyay

Former Principal of Govt. College of Engineering & Leather Technology, Kolkata & Principal, MCKV Institute of Engineering, Liluah, Howrah, W. B.



The chief star that holds the entire solar system in our present milky way is the Sun. The Sun is a star of moderate size only. All the biosphere that we see today in this planet – our mother earth, sustain due to the mutual exchange of mass and energy. It is needless to mention that in the earth the primary source of energy is due to the abundant blessings of showering of the solar energy on the surface of the Earth all the days. It has been estimated that the average solar energy reaching per square kilometers from the Sun to the Earth's surface in a tropical regions per day is about 10,000-ton coal equivalent. Fortunately, it is the plant kingdom which trap and utilize productively the most of the radiant solar energy to accomplish the task of photosynthesis to produce carbohydrates and also much needed oxygen in the processor called chlorophyl in the leaf after consuming carbon di oxide from air and water from soil. That sustains the life of all forms in general and the herbivores in particular. We shall now discuss in an elementary way and in as simple way as possible, the essence of Astrophysics in the back drop of the greatest saying of Bhagabad Gita, "***For all that are born, death is certain.***" The Sun was also not ever existing as a God. It was also born after the great and sudden explosion called; Big Bang happened about 13.7 Billion years ago.

Corresponding author E-mail : cbuddhadeb@gmail.com

We bring here a terminology "**BED"**, which may be amusing and give us a relaxing mood; but it means here the cycle of **"Birth – Existence – Death"**. Before going to the discussion, let us look at a glance the physical dimensions relating to the Sun. The radius of the Sun is about 700,000 km (precisely, 695,500 km), which is about 333,000 times of that of the Earth. Its volume is 1.412*10^18 cubic km, having a circumference of about 4,379,000 km and therefore, have accommodation capacity of 109 earths inside it. It has a mass of about 2*10^30kg. So there exists a great gravitational force on the Sun. To give you an example, if, 100 kg of mass weighed on the earth's surface is hypothetically transported to the Sun, it will weigh 2,800 kg. The inner core, which is a nuclear furnace, to say the least; is extremely dense 1.622*10^5 kg/M^3 and its temperature is 15.0-Million-degree K and core pressure is 1.0 Million ton per square cm, which is about 10 Billion times of atmospheric pressure on earth. The surface temperature is 6,000-degree K. The atoms that constitute the Sun is 75% H and 25% He. There are also some other atoms in trace amounts. The core is burning continuously H by the process of nuclear fusion and it produces He also continuously, we may call He, as the ash of the nuclear furnace. This reminds me to recall that 99% of the total mass of the Universe is the combined masses of the H and He.

The temperature at the inner core of the Sun is so high that it rips off all the electrons of the hydrogen. The hydrogen acts as a fuel of the furnace. These released electrons fly away madly and randomly in all dimensions, leaving the nuclei shamelessly naked with one bare proton in each nucleus. The nuclei themselves are drawn towards each other with a great pace and come closer to each other due to strong nuclear force which supersedes the Coulombic repulsion. In this extreme violence, the electron behaves like a gas. The core, therefore, is not solid at all, it is like a nuclear furnace from where all the energy of the Sun is generated. All kinds of high electromagnetic energy are generated *in situ* at the core. They are all electromagnetic in Nature like Gamma Ray, X ray etc. When these radiations (wave-particle) move towards the surface they collide with the other matter (like electron particle), scatter in various directions, recollide in each layer and thus gradually looses energy while reaching at the surface. The temperature descends from 15-Million-degree K at the core to only 6,000-degree K at the surface.

Now, there is a paradox here to understand the effect of crowding. We have said that the radius of the Sun is about 700,000 km and the speed of the photon is approximately 300,000 kilometer per second. So simple arithmetic should predict that it takes about two and a half second for the radiation to arrive at the surface from the core of the Sun. Then how come it loses the temperature to such a drastic extent without having a super cooling system?

We have to take a real-life example then. Suppose it takes for me 45 minutes to walk down the street to one-kilometer distance. Now, if, the same street is massively over-crowded due to some procession or any festival, then I have to collide, jostle, push and pull every traveler to make my path and it may take even several hours to cover the same one-kilometer distance, fully exhausted at the destination.

That is what happened precisely to each photon of radiation in their way to escape from the crowded interior. It may take the poor traveler destined to reach the surface may be Thousands or Millions of years loosing much of energy and like almost completely exhausted because of the rigor of the exercise of finding its routs to reach the destined surface. After every strain there lies a comfort zone ahead. Then these photon particles reach the Earth's surface from the solar surface comfortably through vacuum in just eight minutes.

To begin with, we have discussed that at the inner core of the Sun, Hydrogen atom was stripped off the loan electron, leaving aside the lone proton, which is much heavier than the escapist partner. At a temperature of 15-Million-degree K at the stellar core, the Hydrogen nuclei, or to say the protons will be colliding with each other frequently; while the electrons will escape with breakneck speed. These collisions enable the proton to negotiate and interact with each other. Now the stage is set for nuclear transformation or fusion. Four Hydrogen nuclei will undergo chains of reactions, forming He nuclei. Each He nucleus is formed with two protons and two neutrons. The Coulombic repulsion between the two positively charged protons at such a short distance will get nullified by the much stronger Strong Nuclear Force to bind them together.

Some strange things happen here. If, we add up the mass of four protons as a reagent, then the mass of the He atomic nucleus falls shorter as a product by a minute quantity. This mass difference is converted into tremendous energy following Einstein's famous mass-energy equivalence law: E = mc^2. It says that the mass difference times square of the speed of the radiation in vacuum would exactly be the amount of energy

released. In Sun's inner core 564-Million tons of H are converted into 560-Million tons of He. So, in each second 4-Million tons times c^2 amount of energy is produced by the Sun and within the Sun itself. In each second the Sun generates 400-Trillion-Trillion Watts of Power. So, the energy produced in Watt within the inner core of the sun is 4 followed by 26 zeroes. In other words, the energy in Wattage by the Sun in one second is equivalent to what mankind (with the present global consumption of electricity) would use electricity in 40 Trillion seconds which means in a Million year!

This gives another paradox. The mass of neutron is slightly heavier than the proton then the sum of mass of two proton and two neutron that is in the He nucleus should be more than the sum of four protons from which it was formed. Where is the weight loss then? How to solve this riddle?

Einstein clearly stated that mass and energy are equivalent and also, they are interconvertible. So, when we talk about mass we have to account for the energy as well. We have to take it as a binary or combined mass-energy, so to say. It can be fairly understood by the way of reasoning that this mass-energy shall remain conserved always. Neither singularly mass, nor singularly energy shall remain constant.

As it is rightly stated that the total mass of, He nuclei should be more than that of four H nuclei summed together; therefore, we come to a strange conclusion that a He nucleus should contain an amount of negative energy exactly equivalent to this mass difference. Conversely, if we add mass equivalent of this negative energy to the sum of the masses of the four H nuclei, we shall arrive that these two figures out to be the same. This negative energy is known as **binding energy**.

The next question that comes to our mind what is the basic difference between a positive energy and a negative energy? Well, suppose we have to work on a system for taking it from one state to another state, then the work is stored as positive energy. For instance, take two like charges, say protons, staying far apart from each other. Their interaction is negligible in this case. Now if we want to push them closure to each other, we have to **work on the system** and spend energy higher than their mutual Coulombic repulsion owing to the same charge. This work then becomes a positive potential energy between the two protons. There is a need of **external force** to accomplish this task.

On the contrary let's assume for two unlike charges or masses under the gravitational force; they themselves do the work and come closure to each other. Here the **system itself does the work** and there is **no need** for any third **external force**. So, work done by us on them to come closure is negative energy in this case. Let's say the case of bonding energy is negative in Chemistry as per Moore's curve; while the same is positive in case of antibonding energy.

This energy principle acts on nuclear fissions also. We initially have a heavy nucleus with strong binding energy. By fission we can split the nucleus into fragments. A slow neutron can break up a Uranium nucleus into Ba and Kr – almost equal fragments, releasing nuclear energy. Three more neutrons are ejected by this first step, attacking three more Uranium nuclei. This chain reaction once sets in, proceeds further. This is the central mechanism of an atomic reactor or an atom bomb explosion; while nuclear fusion is for hydrogen bomb explosion.

The question that is pertinent is how the fluid H and He gasses at such a high temperature in the Sun remains spherical, retains its size and shape instead of expanding in volume as per the Gas Laws? The reason being, as we have already discussed, there is a massive gravitational pull on the sun. In this case the gravitation pull attracts heavily the gas molecules toward the centre of the Sun and the outward pressure to expand/ escape balances the pull. These are equal and opposite in direction and that is responsible for retaining the spherical structure for prolong duration.

In the sky, we can also see assembly of stars which appears very near to us but actually they are far distant apart of each other. This is called in Astronomy as **Constellations**. By joining the imaginary lines between them people of many countries has named them as per their mythological faith. These have a dual purpose, firstly, even a layman can locate and identify; secondly, the myths enjoy eternal existence! There are altogether eighty-eight constellations in the entire dome of the sky.

Stars follows the Plank's Black Body Radiation Law. For example, hot stars are blue in colour; conversely cooler are red. From determining the wavelength of the dominant ray from the spectrum and by application of **Planck's Black Body Radiation Law**, we can easily determine the surface temperature of the distant star. None went to solar surface with a thermometer to measure the temperature for we know the dominant solar radiation falling on the Earth is 550 nm.

Let us take for example the Constellation Orion. The great Nebula in the Orion for example, which we can see with a binocular – beneath the belt of the hunter, we can see a dense cloud of gasses. These clouds of the gases and the dusts associated are the breeding place for forming the star. The gasses scattered here and there are clamped together. As the gravity pulls the clump inwards, the condensate become denser and denser and also following the Gas Law they become hot. The heat generated due to compression of a gas is a Law of Nature. This process continues for long and when the temperature at the inner core reaches about Millions-degree K. At such an enormous temperature Nuclear Reaction set in and a star is born.

How long is the pregnancy period? Say, for the gas cloud to shrink from a diameter of trillions of kilometers to the 14,000 km it might take about ten-Million years add another twenty-Million year to the star to gain maturity. This isthe **"B"** of the BED.

Now let's examine the next alphabet **"E"**, which stands for existence. The star will exist so long as it can balance the inward gravitational pull with the outward gas pressure. Any way this is the crux of equilibrium. The net Force acting must be zero. This is the **necessary and sufficient** condition for attaining equilibrium. So long as we can balance these two opposite forces, we shall remain existent. So, our Sun is now at an equilibrium state of existence since past 5.0 Billion years. It is almost little older than the middle age now but without middle age normal agony and crisis. Let's assume for instance it will continue to exist in this form of happy stable life for another 5 Billion Years.

What happens next? This is a woeful question. That is assigning the third and the last alphabet **"D"**, which stands for Death. The nuclear Furnace of the Sun has a limited fuel that is H atoms. With the non-renewable and finite amount of fuel in store, the furnace can go on non-stop for 10.0-Billion years. Already 5.0 Billion years has gone. The Sun still shines on. But then the situation will take a dramatic turn. Now in 10.0-Billion years most of the H atoms as fuel will be converted into the furnace ash – He. There will be no longer heat generation at the core. So, here comes a gradual drift from the equilibrium point. The outward gas pressure will fall short of the net gravitational pull. So, the core will shrink further under its own weight and due to this compression, there will be the generation of heat. This heat will be conveyed through the convection layers surrounding the core. The surrounding shells are of course made of H atoms, which would start burning. The outer part of the Sun will get heated and bloats up. As there is an expansion of gas, it cools down. So, the surface temperature of the Sun will gradually cool down. The Sun will grow gigantic by now and start glowing red. The Sun will turn as Red Giant approximately 200 times of its size as of now.

