

TECHNOLOGICAL BREAKTHROUGHS
--- A SPIRALLING PROCESS

Ladies & Gentlemen !

Let me begin with a self introduction and share with you a short account of mine.

I was an average student right through, but, my childhood was full of curiosity to read the Ten volumes of Encyclopedia, compiled by Arthur Mee, published in England. In many ways, he had been my Teacher, during my formative years.

They were also periods of Music, Painting and sketching which I still hold in passion. They have provided me useful support to my technological career. In decoding these fine arts, I have learnt a lot of science .

During my graduation period and later years, I was greatly inspired and guided by Professor.P.S.Venkatachalam, A Scientist from Central Leather Research Institute for whom, I have the highest regard . I dedicate this small write up to his memory.

I started working on reptile skins and products after joining my family run business. Crocodiles were getting scarce, while snake skins were available in plenty. In a short time, I learnt the art of controlling the unbound moisture content of the skins and their properties, in relation to heat.

I developed a new process of shrinking snake skins, in a controlled manner and I must place on record my gratitude to Mr.Karl Heinz Fuchs for his support, an authority on reptile skin processing who worked with Hoechst AG, Frankfurt. Mr.Fuchs has been grossly responsible for my entry into the US market.

Very soon, a ban was imposed on trading of reptile skins. All my efforts were in vein, but, the American partner encouraged me to go into making of wallets out of buffalo calf, limited to tender skins, qualitatively and quantitatively. This opened up my door for consumer markets and in turn, the need arose to develop methods of volume production of high quality wallets.

Europe attracted me for my product and market study. In the year 1975, UNCTAD/GATT in Switzerland , selected me and gave me a special training for marketing leather products. This education changed my out look forever.

.....contd.

My visits to European and American factories did not confine to merely business; they were opportunities also for learning manufacturing methods of high quality leather goods.

I was greatly impressed by the Germans, for their precision and attention to details. I could observe the styling of products, rather slowly, from the French interactions. Much later, I could work with, and learn from Italians.

Japan offered a new world of Technology for me. I could see one of the finest craftsmanship with them. It was a treat to watch the high level skill getting combined, with technology