The Mercury and Venus will be swallowed up now by the immense blob of fire that the Sun will become. The Earth will hardly have a better fate. If, it is not gobbled up, it will still be the planet of burnt cinder. Nothing living will survive and the entire atmosphere round the earth will be under the cover of thick cloud due to complete evaporation of all water bodies, including the oceans. The nuclear reaction inside the core of the Sun will stop completely now but the Hydrogen in the outer envelope will keep burning. The region where it would happen would further expand outward. He, the ash of burning, so to say, being Four times heavier than H will get deposited ultimately to the core. Now the core would be under tremendous compression. As a result it heats up tremendously from 15-Million-degree K to 100-Million degree K. At this temperature He is ignited and consequent upon this C and O are going to be produced inside the core through the second phase of nuclear reaction. This is known as **Helium flash**, which lasts for just few seconds. While the Hydrogen burning continues in the Sun's envelope, it will approach towards the planet Mars.

During the death episode of a star like our Sun, it sheds its outer layers, which expands away with glowing colours. The core will now be contracted due to the gravitational pull into the size of our planet earth now. This amounts to about 109 times smaller than the original size of the Sun or a Million times smaller in volume – awfully dense. The density might be somewhat like a Million gram per cubic cm or weighing about tens of tons per cubic inch. That means if a chunk of a matter of the size of a sugar cube is brought from there to the earth, its weight will be equal to the weight of an elephant.

The Sun now turned as a **white dwarf**. White because the surface becomes bright as the core has been heated up when the core contracted. But it will slowly cool down and will shine no more. We may, if we so like, call it as a black dwarf. The Sun will now enter in the eternal resting place peacefully. All the nuclear processes will come to a dead halt then.

A very pertinent question can be asked now, how does white dwarf hold up against its own gravity, when the nuclear fusion has completely stopped ? The matter in the white dwarf is in a

highly compressed state. The electrons are free; they are no longer attached faithfully to any nucleus. They rather move freely and also behave like a gas as per the versions of Quantum Mechanics. This may be called as Electron gas. Though not exactly like an ordinary gas, because of the strange quantum effects. As a result, the electron gas in the white dwarf exerts a novel kind of pressure. This is radically different from the pressure as described in classical physics, which envisage the pressure is due to the force bombarded on the core wall due to thermal motion. This electron pressure is independent of the temperature of the electrons. It acts, even if, the temperature is absolute zero.

At high temperature when the Sun was alive a gas acted as a classical system, having continuous distribution of energies. It is not so in case of a quantum system, for instance, say, Hydrogen atom. We have now discrete levels of energies. They are levelled as discrete/principal quantum numbers – from zero to upwards, corresponding to increased (but discrete) values of energy. Because they are electrons, the basic Fermions.

All the elementary particle like proton, electron, neutrons etc. can be basically divided into two broad groups a) Symmetric and b) Asymmetric. The Symmetric particle having spin quantum numbers 0, 1 etc follows Bose-Einstein Quantum Statistics and are called **Boson** for example Higg's Boson/God particle, while all asymmetric particles having spin quantum numbers fractional follows Fermi-Dirac Quantum Statistics, called **Fermions**. Proton, Electron and Neutrons are Fermions they spins and have spin quantum Number ½ . Plus half and minus half are the quantum numbers assigned to indicate the antiparallel spins of two electrons.

Now comes here an unusual quantum mechanical effect known as **exclusion principle** which is due to Wolfgang Pauli. This principle states that for any given energy state only two Fermions (in this case, the electrons) can occupy, provided that they are in mutually opposite spins. Since any third one's entry in the same energy state is prohibited because it has to be coaxial with either plus half or minus half.

The electrons inside the white dwarf start occupying discrete energy levels, from lowest quantum number to higher quantum numbers step by step, one after another. Once two electrons with opposite spins occupied lower energy level the next one has to promote itself to the next higher level. This also places limitation of occupation of electrons. Two electrons in the same energy state can come close enough. But any other electron, if by chance comes there, will be repelled strongly. This phenomena inside the white dwarf manifests by itself a new kind of pressure, which can counter the gravitational pull inside the white dwarf. This is a purely quantum mechanical effect not accounted for by classical physics. This quantum mechanical pressure is also called as **degeneracy pressure**.

For a star of the size of Sun white dwarf is the ultimate fate. But this is not the case of ending of all stars. A star of the mass of one and half times more than that of the Sun, will not end up as a white dwarf at all. This upper limit of the mass of white dwarf is called Chandrasekhar limit, in the honour of the discoverer.

Because of its heaviness, the net gravitational pull would be much higher than the lighter weight stars (as the Sun). So, in the core, higher temperature is generated and more power is released. Correspondingly the outward gas pressure in the interior of the heavy star is also greater. This higher inward gravitational pull is just balanced by the outward gas pressure and that is responsible for retaining its size shape and mass also.

Surprisingly the life expectancy of heavy stars is much less than what common sense would predict. Because of the tremendous temperature inside the core within the heavy stars, energy generation takes place at enormously high rate. That increases the consumption rate of the non-renewable but finite amount of nuclear fuel also at a high level. If, we scale down the life span of our sun as one year, in this scale a star seven times as massive as the Sun, will exist for about a day and the one with a solar mass of eighteen will last just for nine hours on the same scale.

In a massive star the nuclear process does not end up with He produced from H by nuclear fusion. He, the ash of H burning, gets further converted into C. This way, a whole sequence of elements are cooked up gradually within the interior of massive stars. Ne, O, Si and so forth and finally ending up with the stable Fe. There after there is no more conversion because the chain reaction has hit the floor *i.e.*, most stable Fe at the core. What do we end up with such kind of stars ? We end up with an onion-like structure with iron core at the centre and surrounded by the shells of the produces of thermo-nuclear fusion in each successive layers of the onion.

Gravity roles out beautifully. The Gravity gave birth to the stars, nurtured throughout its life, now it also plays a significant role of terminator – whether small, intermediate or giant stars. With

the exhaustion of the nuclear fuels and cessation of thermal power generation, the iron core is crushed and broken up due to gravitational compression. Electrons are pushed back into the nuclei turning all protons into neutrons. The stellar core is just the ocean of neutrons or the neutron gas. This behaves exactly in the similar manner as of electron gas as described earlier. Neutrons are also Fermion like electrons with spins and they do obey Pauli's Exclusion Principle. So, the degeneracy of neutron gas now counterbalances the gravity as a consequence of Quantum Mechanical phenomena. So, we have now **neutron star** made up of neutrons, packed like billiard balls!

Due to huge gravitational compression of this neutron stars, unlike white dwarf whose size would be the size of the earth, that is 109th part of the size of the Sun; neutron star would be much much smaller of the sphere of only 10 km diameter! That means it would be of immensely high density; almost the density of the nucleus of an atom!If a spoonful of neutron star material is brought to the earth, it will not weigh as much as an elephant (as in the case of white dwarf) but its weight will be almost the same as the total body mass of all human at present living on the earth!

When the core collapses giving birth to the neutron star, the surface of this giant heavy baby is of very high temperature of about a Million-degree K. At such a high temperature the Black Body Radiation theory of Max Planck predicts that X-Ray would be emitted. This star also would rapidly cool down and eventually cease to glow further. Obviously, we can no longer observe them. There can be something very interesting happening with the neutron star. Neutron stars are often bestowed upon a pair of beacons of radiation, the radiation pair with different wavelengths. This could include visible light too. As the star spins around its polar axis, we would observe a flash of radiation each time we came in the line of the emitted beam of light at a constant interval of time, very much like a light house signals from the shore. So, the neutron stars keep on emitting **pulsed signals** at regular interval. Such neutron stars (not all) are called ***Pulsars***.

Now the most pertinent question if there is no heat, how can this pulsed signal of electromagnetic radiation generate? The reason being the neutron stars happen to come with a very strong magnetic field attached to them. Now the charged particles spinning in the magnetic field will generate electromagnetic radiation following Maxwell's well-known set of equations.

For ultra-massive stars, the gravitational collapse is inevitable. There is no known force which can counter the intense gravitational pull inside the much smaller core of the star. The collapse is catastrophic, continuous and relentlessly destructive. What is the ultimate "B" of such super massive stars? The formation of a **black hole**, where the gravitational pull is so much that even a photon particle cannot escape the pull. This is the bizarre end product of a super-massive star after exhaustion of nuclear fuel and lock down of the nuclear furnace.

There remain some more mysteries with the white dwarf. After a white dwarf is formed it can suddenly flare up. Often because of the matter dumped on them by their companion, when the dwarf is paired of with a normal star. Combined together by gravitational forces the duo forms as a binary pair. For example, the most illumines star **Sirius** is a binary star system. The brightest star in the sky has a faint companion, a white dwarf. The two stars go around each other. Now the flare of a white dwarf is called ***Nova*** (in Latin means New).

This should not be confused with the term ***Supernova***. The *Supernova* is a spectacular stellar explosion. We saw that a massive neutron star is formed due to gravitational collapse of a heavy stellar core. Then the outer envelope of the explodes violently. The energy released is tremendous, some hundred Million times the illumination of the Sun. The luminosity of the exploded star is as bright as the stars of an entire galaxy put together. This is what we call as *Supernova*. But that is not the end. We may recall that the core of the neutron star was iron. Now the heavier elements than the Fe is formed because of the tremendous heat formed owing to the explosion of the *Supernova*. The new star again can be formed from the scattered debris of the exploded *Supernova*, which now contain all the naturally occurring elements shown in the periodic table.

As a matter of fact, our Sun is also made up of such recycled stellar matter and so are the planets. The explosion of that particular *Supernova* was termed as the Big Bang happened some 13.7 Billion years ago. That is how our planet earth contains all the elements and nutrients – trace, micro and macro both to sustain our life.

We, all the species of biota are the children of the dusts of the *Supernova.*

INDIAN LEATHER PRODUCTS ASSOCIATION

The Indian Leather Products Association (ILPA), established in 1987, is a premiere representative body of manufacturer-exporters of superior quality leather and leather products with head office in Kolkata and a regional office in Chennai.

IMPORTANT ACTIVITIES OF ILPA :

- Brings together manufacturer & merchant exporters on a common platform.
- Stimulates growth & development of the industry as a whole.
- Promotes export of leather & leather products.
- Develops & maintains symbiotic liaison with international trade bodies & Chambers of Commerce.
- Organises trade delegations to international fairs & seminars.
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- Promotes International Fairs and RBSMs like IILF Kolkata, ILPA Buyer Seller Summit.
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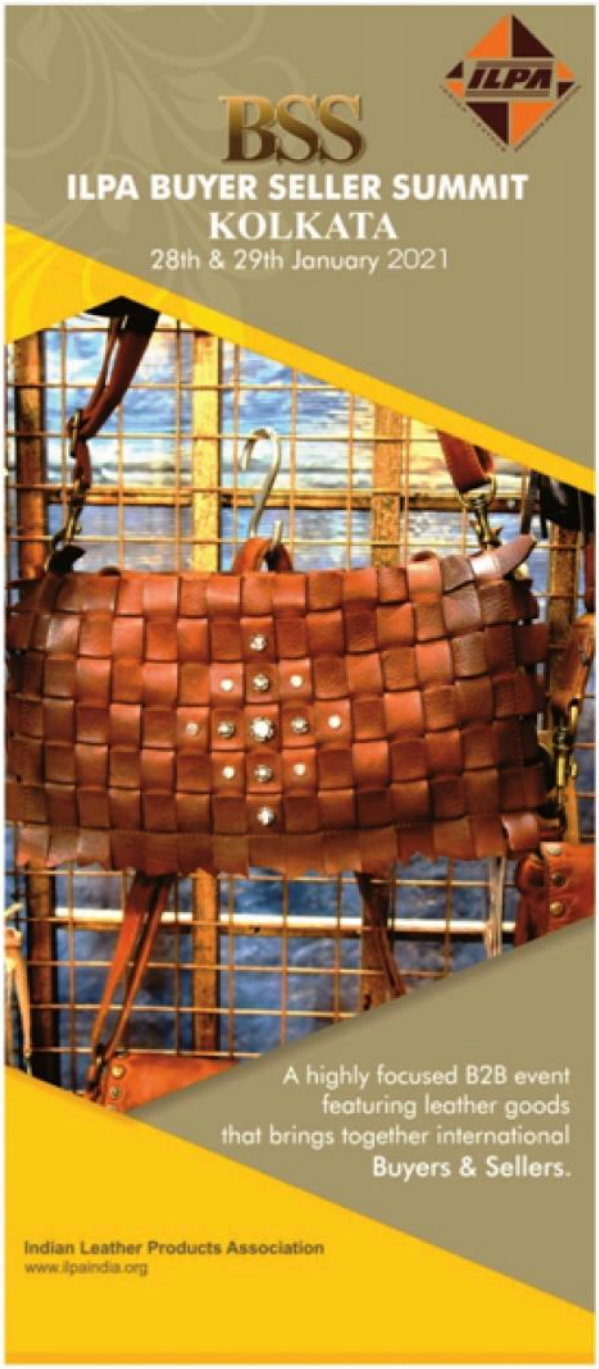

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KNOW YOUR SHOE
Part - 8

Mr. Shome Nath Ganguly
Former Principal, Karnataka Institute of Leather Technology

SNEAKER - TRAINING - SPORTSHOE

SNEAKER

CONVERSE SNEAKER

Sneaker is also called Trainers shoe, Athletic shoes, Tennis shoes, Gym shoe & kicks. Sport shoes are also primarily designed for sports or other forms of physical exercises. However now these types of shoes are widely used as an everyday casual wear.

The shoes have gone by a variety of names, depending on country of origin and changing over the decades. The term "sneakers" is most commonly used in the North-eastern United States, South Florida and Central Florida, parts of Canada, and New Zealand. The "sneaker" in its modern form is "trainer" shoe. In some urban areas in the United States, the sneakers are informally known as kicks. Other terms include training shoes.

The term 'athletic shoes' is typically used for shoes utilized for jogging or road running and indoor sports such as basketball. But it tends to exclude shoes for sports played on grass such as football and rugby football, which are generally known in North America as "cleats" and in England it is known as "boots" or "studs".

Characteristics of an athletic shoe include a flexible sole, appropriate footstep for the function, and ability to absorb impact. As the industry and designs have expanded, the term "athletic shoes" is based more on the design of the bottom of the shoe (Sole) than the aesthetics of the top (Upper) of the shoe. Bottom of the shoe sole design is so important because it helps to gripe the ground nicely during the play. Today's designs include sandals, Mary Janes type, and even elevated styles suitable for running, dancing, and jumping.

The shoes themselves are made of flexible compounds. Good quality leather upper material with lining & flexible toe & back stiffener. Typically featuring a sole made of various compound like double density Poly Urethane sole (PU), Thermo Plastic Rubber (TPR) or Thermoplastic Poly Urethane (TPU) or with appropriate rubber. Keeping the original design as basic model, manufacturers are now developing various types of athletic shoes as per requirement against their specific purposes.

Thorough research is required on the use of the particular shoe before developing the same. a particular shoe for a particular purpose is always differs from other sport shoe. A tennis shoe required to tackle feet while running very fast on the ground & stop suddenly to make a back ward running. Beside this the ground condition also differs from field to field like clay court, grass court or synthetic court. Each ground requires a separate type of shoe to be used for each ground.

WITH HEEL

WITHOUT HEEL

WHAT ARE TRAINING SHOES?

Training shoes support a wide range of foot movement. Sudden stopping, backward movement, breaking, jumping, and immediate changing of direction of feet. This makes a training shoe versatile and accessible for many different types of trials. You can think of training shoes as your all-in-one gym shoe. You can usually tell a shoe is a training shoe but how much the shoe is useful. The technical term here is the "heel height," which always refers to the distance from the heel to the ground. Heel height plays a role in a sport shoe.

PURPOSES OF MAKING TRAINING SHOES

High-intensity gym classes and outdoor boot camps – Cushioning for high-impact and run for training purpose.

Weight lifting – Heel support is required so that you can bend your knee highest level (go lower into squats) and then stand up.

Strength training – A training-specific last is made with wider toe to get extra space in the forefoot.

Agility training – Grooves and outsole patterns are made carefully for better griping during jumping and multi-directional movement.

You can even do short distances on a treadmill. Anything longer than 5000 metres is usually better with running shoes for shock absorption.

FITTINGS OF TRAINING SHOE ?

Training shoes have a comfortable upper and flexible midsole for multi-directional movement. A lower heel drop puts you closer to the ground to push off and pivot. A lightweight training shoes are always more comfortable for easy and efficient movement.

RISKS OF USING WRONG SHOES

Wearing the wrong shoes may lead to problems such as :

1) Discomfort 2) Lowered performance 3) Injuries

DISCOMFORT

The wrong type of shoes can cause discomfort in many different ways. You may experience blisters, aches and pains, or soreness. It may be the reason your shoe doesn't feel quite right. The best shoes don't get in your way at all – letting you do your workout without hardly noticing them.

LOWERED PERFORMANCE

Wearing the wrong type of shoe can keep you from performing your best. When you're putting in the hard work to get better, the last thing you need is your shoe to be holding you back. Running shoes during plyometrics (jumping) can keep you from rotating quickly. You won't have the grip, traction, and flexibility of the sole a training

shoe provides. Without running shoe cushioning and support, it may be harder to cover distance or get faster.

INJURIES

Running and training shoes provide specific types of support to prevent injury. Here are some of the ways a mismatch of shoe to workout may increase your chances of injury.

Running shoes for lateral movement : higher heel height makes for a higher chance of ankle wrenches (pull or jerk) during lateral (side or crosswise) movement.

Running shoes for plyometric (Jumping) workouts : The extra cushioning and support from running shoes can keep you from landing properly and can increase your chances of a knee or ankle injury.

Running in training shoes : without the cushioning and support of running shoes, you can increase your chances of getting plantar fasciitis.

Not enough running support : stress fractures can occur from running without proper support, which can happen when using minimalist shoes lacking cushioning to absorb shock.

The wrong type of running shoes : Tendonitis can happen when you aren't wearing the running shoe to protect your pronation of feet. Type of pronation whether it's an overpronator needing a more structured shoe or a neutral runner wearing a shoe with too much arch support.

Lifting weights in cushioned shoes : It's best to do lifting in shoes with little cushioning.

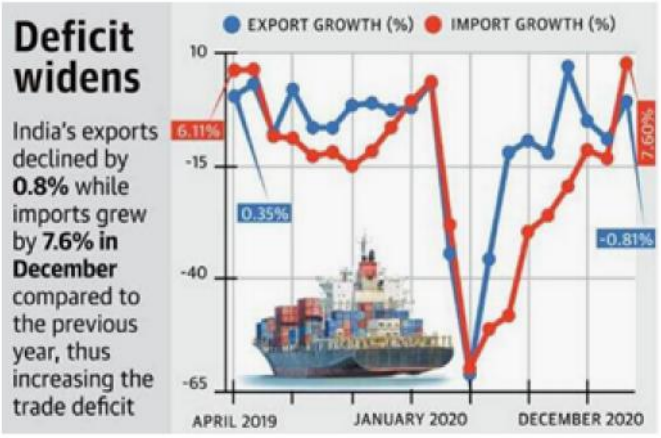
Don't forget shoe size. Too small of shoes can cause your toenails to turn black from bruising and fall off. You should try to use the exact size of shoe. You can wear half size up shoe for maintaining the natural movement and prevent swelling of your feet during runs. You may also need to find the right shoe width for your comfort. If you're still unsure about what shoe is best for you please take advise from expert for proper guidance.

Reference : *https://en.wikipedia.org/wiki/Sneakers*

EXPORTS SLIP 0.8% IN DECEMBER; TRADE DEFICIT WIDENS TO $15.71 BILLION

Contracting for the third straight month, India's exports slipped marginally by 0.8% in December 2020 even as the trade deficit widened to $15.71 billion due to the rise in imports.

Exports in December 2020 stood at $26.89 billion, as compared to $27.11 in the same month of 2019, according to the preliminary data released by the Commerce Ministry on Saturday.



The rate of contraction in the country's outbound shipments has improved against a decline of 8.74% in November, mainly due to the increase in shipments of certain sectors such as gems and jewellery, engineering and chemicals.

After a gap of nine months, imports in December recorded a positive growth of 7.6% at $42.6 billion. In February 2020, it had registered a rise of 2.48%.

"India is thus a net importer in December 2020, with a trade deficit of $15.71 billion, as compared to a trade deficit of $12.49 billion, widened by 25.78%," the Ministry said in a statement.

The trade deficit (the difference between imports and exports) at $15.71 billion was highest since July 2020. The country had witnessed trade surplus in June 2020.

In April-December 2020-21, the country''s merchandise exports contracted by 15.8% to $200.55 billion, as compared to $238.27 billion in the same period last fiscal.

Imports during the nine months of the current fiscal declined by 29.08% to $258.29 billion. It was $364.18 billion in April-December 2019-20.

In December 2020, oil imports declined by 10.37% to $9.61 billion. During April-December, the imports dipped by 44.46% to $53.71 billion, the Ministry said.

Major commodities which have recorded positive growth in exports during the month under review include oil meals (192.60%), iron ore (69.26%), carpets (21.12%), pharmaceuticals (17.44%), spices (17.06%), electronic goods (16.44%), fruits and vegetables (12.82%), and chemicals (10.73%).

Sectors that registered negative growth include petroleum products (-40.47%), oil Seeds (-31.80%), leather and leather manufactures (-17.74%), coffee (-16.39 %), ready-made garments of all textiles (-15.07%), man-made yarn/fabrics/made-ups (-14.61 per cent), marine products (-14.27%), cashew (-12.04%), plastic and linoleum (-7.43 %), and tobacco (-4.95%).

The major commodities imported with positive growth in December 2020 include pulses (245.15%), gold (81.82%), vegetable oil (43.50%), chemicals (23.30%), electronic goods (20.90%), machine tools (13.46%), pearls, precious and semi-precious stones (7.81%), and fertilisers (1.42%).

Sectors which recorded negative growth in December 2020 were silver, newsprint, transport equipment, cotton raw and waste, coal, coke and briquettes.

Commenting on the data, Federation of Indian Export Organisations (FIEO) President Sharad Kumar Saraf said the marginal decline of just 0.8%is showing signs of revival as order booking positions have continuously improved.

(Source : The Hindu – 02/01/2021)

HOW TO MAKE A HOT STATEMENT WITH LEATHER IN WINTERS!

Faux leather can be a tricky fabric to style. Mostly reserved for winters, leather is an ideal pick for this season. As the temperature starts dropping, you can experiment with this cool-vibe fabric and make your winter wardrobe even more exciting! From jackets to pants, there are many ways to raise your hotness quotient with this fabric. To give you some outfit ideas, here's a look at the coolest ways you can wear leather in winters:

CROPPED LEATHER JACKET

Looking for a punky yet feminine jacket? Try the cool biker jacket in a cropped version. You can style it with high-waist pants, pullovers and even a bodycon dress!

LEATHER TOP

The leather top can also add a touch of oomph factor to your winter wardrobe. Experiment with a button-down shirt or a peplum top for some extra drama.

LEATHER PANTS

Keep yourself warm and stylish with a pair of sexy leather pants. From straight-cut to skinny fit trousers, there's a lot to choose from. And, if you have leather jacket or a top, then you can pull off an all-leather look to make a statement!

BOOTS

The one statement accessory you can never go wrong with is leather boots. Whether you're a fan of the thigh-high boots or ankle-length boots, such boots can elevate your look. They can be teamed up with any winter outfit.

LEATHER JACKET WITH FUR LINING

Want to make a statement in a leather jacket and also keep yourself warm? Try the leather jacket with faux fur collar and lining. The collar-design will add a wintery touch to your outfit and also keep you warm.

LEATHER SKIRT

Another girly way to rock leather is a skirt. From miniskirts to flared ones, there's a lot to choose from. One can also experiment with suede fabric and even patent leathers.

COLOURED LEATHER

Don't just stick to blacks and browns while picking leather pieces. Experiment with bold colours and add a colourful touch to your winter wardrobe. We keep spotting celebrities making a case for coloured leather pieces, which is surely a new trend worth exploring!

(Source : The Times of India – 08/12/2020)

LEATHER INDUSTRY LOOKS AT WAY FORWARD ONCE LOCKDOWN IS OVER

The Indian leather industry, which employs nearly 4.2 million people, will recover in 3-4 months after the lockdown is lifted, and stabilise in 6-8 months hence, it is expected.

With some of the leading markets such as Italy, Spain and Germany opening up, domestic leather industry officials feel India in an advantageous situation given the current negative sentiments against China, and should not miss this opportunity. Vietnam could be a serious competitor for India, said officials of leading leather companies in a recent webinar. The need of the hour during the lockdown is to survive, activate and revitalise. Retailers who align themselves more closely with their shoppers by identifying a shared purpose will foster loyalty, they observed.

Mega opportunity

N Mohan, Executive Director and CEO of Clarks India, said India's footwear consumption has been growing at a CAGR of 7.6 per cent and, with the per capita consumption improving to two pairs per person per annum, the Indian industry has a huge opportunity. For every 1,000 pairs produced and sold in India per day, 425 jobs can be created, from manufacturing to allied industries to retail. This is a great opportunity for the industry, he added.

India's advantages include the availability of a large, young and low-cost workforce, existing footwear clusters such as Chennai, Agra and Kanpur with a sound knowledge base, and a huge domestic demand, Mohan said. The industry needs to focus on non-leather footwear exports as, worldwide, 86 per cent of footwear in terms of volume consumed are non-leather. There is a phenomenal opportunity for this sector," he added.

Non-leather footwear

Raj Kumar Gupta, National President, Confederation of Indian Footwear Industry, said the non-leather industry requires a big thrust and it is important for all the stakeholders to come together on a single platform to address the industries' woes and create a strong road map for the future. There is a great opportunity to create a big cluster if the government and industry can come together to create the ecosystem for non-leather footwear, he added.

Aqeel Ahmed, Chairman, Council for Leather Exports, said that though there are several order cancellations due to the pandemic, some businesses are expected to shift to India. Exporters need some handholding to survive the crisis, he added. Brand India as a footwear destination should be projected around the world post lockdown, said Ahmed. He also felt a reduction in GST, especially for footwear above 1,000, may help improve consumption.

It is very important to amend labour laws to give entrepreneurs the confidence to invest more in creating larger capacities, said Ramesh Dua, MD, Relaxo Footwear. India has the capability and resources, but the labour laws need amendment and the industry would be willing to invest in technologies if there is a focus on the non-leather footwear sector, he added.

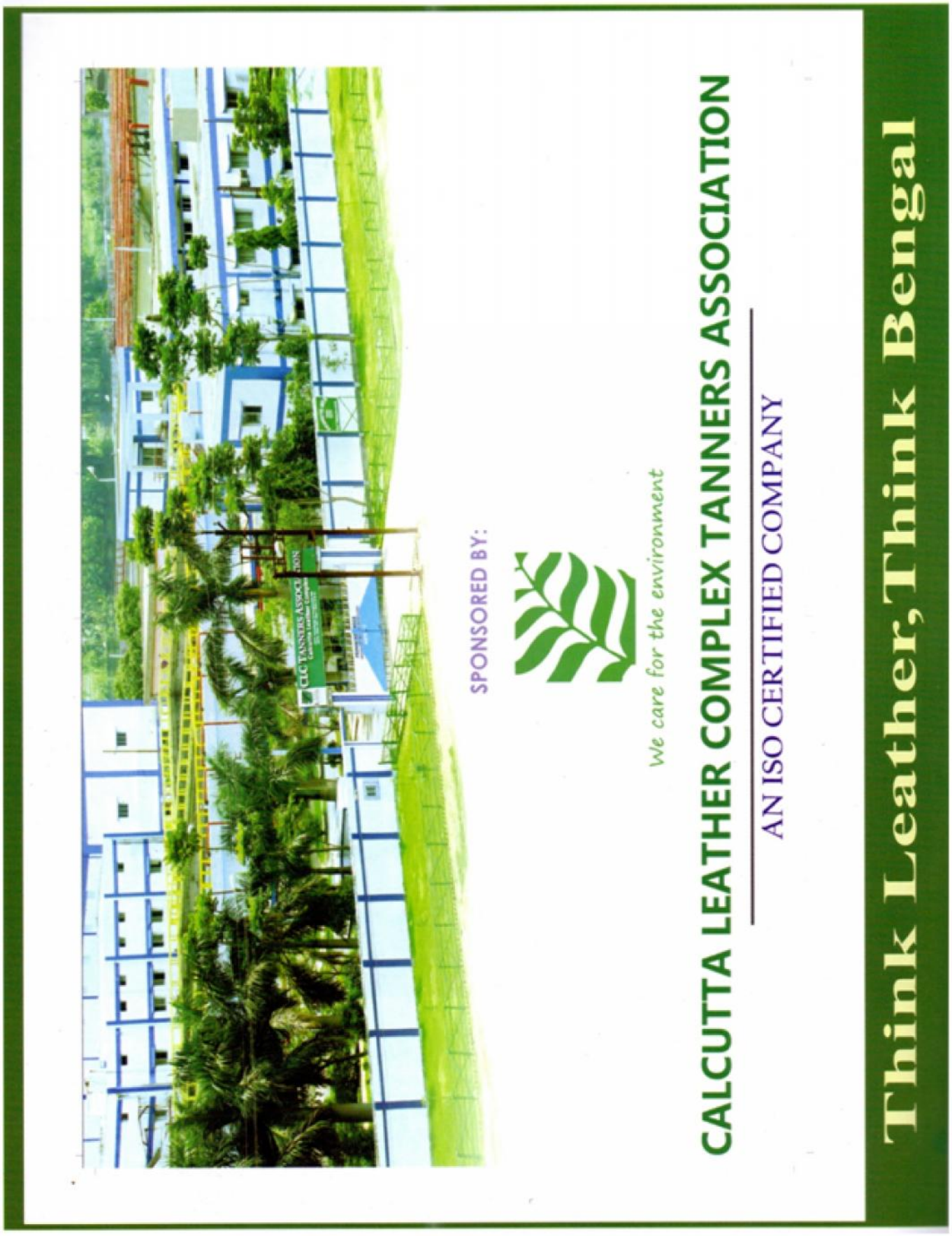
(Business Line – 15/12/2020)

EUROPE - DEMAND FOR EUROPEAN COW HIDES UP

Cowhides from all global origins have been in good demand from Chinese tanners since the middle of 2020, however, towards the end of last year the upward price momentum had started to slow. According to the Sauer Report, there are signs that demand for European origins, in particular, may be increasing.

At the beginning of the year, some hide suppliers had even taken lower prices than their previous confirmed contracts, as they anticipated that perhaps the heat had come out of the market and a period of price correction was just around the corner. However, according to the Sauer Report this looks like it was a false dawn, with many of the lower prices taken, quickly being reversed by the new sales for the early part of this year. In fact, the demand added to a reduced supply has meant that many have sold at their highest prices for over 12 months.

The Hebei province problems have brought a halt to any more sales in that area, but indications are that once we are past the Chinese New Year, and hopefully production starts again in that area, then the bullish state of this particular segment of the market looks set to remain. Demand appears to be driven by demand for hides suited for upholstery leathers and it should be pointed out that while prices for some selections have firmed in recent months, they are still at historically low levels and global demand for leather remains fragile.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The Economics of the Raw Materials used and Improved Techniques for the manufacture of Brown Picking Bands

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The combination Sulphur, Oil and Vegetable Tanned picking band is popularly known as double oak Tanned or brown picking band in the market.

RAW MATERIALS

(Availability, Grading, Statistics, Economic Implications of flay cuts and Improvements).

In India Buffalo Hides are the only suitable indigenous raw material available. Imported ox-hides from North of Italy and South of Germany are famous for their use in the manufacture of Belting and Picking Bands.

Being the chief source of milk in our country, buffaloes are the best fed of all the Indian live-stocks. Hence the hides derived are the best raw materials in India. The latest production figures for buffalo hides are not available, the figures available from the Report on Marketing of Hides, Second Edition being for the year 1948. Today due to restriction on the slaughter the figures will not exceed the ones discussed below.

Madras, Madhya Pradesh, Uttar Pradesh, Bombay and Bihar account for nearly ¾th of the total production of buffalo hides. In total we produce about 48 lakhs Buffalo hides annually out of which 12% or a little less than 6 lakhs are slaughtered hides. The slaughtered hides come mainly from Madras, West Bengal, Uttar Pradesh, Bihar, Bombay, Travancore-Cochin and Mysore States. The slaughtered buffalo production for the rest of our country is negligible.

The slaughter is done for beef but due to restriction on the number of heads to be killed per slaughter house, only the heaviest animals are killed to get more beef. Exact statistical data regarding the production of Buffalo for different weight ranges is not available but it may be roughly divided as follows as per green slaughtered weights :—

Below 50 lbs. Green	.. ..	1½ lakhs
50 lbs. to 60 lbs.	.. ..	1 lakh
60 lbs. to 70 lbs.	.. ..	1 „
70 lbs. to 80 lbs.	.. ..	1 „
Suitable for Picking Bands : 80 lbs. to 90 lbs.	.. ..	1 „
„ „ Pickers : Above 90 lbs.	.. ..	½ „
Total annual production	.. ..	6 lakhs

Hides upto 75 lbs. Green Wt. are totally uneconomical for making picking bands due to thinness. The hides in weight range 75 to 80 lbs. may be suitable

for picking bands provided there is improvement in the take off. The hides above 90 lbs. are always bought by the picker manufacturer who requires the heaviest stuff and is in a position today to offer the best prices in the market. This leaves only 1 lakh hides to the picking bands manufacturer annually and from this he has to select hides free from any brand marks and deep flay cuts and holes. This is surely far from satisfactory and people to whom it may seem we are self sufficient in buff hides are not so correct.

Buff hides are good raw material for picking bands. Even after conceding to the fact that they have a loose structure as compared with the imported ox hides, the latter are twice as costly as buffs. Another fact is that our buffaloes are almost free from warbles whereas 50% of the imported ox are sometimes full of warbles, and this has a direct effect on the life of a picking band. The hides are much more free from any grain defects and give a good substance.

Flay Cuts : The major drawback seems to be the poor take off and this needs a lot of improvement. The hides from weight range 75 to 80 lbs. can easily be brought for use in picking bands, provided there are no cuts. Flay cut is a continuous headache and accounts for most of the higher cost of production. Picking bands have to be completely free from cuts and only due to cuts about 33% of cut lengths in the production get little or no price. The cost of these picking bands are naturally borne by the full lengths and hence this leaves only little price difference with the imported quality.

Imported ox-hides being from the best fed and treated animals give a naturally close texture of even substance and even at the backbone they give a thickness of 6 mm. The wastage in this case is almost nil. Only 5% cut length are got from these hides and that too from the borders due to irregular shape which is unavoidable. The imported ox-hides also give more yield due to regular shape and thickness. The final picking band is 20% more durable than buff one and therefore finds more demand in the market even with a price difference of (Re. 1/- to Rs. 2/- per lb.) 15% to 30%. As long as the flay cuts exist there will be a demand for import of ox-hides.

Another very important observation regarding flay cuts is that they are more in number for lighter raw material and same in depth for all weight ranges. This is why only hides above 80 lbs green are suitable for picking bands as most of the cuts can be eliminated during the shaving operation. Hides from weight ranges 75 to 80 lbs., though being most suitable for picking bands are useless due to cuts which cannot be eliminated in shaving. If we can get rid of the cuts completely we can make available about ½ lakh hides annually for sufficiency in our raw material for picking bands. Also there will not be more than 5% cut lengths and thus the final price difference in picking bands with imported material will be in favour of indigenous picking bands.

Improvements : The report of the F.A.O. of U.N. on the "Flaying and Curing of Hides and Skins as a Rural Industry" is an extensive study on the subject. The different recommendations in the publications must be immediately and vigorously adopted in our country. The method of flaying hides with compressed

air oscilating machine can be very easily adopted at least in India's big slaughter houses. The blowing in air method described for flaying skins is also very interesting and can be adopted even in our villages. The simple methods described for hoisting the animal can also be adopted in our villages. As long as we cannot get rid of the flay cuts we will never be able to firmly stop the import of ox-hides.

Bellies & Offal : One more problem with the indigenous raw hides is the disposal of offal. Unfortunately in India there are no tanneries, who do only the offal tannage. In foreign countries where there are a number of tanneries doing only offal tannage, it is possible for the raw hide dealer to sell the hides into butts and offal separately. The Indian tanner has to buy whole hides and has to either sell the cuttings in raw or tan it by himself. Tanning of this type is not possible unless the picking band man is also a sole leather tanner and this means a lot of investment. A small unit can only sell the bellies for whatever price it gets and buyer usually obliges in offering some prices.

We hope that as the time marches and with the steady industrialisation there will be more and more demand for picking bands. Assured with a regular supply of offal some people are likely to take interest in the tanning of the offal.

TANNING AND TREATMENT MATERIALS

(1) *Quebracho Extract :* Quebracho is the indespensable item required in the manufacture of this type of leather. The tanning content of Quebracho Extract is upto 80% which is not available in any other extract in the world. The molecular weight of tannin in Quebracho is also the highest. It is this high molecular weight of quebracho tannin which gives leather the property of holding and retaining the maximum amount of greases. The life of a picking band depends on the amount of greases it is able to retain after continuous working. The longer the grease is retained the longer will be the lubrication and thus the lesser distortion of the fibres due to continuous twisting and abrasion during working. This gives the combination tanned picking band the longest life. It is the tensile strength coupled with the maximum retainable lubrication property rather than the tensile strength only, that decides the life a picking band.

In Western countries attempts have been made to replace quebracho with substitutes from Chestnut Extract, but not with much success. India with a very limited source of vegetable tanning materials is unable to substitute wattle extract with indigenous tanning material and I think it will not be possible for her to find a natural substitute for quebracho. Only possible substitute India should explore is some synthetic tanning agent, with a very high molecular weight. In view of this attempts were made by the author to tan some oil tanned pieces with synthetic tanning agents of heavier molecular weight, alone and along with quebracho extract.

The samples tanned alone with syntans did not show any difference with the oil tanned leather and I somehow feel that the synthetic tannins do not easily combine with the oil tanned leather and some type of foreign agent is necessary or in extreme case, it may be that syntan have very little or no affinity for oil

tanned leather. Probably the oil tannage satisfies the groups with which syntans would have combined, and still some active groups are left with which only vegetable tannins can combine feebly. Vegetable tannins with a natural affinity for fats may also be forming bonds with the fats which have been firmly fixed on leather and the final vegetable tannage may not be taking actual part in the tanning of the fibres.

The combination quebracho and synthetic tanned samples gave an emptier leather. Moreover the cost of the synthetic tannins of the specially high molecular weight made its use prohibitive.

Gambier : Gambier is the best but the costliest Tanning material and a well known luxurious tanning material. In spite of its cost, this extract is even now used by certain tanneries making strap leathers. Telephone and Electrical workers who work on tall buildings and skyscrapers as in U.S.A. use straps their life depends on the strap and the cost of the straps therefore is a secondary question.

Substitutes for Gambier are possible by blending and treating natural vegetable tanning material like wattle. We should explore the possibility of making similar substitutes from Babul or Konnam Extract, preferably by blending with myrab and sulphiting.

Fish Oil : This is the third important material for the manufacture of combination picking bands. Pure fish oil of iodine value above 150 only is useful. The higher the iodine value the better will it combine with the hide fibre, and longer will be the life of the picking band.

The chief source of this fish oil of iodine value above 150 is the Sardine fish available on the Western Coast from Goa to Cochin. The availability of this variety of fish is seasonal and so uncertain that the oil may be available from Rs. 0.25 to Rs. 1.20 per lb. Sometimes the fish is caught on this coast abundantly and then for three or four years it completely disappears from this coast. A recent bulletin published by the C.L.R.I. is a very useful survey on this industry. Looking to the huge catches of Sardine on our coast one wonders why our fisheries departments could not set up scientific plants for extraction of this oil. Apart from the growing local demand there is a shortage of this oil in the Western Countries and we can earn very precious dollars for our five year plans. The catches of the fish also can be increased by improved methods of fishing and some scientific restrictions on fishing. The tanner will also be assured of some regular and reliable source of fish oil which will give him the necessary iodine value. The present extraction of oil of this variety is done in a very crude way and the quality therefore is full of stearins, dirt, thorns and water.

Centrifuging this oil with the conical discus centrifuge separates the dirt, water and stearins simultaneously and gives a clear filtered oil which is much more useful and pure. The iodine value also increases to some extent. If the clear oil is further treated with activated carbon or china clay and stirred vigorously at about 200°F and then again filtered, the resultant oil will be paler in colour and will have a pleasant fishy smell. The final colour of the leather is decided

more by the colour of the oil than by the colour of the final vegetable tannage. Thinner the fish oil better will be the lubrication and thus better will be the picking band.

Tallow : Plenty of beef tallow is available in our country but only of late due to restriction on imports of Australian mutton tallow more and more industries like soap and textile are turning to the indigenous supply. The Indian beef tallow is therefore becoming costlier day by day. A time may come when the Indian prices will equal to the imported mutton tallow. As far as the quality of our indigenous tallow is concerned, it is quite upto the standard provided one pays for the quality. But now-a-days due to restriction of imports there is a tendency to mix some "Murder" or dead tallow in the supply.

TECHNIQUE AND METHOD OF MANUFACTURE

Not much literature is available on the manufacture of this type of picking bands and the process is even now kept a secret by the French manufacturers who have specialised in this item. An attempt is therefore made to discuss the process in detail with the necessary points that can be explored by our research workers.

Raw Materials : Slaughtered buffalo hides from wet salted weight range 65 to 85 lbs. are the most suitable raw material. Ox croupons from weight range 40 to 45 kilos (whole hides) wet salted from North of Italy are the best raw material.

While buying the buffalo hides care should be taken to select only the hides from young animals, of good substance, free from cuts and brand marks. Minor grain defects are permissible. It is best to have a sole leather tannery side by side when it is possible to select hides in the liming stage. Only wet salted hides are useful. Green slaughtered hides should be salted and aged for sometime in the tannery before taking them for further processing. The hides are rounded in raw into butts and bellies and shoulders. The butts are rounded upto maximum 60" in length as the picking bands are cut only neck to tail wise and are sold in the lengths of about 60". Only butts are taken up for picking bands.

Soaking : The butts are soaked in plain water in a tank and an addition of about 8 ozs. of bleaching powder per 100 galls. of soak is made as a preservative. An addition of about the same quantity of a synthetic detergent also helps. The butts are soaked for 3 to 4 hours and washed and drained for about 15 minutes.

Shorter the liming better will be the life of picking band. It is due to this reason that many people are in favour of complete elimination of this process and do the tanning with hair on. This is possible only with ox-hides in which case the long hairs of the imported ox have to be clipped as they hinder the penetration of fats, etc., during further process. The hairy hides are preferably fleshed in raw and then soaked in an acid salt soak to firm up the hair. An addition of little alum recommended for this reason. After proper soaking the hides go directly for the pickling process.

Limings : Unfortunately for buffalo hides have a very harsh hair and an unpleasant look and colour and liming therefore becomes necessary. The liming if properly done will not affect the life of the picking band much.

There are three different ways of liming :

(1) Paddle liming.
(2) Painting.
(3) Pit liming.

(1) *Paddle Liming :* This is the best and the quickest way of liming. The following receipe is recommended :

2.5% Sodium Sulphide.
20% Lime.
400% Water.

The more the amount of lime more will be the loss in hide substance, and therefore lesser will be the life of picking band. Lime has got a more drastic action on the epidermis. The hides are entered in the paddle and the paddle is run for 15 minutes and rested for 45 minutes. The liming should be complete within 4 to 6 hrs. The period of liming should be so adjusted that the hair just start coming out. Excess of paddling will reduce the life of picking bands. While starting the paddle the hides are given an outside motion with a stick etc. as the butts will take much time to come into motion especially when they become plumped and heavy. If this is not done the hides on the top may get damaged due to continuous beating of the paddle.

After correct liming the hides are scudded and fleshed and again scudded. The hides are then piled to drain for 15 minutes and weighed, this weight is the limed pelt weight of the butts and the further quantities of material are based on this weight. The liming is so started that the hides come for deliming in the evening.

(2) *Painting :* This is the second suitable method of liming, but is more useful for ox-hides. The buffaloes have more deeply rooted hair and it is very difficult to remove the hair completely even with the most perfect painting.

The paint is made as follows :—

50 lbs. Shell Lime.
12 lbs. Sodium Sulphide.
80 lbs. Water.

This is sufficient for about 20 to 25 butts. It is also preferable to replace some of the amount of lime in the paint with clays, to avoid loss of hide substance by lime. Some people also use old lime liquor instead of water to quicken the unhairing.

The paint is aged for 24 to 48 hrs. before use. The necessary amount of water is added if necessary and the whole thing is stirred to make a viscous mass.

The soaked hides are dipped one by one and piled in a heap of 25 hides. Care should be taken to lift the hides properly and pile without scraping the ground so that the paint remains on the hides. The painting is completed by evening and the goods are left in the pile overnight well covered with gunnies. For ox-hides it should be possible to unhair in the morning very easily. This is due to two reasons. The longer and more hair on the ox-hides carry more paint than buffalo hides, and secondly because the ox-hair are less deeply rooted than the buffalo hair. The buffalo hides will have to be painted for a second time during the night 4 to 5 hrs., after the first painting, so that they come for unhairing on the next day morning.

Care should be taken to drain the hides properly after soaking as otherwise no paint will stick on to the hides.

(3) *Pit Liming :* This method is suggested only to people who have a serious objection to work in strong sulphide liquor. The method is lengthy and much hide substance is lost, resulting in an inferior quality of leather. The hides after soaking are immersed in a lime pit containing :

1 to 1½%	Sodium Sulphide.
10%	Lime.
400%	Water.

The liquor is prepared on the previous day of its use. The hides are entered in the liquor and handled twice daily. The liquor is well stirred before putting back the butts in the liquor. On the 4th day the hides are unhaired, fleshed and scudded and weighed after complete draining for 15 minutes.

Drum liming is also possible for this type of leather but special type of drum without pegs and with cross paddles inside is required. The period of liming and the quantities are done on the same lines as paddle liming.

It is best to remember that any mechanical action should be avoided during the entire process, as far as possible.

Deliming : The hides after liming are in a most delicate physical condition and any mechanical action like druming in the limed stage should be avoided as it will distort and break up the fibres and fibre bundles resulting in a poorer strength. The deliming is, therefore, carried as follows :—

The hides are given one plain wash for 15 minutes in 400% water and drained.

150% water and 2% Ammonium sulphate and ½% Sodium Bisulphite is added to the drum and run for 10 minutes. The goods are then well pressed below the surface of the float and left in the drum overnight.

Next day the drum is run for 10 minutes and the goods tested with phenolphthalein. Complete deliming is effected evenly by this process and the hides undergo a sort of bating action.

After complete deliming the goods are given a thorough scudding. This scudding is very important in case of buffalo hides due to deeply rooted hair. The hides are then washed briskly in two changes of water, drained and taken up for pickling.

Pickling : A comparatively heavy pickle is given to deposit maximum sulphur in the subsequent depickling with Hypo. 10% salt and 80% water are dissolved and added to the drum. The drum is run for 15 minutes in the salt solution.

2% salt is dissolved and made to 80°Bk in a tub separately and 2½% Sulphuric acid or 4¾% Hydrochloric acid is given in four equal instalments. Each instalment of acid is added to the drum at the interval of 20 minutes after diluting each instalment with the 80°Bk salt solution from the tub.

The goods are drummed for 2 to 3 hrs. after the last instalment and left in the pickle overnight. Next day the goods are drummed for 10 minutes and tested with Bromo phenol Blue to get yellow colour throughout (about pH 3). After complete pickling the goods are piled for 24 hours and allowed to drain.

In order to increase the tensile strength of the hides much research needs to be done on the fixation of aluminium on the hides. Aluminium Sulphate can either be given in the pickle or in the depickle bath, along with Sodium Acetate or Citrate. Any fixation of Aluminium also gives a pleasant yellowish colour to the picking bands due to contact with the final vegetable tannins.

Depickling : The hides are drained completely and sammed to some extent. This samming ensures the fixation and deposition of sulphur on the fibres and less into the bath. The bleeding of sulphuric acid into the hypo bath is prevented to some extent.

20 to 22% Hypo is dissolved in 50% water in the drum and the semi sammed hides are thrown into the liquor at once. The drum is started rotating quickly and run for 6 to 8 hrs. The drum is stopped for 10 minutes at the end of every hour to avoid overheating. The goods are left in the liquor overnight. Next day again the goods are drummed for one hour and tested with Bromophenol Blue to get a yellowish green colour (about pH 4 to 4.5).

In order to avoid the immense mechanical action, it is also possible to depickle the butts by spreading hypo in between the butts in a pit. The butts are turned over every day for about six to seven days by which time the depickling is complete. The hypo in this case, should be finely ground as otherwise the impressions left by the big hypo crystals on the hides will be permanent on the final picking band. This is a very expensive process and the depickling may not be as thorough and even as by the drumming. No paddling is possible due to the very little quantity of Hypo bath. If more quantity of water is used as in paddle. The acid in the hides will bleed into bath and there will be precipitation of Sulphur in the bath. The hypo bath cannot be used for subsequent packs.

The hides after depickling are piled to age for 24 hrs. to effect maximum fixation of Sulphur on the fibres.

Splitting and Shaving : After aging the hides are passed through plain water to remove the excess of salts in the hides, and then sammed in the open. The hides become very thin and depleted, due to the highly hygroscopic nature of hypo and therefore they are dry drummed to open up before splitting. The hides are then split to 4.25 mm. Though the final picking band is about 6 mm. thick the splitting thickness should be far less because of the thickness of the depleted state of hides.

The hides are then shaved to about 3.8 mm. and taken for further processing. Too dry portions are again wet back by sprinkling water and piling.

Oil Tanning : There are two different ways the hides may be processed from this stage.

The first one is by tanning with oil alone. In this case, the hides are put in the hot air stuffing drum and 10 to 12% of good quality Sardine or Cod Oil of good smell and colour, free from foots is given. The temperature of the drum is controlled at 100°F. The oil should have an iodine value of at least 150. Cod oil has better tanning properties than sardine oil. If a properly centrifuged, bleached sardine oil is used it gives about the same results. The hides are drummed for 4 to 6 hours till penetration of the oil is thorough. They are then hung up in a hot room at a temperature of 130°F for 20 days when all the oil is oxidised and the cut edge shows a dark brown colour throughout. After complete drying the hides are washed in plain water with an addition of 1% Synthetic detergent like Teepol and taken for vegetable tanning.

The second method is by stuffing with equal proportion of Tallow and Fish Oil. This method is more preferable because of the following advantages :—

1. More quantity of fats can be incorporated and retained by leather.
2. The resulting leather is full and compact and give a very high angle of weave.
3. The leather is much softer due to the presence of tallow of non-drying nature which combines with the fibres due to the tanning properties of fish oil.
4. There is a very good improvement in the colour of the leather due to the light colour of tallow.
5. There is increase in the yield of upto 30%.
6. All the above properties makes this picking band the most durable product on the loom.

Method : The sammed hides are entered into the hot air stuffing drum and drummed for 10 to 15 minutes to open up. The temperature of the drum is raised to about 120°F and about 10 to 12% of the molten mixture of equal quantities of tallow and fish oil is poured through the hollow axle. The goods are drummed for 4 to 6 hours till the complete absorption of the dubbin. The temperature of the drum is maintained at 120°F throughout.

The more the iodine value of fish oil the better and more will be the fixation of dubbin on the fibres, resulting in better life for the picking band. It must be remembered that the oil is incorporated in the leather along with an equal quantity of tallow which has little iodine value and no tanning properties. It is only by virtue of fish oil that the tallow is fixed on the fibres.

An addition of about 2% of metallic dryers like manganese linoleate,, speeds up the drying. Best results are obtained with dryers based on Chromium or Cobalt by which the drying period is reduced by nearly 40%.

The goods after the 1st Stuffing are dried in a hot room at 130°F. The temperature of the drum is maintained evenly throughout the room. Care should be taken to circulate the air perfectly. Some air from the hot room is gradually replaced with fresh air from outside which will ensure the availability of oxygen in the room. This is very important because some of the oxygen from the room is being used up for the oxidation of oil. The room should be perfectly sealed and heat insulated to prevent leakage of heat. In the long run this will pay because much of the heat that is wasted due to leakage will be saved.

The goods after drying in the hot room for 7 days are again given a second instalment of dubbin with the same quantity and method as the first stuffing. The goods are then allowed to dry in the hot room for 20 to 30 days. Complete oxidation of the fish oil takes place within one month if the temperature of the room is perfectly maintained. The cut edge should show a dark brown colour and a dry feel and look on the fibres. Unoxidised portion will be cream in colour.

Drying of the leather in this condition is a very important factor and any traces of unoxidised oil will retard the subsequent tanning process and the resulting leather. The fats will come out of the hide and the leather will become greasy. The unoxidised parts will show a character more like a vegetable tanned leather and will be more plumped than other parts.

Vegetable Tanning : After complete oxidation of the hides they are given two plain washes with water, and are taken for tanning. 10% quebracho Extract (Sulphited) and 2% Gambier or myrab Extract are dissolved and made to 40°Bk strength. The hides are drummed in this liquor for two days. The drum is stopped for 10 minutes at the end of every hour to avoid overheating. The penetration is complete within two days.

It is possible to do the vegetable tanning in suspenders and handlers. In this case, the hides are directly suspended in 20°Bk liquor and is completed in 40°Bk liquor. This method saves much of the mechanical action in the drumming. The goods generally are tanned through within 10 to 15 days. This method is, however, possible only to sole leather tanners, because the waste liquors from tail suspenders still contain much useful tannins which cannot be used up for any other purpose.

After complete penetration of the hides they are piled in plain water overnight. During this period the lose tannins on the surface get into solution with water and little or no scouring is necessary.

Next day the hides are hung up to samm. If the hides are dried in this condition they will give a very dry leather. They are therefore given a third Stuffing with about 5% of the mixture of fish oil and tallow in equal proportion in the stuffing drum. The hides are drummed for 3 to 4 hours at 140°F when all the grease is taken up by the hides.

The hides are hung up in hot room at 140°F for 4 to 5 days, then set well with hand setting machines on tables and piled to age for 15 days to 1 month. Ageing increases the life of the picking bands considerably.

The hides after ageing are shaved to correct thickness, set by hand, and the picking bands are cut as per the size, stretched, trimmed and coiled for packing.

A NOTE ON COLLECTION OF RAW HIDES

G. R. Valunjkar,

Khadi & Village Industries Commission, Bombay

Dearth of raw hides, the principal raw material for the Tanning Industry has been keenly felt during recent years. Due to its vast cattle population India is one of the largest producers of raw hides. Till recently we were exporters of this material, but the present position is that the Tanning Industry of the country is required to approach the Government for the necessary licences for the import of this material. Even in the Pre-Independence days the hide collection from the fallen stock came to about 85% of the total hide collection as calculated by the Hide Cess Committee set up by the Government of India in 1929. After the Independence the sentiment against cow-slaughter is growing high and several States and even some local bodies have banned the slaughter of cows in their respective areas. This has still reduced the production of slaughtered hides and the Tanning Industry of this country will henceforth have to depend upon the fallen hides as its main source of supply. The Government of India is therefore engaged in finding out ways and means how to increase the collection of the raw hides from the fallen stock. The paper aims at giving certain suggestions in the direction.

In modern Indian life this craft has acquired a social stigma. It is considered as low and degrading to be practised only by low caste people. The intelligentsia who consider themselves more advanced, think it below dignity to study and follow this ancient craft. That was not the case in the ancient Indian social life. At that time every herdsman used to skin his dead animal and make use of the remains of the carcass. MANU enjoins this duty on the herdsman who milks the herds of his master and takes them for grazing to the pasture lands.

INDIAN ECONOMY 'WEAK', CREDIT GROWTH BOTTOMING OUT: REPORT

American brokerage BofA Securities on Friday said the Indian economy continues to be "weak", pointing to activity indicators tracked by it. On the positive side, the brokerage said credit demand is bottoming out and the real lending rates adjusted for wholesale price inflation are falling.

It can be noted that there has been a slew of reports lately about a stronger recovery being underway after the jolt caused by the pandemic.The government expects the GDP to contract 7.7 per cent in financial year 2021 because of the reverses.

"The bad news is that the continued drop in our BofA India Activity Indicator reinforces our view that the economy still remains weak," the brokerage said in a note. The indicator fell by (-) 0.6 per cent in November on top of the (-) 0.8 per cent in October, and 4.6 per cent drop in the September quarter, it said, adding, "this supports our call of GVA (gross value added) contractions of (-)1 per cent in the December quarter and (-) 6.7 per cent in FY21."

On the credit growth front, it said the rise in banking system advances seems to have bottomed out and the system will close with a growth of 6.2 per cent in the financial year 2021.The credit growth for financial year 2022 will come at 12 per cent, it said.

It can be noted that credit growth had been declining for the last few years, in sync with a dip in the overall economic growth which has been on the downward spiral since demonetisation in late 2016 as borrowers went slow on expansion. The real lending rates adjusted for WPI will be one of the prime reasons for the faster credit growth estimate in financial year 2022, the brokerage said.

Nominal MCLR (marginal cost of funding-based lending rate) is down 1.45 per cent since March 2019 and the real MCLR (adjusted for WPI) is down 1.50 per cent on RBI easing and the core WPI inflation inching up further to 3.1 per cent from 2.3 per cent in November 2020.

The RBI has cut interest rates in two moves after the emergence of the pandemic but has kept rates on hold for the last three consecutive policy reviews because of high consumer price inflation.

(Source : PTI – 15/01/2021)

BANK LIABLE FOR FRAUDULENT CARD TRANSACTIONS

Consumer activist Jehangir B Gai explains a RBI circular that says the customer is not liable for unauthorised transactions that occur due to contributory fraud, negligence, or deficiency on the bank's part. Jeena Jose had taken a prepaid forex plus debit card from HDFC Bank on August 11, 2007, which had a limit of $10,000.Sometime in the afternoon of December 19, 2008, Jose's father received a call from one K Pradeepa claiming to be from the credit cards division of HDFC Bank at Chennai. She sought confirmation regarding a $310 transaction attempted on the forex card.

After ascertaining with Jeena, her father informed the official that no such transaction had been carried out. Further transactions to the tune of $6,000 were carried out. Jeena Jose lodged a complaint with the Burbank police station in Los Angeles on December 24, 2008.Subsequently, on March 4, 2009, the bank sent her charge-slips for 27 of the 29 transactions. The bank's covering letter stated that 'transaction monitoring is done in batch mode; hence transactions were

alerted only on day one'. Jeena Jose alleged that the bank was aware of the fraudulent transactions, but had failed to take action. The bank ignored her representations.

So, she filed a complaint before the banking ombudsman, and during its pendency also approached the District Consumer Forum seeking reversal of the transactions amounting to Rs 418,000 together with 12 per cent interest. The bank argued that the complaint filed by Jeena Jose's father on the strength of a power of attorney executed in his favour would not be tenable. It alleged that Jeena Jose had not opted for SMS alerts, so the transactions were not intimated at the time they were carried out. The bank blamed Jeena Jose for not keeping her card safely.

Overruling all the objections, the forum held the bank liable to pay the equivalent of $6,110 converted into Indian rupees, along with 12 per cent interest from December 16, 2009 onwards. Additionally, Rs 40,000 was awarded for mental tension and Rs 5,000 towards litigation costs.

A 45-day period was given for compliance. Delay in payment would render the bank liable to pay interest enhanced by another 3 per cent, which would be 15 per cent. The bank challenged the order before the Chandigarh state commission, but its appeal was dismissed. It then filed a revision petition. The National Commission observed that a complaint can be filed by a power of attorney holder. It also noted that the forex card was in Jose's possession and was still in her custody, yet the disputed transactions had taken place. It trashed the bank's allegation that the card could have been stolen and used.

The National Commission agreed with Jeena Jose that it could be due to forgery, hacking, technical glitch or security lapse, which would allow the transaction to occur at some remote destination while the card was still in Jose's possession. The National Commission noted that circular DBR No Leg BC.78/ 09.07.005/2017-18 dated July 6, 2017, issued by the Reserve Bank of India to commercial banks said: 'A customer's entitlement to zero liability shall arise where the unauthorised transaction occurs due to contributory fraud, negligence, or deficiency on the part of the bank.'
By its order of December 21, 2020, delivered by C Viswanath, the National Commission upheld the order holding the bank liable to make good the loss.

(Source : The Business Standard – 08/01/2021)

'ECONOMY IS NOT GROWING, IT'S ONLY RECOVERING'

In 2016, we had De-Mon and in 2017, we had GST. The combined impact of these two started showing up in 2019 and 2020.'' COVID-19 only added insult to injury.'

In November 2020, the Reserve Bank of India admitted that the Indian economy was in a technical recession. The advanced estimate put out by the National Statistical Office pegs GDP growth at -7.7% for FY21.In October last year, the IMF predicted that the Indian economy would bounce back with a growth of 8.8% in 2021. According to Oxford Economics, though India's growth equilibrium would worsen substantially over the medium term, it would have a potential growth of 4.5% over 2020-2025 as opposed to their earlier prediction of 6.5%.According to the India Ratings agency, India's GDP is expected to contract 7.8% to Rs 134.33 lakh crore in 2020-2021, but may grow at 9.6% in 2021-2022.

The India Ratings report also says that the economy, though projected to grow at 9.6% in the next financial year in year-on-year growth term, may grow just 1% in real terms to Rs 147.17 lakh crore as against the Rs 145.66 lakh crore in 2019-2020.

What does it mean in real terms for the Indian economy?

The director and principal economist at the India Ratings agency, Dr Sunil Kumar Sinha, outlines the economic outlook for India 2021-2022 in an interview with Rediff.com. From a contraction of 23.9% in the first quarter of the current financial year, Indian economy recovered by -7.5% in the second quarter.

Is relaxing the lockdown the only reason behind this recovery? Yes, lifting of the lockdown is certainly one of the reasons,

because the kind of contraction we saw in the first quarter was largely due to the lockdown. Since the lockdown was relaxed from June onwards, it helped the economy to recover in the second quarter.

However, we must also understand that typically the second quarter of every year is also the time when a lot of restocking takes place mainly because for the festive season in mind. So, the contraction dropping from 23.9% to 7.5% is actually a mix of both. But what we have to watch out for is the number we are going to get for the 3rd and the 4th quarters. I feel the recovery we saw in the 2nd quarter will continue in the 3rd and 4th quarter also. You may see contraction in the 3rd quarter also but there may be a kind of levelling or marginal positive growth in the 4th quarter.

But for the entire fiscal year 2020-2021, GDP growth will remain in negative territory. Our assessment is a 7.8% negative growth for the entire fiscal year.

Is the negative growth largely due to the pandemic ?

Yes. But if you look at fiscal year 2020, it was also not a very good year.

In 2019 itself, the Indian economy was slowing down and everybody was complaining about lack of demand...

Absolutely. If you look at GDP growth in the last few years, you will see that there were quite a few shocks. It all started with demonetisation, followed by GST. Both had negative impact on the unorganised and informal sector. Also, on small and medium enterprises. The demand disruption and also production disruption that took place in the unorganised and SME sector had to obviously show up in the overall demand.

In fact, the impact or the lack of demand started showing with a lag. In 2016, we had De-Mon and in 2017, we had GST. But the combined impact of these two started showing up in 2019 and 2020.It became obvious that the kind of income growth most people were expecting was not going to happen. Urban consumers, who were hoping for a rise in income, realised that it was not likely to happen.

So, they started to put a stop to leverage consumption which became more pronounced in fiscal year 2020.Naturally this adversely impacted the urban consumption demand which in turn got reflected in slower GDP growth. My view is that this slowdown in urban consumption would have come at least a few years earlier, but for the 7th Pay Commission revision which provided the necessary support to the urban consumption demand.

By the time we entered fiscal year 2019 and 2020, the stimulus provided by the 7th Pay Commission had played out and the adverse impact of De-Mon and GST was visible on the economy putting a break to 7-8% GDP growth. As the sentiment of urban consumers worsened, particularly in the private sector, suddenly their consumption behaviour also changed as compared to what they have been following for the last couple of years. This got more pronounced in fiscal year 2020.

We saw a steady decline in GDP growth from 2016 onwards, from 8.26% to 4.2% in 2019...

In the first two years of the NDA (National Democratic Alliance government headed by Prime Minister Narendra Damodardas Modi), we saw growth in GDP. In fiscal year 2015 and 2016, GDP growth, in fact, improved. It was firstly because the commodities prices crashed in 2014 including that of oil; it touched a record low level. This had a positive effect on growth across the globe including India.

Added to that is, some of the policy paralysis which we saw during UPA 2, changed with NDA 1 coming to rule. So, things were improving in fiscal year 2015 and 2016.Then came the De-Mon shock in fiscal year 2017.Even before the economy could recover from the De-Mon shock, came the rollout of GST. Since then, things started deteriorating steadily. From then on, urban consumers started either holding back their expenditure or cutting down.

This started showing in fiscal year 2019, and became more pronounced in fiscal year 2020.COVID-19 only added insult to injury.

Would you say, the wounds in the economy are self-inflicted?

Probably. If you look at years before 2016-2017, you will see that the GDP of the Indian economy typically behaved in tandem with the global economic growth. However, in subsequent years, till the pandemic hit us, India's economic growth appeared as if it had decoupled from global growth. Theoretically, there was nothing wrong in the rollout of GST. The problem was with the implementation.

But the same cannot be said about De-Mon; whether it helped the economy in any way. None of the objectives which were stated for De-Mon, happened. One of them was digitisation. But the amount of cash that is back in the system clearly shows that the objectives were not achieved.

Pranab Mukherjee in his memoir wrote that the objectives of demonetisation were not met at all...

True. That was because it was not done with a very thought-out strategy. De-Mon was done in haste, only with a hope. There was no background work done to check on whether it will benefit or not. It was done with just a hope that it would benefit.

Do you feel it is not possible to digitise India's unorganised sector and the MSME sector as it is largely cash based?

More than that, anything that is done without fair amount of ground work to find out whether it is workable or not, is bound to fail.

You have to do a pilot study first. In the case of De-Mon, you only had a hope that it would do A, B, C. In hindsight, it is pretty clear that De-Mon had only a negative result on the Indian economy.

(Source : Rediff.com –12/01/2021)

INDIA'S MEDIUM-TERM GROWTH TO SLOW TO 6.5% AFTER INITIAL REBOUND, SAYS FITCH RATINGS

The Indian economy will suffer lasting damage from the corona virus crisis, with growth slowing down after an initially strong rebound next fiscal, Fitch Ratings said on Thursday, forecasting the GDP at well below its pre-pandemic levels even after the crisis has passed.

In a report titled 'India Set for Slow Medium-Term Recovery', Fitch said after an initial strong rebound in the fiscal year beginning April 2021, growth will slow to around 6.5 per cent a year over FY23-FY26 (April 2022 to March 2026).India's corona virus - induced recession has been among the most severe in the world, amid a stringent lockdown and limited direct fiscal support, it said.

The Indian economy had been losing momentum even ahead of the shock delivered by the COVID-19 crisis. The rate of GDP growth sank to a more than the ten-year low of 4.2 per cent in 2019, down from 6.1 percent in the previous year. The pandemic brought a human and economic catastrophe for India, with over 1.5 lakh deaths. Though the deaths per million are significantly lower than in Europe and the US, the economic impact had been much more severe.

The GDP in April-June was 23.9 percent below its 2019 level, indicating that nearly a quarter of the country's economic activity was wiped out by the drying up of global demand and the collapse of domestic demand that accompanied the series of strict national lockdowns.

Further, a 7.5 percent decline in GDP in the following quarter pushed Asia's third-largest economy into an unprecedented recession.

The economy is now in a recovery phase that will be further supported by the rollout of vaccines in the next months."We

expect the gross domestic product (GDP) to expand by 11 per cent in FY22 (April 2021 to March 2022) after falling by 9.4 per cent in FY21 (April 2020 to March 2021)," Fitch said. It saw growth at 6.3 per cent in FY23 and 6.6 per cent in the following three fiscals.

"The expected rollout of various vaccines in 2021 prompted us to raise our GDP growth projections for the fiscal years ending March 2022 and 2023 (FY22 and FY23) to 6.3 per cent (from 6 per cent previously)," it said.

The growth will be supported by "expectation of the rollout of an effective vaccine, but we expect the level of GDP to remain well below its pre-pandemic path even after the health crisis has passed," the rating agency said. The rollout of effective vaccines brings forward the time by which the economy will normalise, Fitch said. "We see the Indian GDP rebounding sharply in 2022. However, the amount of spare capacity in the economy is likely to remain elevated, even by 2025, as demand will be held back by lacklustre credit supply."

India has pre-ordered 1.6 billion doses of vaccines, including 500 million doses of the Oxford/AstraZeneca vaccine."This is quite a high number even accounting for the size of the population for an emerging market," Fitch said. "India also produces large amounts of vaccine doses of its own."Distribution should allow a faster-than-previously-expected easing of social-distancing restrictions and boost sentiment.

"However, it seems likely that the vaccine rollout over the next 12 months will not reach the majority of the population given the huge logistical and distribution challenges," it said, adding regional shutdowns are possible in the next few months. A significantly slower rollout of the vaccine than expected will be a downside risk."A combination of supply-side scarring and demand-side constraints - such as the weak state of the financial sector - will keep the level of GDP well below its pre-pandemic path," it said.

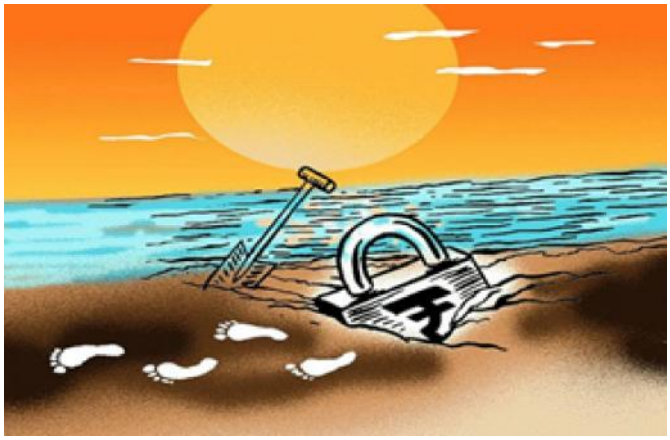
Fitch said the medium-term recovery will be slow. "Supply-side potential growth will be reduced by a slowdown in the rate of capital accumulation - investment has recently fallen sharply and is likely to see only a subdued recovery."This, it said, will weigh on labour productivity, lowering its projection of supply-side potential GDP growth for the six-year period FY21 to FY26 to 5.1 per cent per annum compared to our pre-pandemic projection of 7 per cent.

"Our historical analysis of India's growth performance highlights the key role played by a high investment rate in driving growth in labour productivity and GDP per capita over the last 15 years. But, investment has fallen sharply over the last year and the need to repair corporate balance sheets and firm closures will weigh on the pace of recovery," it said. Constrained credit supply amid a fragile financial system is another headwind for investment.

The banking sector entered the crisis with generally weak asset quality and limited capital buffers. Appetite for lending will be subdued, particularly as credit-guarantee and forbearance measures rolled out in the crisis start to be unwound."The economy should be able to grow somewhat faster than estimated supply-side potential over the medium term following the unprecedented downturn in FY21. But our projection for the medium-term recovery path - at around 6.5 percent per annum over FY23 to FY26 - would leave GDP well below its pre-pandemic trend," it said.

(Source : The First Post – 14/01/2021)

BUDGET 2021: EXPERTS WAITING FOR A DEBT MANAGEMENT ROAD MAP



There are various estimates of India's debt to GDP ratio, but the consensus is that that it would be over 80 per cent at the end of the current fiscal year. India may not face cuts in sovereign ratings just because its debt to gross domestic product (GDP) ratio is likely to move closer to 90 per cent in the current fiscal year and the liabilities may remain high even during next fiscal year because of the demand for fiscal expansion.

However, there has to be a credible debt management road map once the economy returns to its normal level, experts have cautioned. The upcoming Budget may give some signals on that path, they projected.

The Union government's debt touched 56.2 per cent of GDP as of September 30 this fiscal year against 46.5 per cent at the end of 2019-20 (actuals, which are different from what is presented in the chart).

For the purpose of calculating debt as a proportion of GDP, the size of the economy in the second half of 2019-20 is taken into consideration and hence debt could be quite high at the end of the current fiscal year because of a further rise in liabilities and the shrinking of the economy.

The economy is officially projected to shrink 4.2 per cent at current prices in the current fiscal year. The states' outstanding liabilities were 25.8 per cent as of March 2020 (actuals, which are different from chart).

WHERE INDIA STANDS

	RATING	OUTLOOK
S&P	Lowest investment grade	Stable
Moody's Investors Service	Lowest investment grade	Negative
Fitch Ratings	Lowest investment grade	Negative

If one conservatively assumes that the trend is maintained as of September-end this fiscal year, the outstanding liabilities of the Centre and the states may have crossed 80 per cent. It should be noted that India's debt is not a straight addition of that of the Centre and the states because there are certain overlapping items.

There are various estimates of India's debt to GDP ratio, but the consensus is that that it would be over 80 per cent at the end of the current fiscal year. It could even reach closer to 90 per cent. For instance, Thomas Rookmaaker, director, sovereign ratings, Fitch Ratings, estimated it at 89 per cent of GDP, while SBI group chief economic advisor Soumya Kanti Ghosh projected it to be 87.6 per cent.

One of the potential triggers for a downgrade of sovereign ratings would be a failure to reduce the fiscal deficit after the pandemic recedes, and to put the general government debt to GDP ratio on a downward trajectory over the medium term, Rookmaaker said.

"The Budget might include signals about the authorities' medium-term fiscal plans. In addition to fiscal consolidation, the level of medium-term growth will be an important ingredient of the debt trajectory," he said.

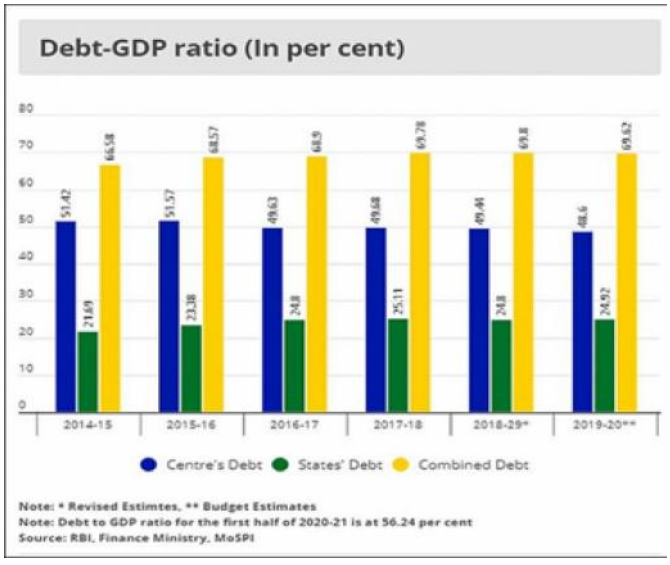
M Govinda Rao, chief economic advisor at Brickwork Ratings, said an important factor was the steps the government intended to take to achieve debt sustainability once normalcy was restored.

"It is important for the government to amend the FRBM (Fiscal Responsibility and Budget Management) Act, laying out a credible road map from 2022-23 for fiscal consolidation in the forthcoming Budget towards achieving sustainable debt."

The 15th Finance Commission recommendation on this count could provide guidance in working out the road map, he said.
The Medium Term Fiscal Policy-cum-Fiscal Policy Strategy Statement, tabled along with the Budget papers in February 2020, estimated the Centre's debt at 50.1 per cent of GDP in 2020-21.

All the three global rating agencies — Standard & Poor's, Fitch Ratings, and Moody's — have assigned India the lowest investment grade. Rao said, "The outstanding debt of 90 per cent of GDP may not impact credit ratings."

To buttress his point of view, Rao said a significant increase in the outstanding liabilities of the governments was owing to disruption in economic activities caused by Covid.



"It is a global phenomenon and India is not an exception," he said. Rao, who is former director of the National Institute of Public Finance and Policy and former member of the Prime Minister's Economic Advisory Council, said this situation of rising debt was not due to policy or governance-related issues. The government had to support economic activities through public spending in the wake of the sharp contraction in revenues. "Rating agencies will take this into account."

Vishrut Rana, Asia-Pacific economist for S&P Global Ratings, said India's support from fiscal policy was still significantly lower than that of emerging market peers. He cited IMF data that showed that India's fiscal stimulus measures were about 1.8 per cent of GDP compared with 3.8 per cent for global emerging markets. Rana said the high-frequency data showed that consumer spending was recovering gradually, while external demand was robust. "We expect recovery to 10 per cent GDP growth for FY22," he said.

Moody's Investors Service refused to comment on the issue.

(Business Standard – 22/01/2021)

BUDGET 2021: DIVIDEND ANOMALY FOR FPIS MAY BE CORRECTED

Last year's Budget had created uncertainty about the quantum of tax to be withheld on dividends paid to non-residents, as the exact tax rate was not specified under section 195. Foreign portfolio investors (FPIs) have reached out to the government to re-examine laws that deal with withholding tax on dividends in light of uncertainty over the quantum to be levied on such investors, and market obse□rvers believe the government might correct this in the upcoming Union Budget.

Last year's Union Budget had created uncertainty regarding the quantum of tax to be withheld on dividends paid to non-residents. This was because the exact tax rate was not specified under section 195, which covers tax deducted at source (TDS) or withholding tax for non-residents. The Finance Act, 2020, had clarified that a withholding tax rate of 20 per cent plus surcharge and cess be applied on dividends paid to non-residents under section 195. Also, lower rates could be applied for residents coming from jurisdictions with which India entered into a double tax avoidance agreement (DTAA). But while FPIs are classified as non-residents, the withholding tax rates for these are provided under a separate section, 196D of the Income Tax Act. This section specifies a rate of 20 per cent (plus surcharge and cess) on dividends paid.

Howe□ver, it does not provide for a lo□w□er withholding rate even if the FPIs' tax liability is lower on ac□c□ount of an existing tax treaty. At present, companies withhold tax at the rate of 20 per cent plus surcharge and cess on the dividend paid to FPIs, even if they invest from a jurisdiction that provides for a lower rate based on India's DTAA with that country. The lower rate could be five per cent, 10 per cent or 15 per cent.

"The current laws do not allow a company to deduct tax at the rate at which it is finally taxable for FPIs. "Treaties have different rates, which could be lower than the 20 per cent required to be levied under section 196D of the IT Act," said Sunil Gidwani, partner, Nangia Andersen. According to Nehal Sampat, executive director, financial services, PwC India, one way to address the anomaly could be to amend section 196D to provide for withholding of taxes on dividends to FPIs at the applicable "rates in force" instead of 20 per cent.

Alternatively, FPIs could be permitted to approach the revenue authorities for a lower withholding certificate under section 197 of the IT Act. "This would result in the correct amount of taxes being deducted, thus, easing the investment process for FPIs," said Sampat. The FPIs will need to claim credit for excess taxes withheld by the Indian companies in their respective home countries in accordance with the laws of their respective home countries.

According to Gidw□a□ni, the excess tax collected will have to be adjusted against the FPIs' aggregate an□n□ual tax on all sources of inco□me, in□cluding capital gains and interest income. Alternatively, it will have to be claimed as refund. FPIs are one of the biggest drivers of Indian equities and pumped in a record $16.8 billion in November and Dece□mber, taking the benchmark indices to new highs.

-: JILTA :-

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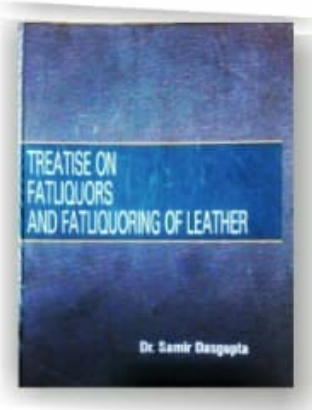

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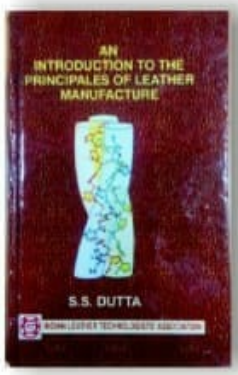

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History and Activities of Indian Leather Technologists' Association

The Indian Leather Technologists' Association (ILTA) was founded by Late Prof. B. M. Das, the originator of Das-Gharay theory and father of Indian Leather Science on 14th August' 1950.

The primary objectives of the oldest Leather Technologists' Association which celebrated its Diamond Jubilee year in the 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 set 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 Planning Commission, 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.
- As the part of many socio activities ILTA has donated Rs. 1 lac to Consul General of Nepal towards relief of earthquake excited of Nepal on 10th Sept, 2015.

INTERNATIONAL & NATIONAL SEMINAR:

- ILTA is the Member Society of International Union of Leather Technologists & Chemists Societies (IULTCS), a 115 years old organization and for the 1st time the IULTCS Congress was organized in January 1999 outside the developed countries in India jointly by ILTA and CLRI.
  2017 IULTCS Congress is scheduled to be held in India again.
- 8th Asian International Conference on Leather Science & Technology (AICLST) was organized by ILTA in 2010 during its' Diamond Jubilee Celebration year.

SEMINAR & SYMPOSIUM

ILTA organizes Seminar & Symposiums on regular basis to share information, knowledge & latest development and interactions for the benefit of all concerned. Few are as under :

- Prof. B. M. Das Memorial Lecture every year during the Foundation Day Celebrations on 14th August every year.
- Sanjoy Sen Memorial Lecture on 14th January every year, the birthday of our late President for several decades.
- Prof. Moni Banerjee Memorial Lecture on 15th March every year, the birthday of this iconic personality.
- Seminar on the occasion of India International Leather Fair (IILF) at Chennai in February every year.

It has also organized :

- Prof. Y. Nayudamma Memorial Lecture.
- Series of Lectures during "Programme on Implementing Emerging & Sustainable Technologies (PrIEST)".
- Seminars in occasion of India International Leather Fair, 2014 and 2015 at Chennai etc. 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.

PUBLICATION

ILTA have published the following books :

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

ILTA has a good Library & Archive enriched with a few important Books, Periodicals, Journals etc.

AWARDS OF EXCELLENCE

- ILTA awards Prof. B. M. Das Memorial, Sanjoy Sen Memorial, J. M. Dey Memorial and Moni Banerjee Memorial Medals to the top rankers at the University / Technical Institute graduate and post graduate levels to encourage the brilliants to evolve with the industry.
- 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).

LEXPOs

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 & Durgapur, ILTA has organized LEXPO at Bhubaneswar, Gangtok, Guwahati, Jamshedpur and Ranchi.

MEMBERS

The Association's present (as on 31.03.2018) strength of members is more than 600 from all over India and abroad. Primarily the members are leather technologists passed out from Govt. College of Engineering & Leather Technology, Anna University, Chennai, Harcourt Butler Technological Institute, Kanpur, B. R. Ambedkar National Institute of Technology, Jalandhar and Scientists from Central Leather Research Institute.

ESTABLISHMENTS

In order to strengthen its activities, ILTA have constructed its own six storied building at 44, Shanti Pally, Kasba, Kolkata – 700 107 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]

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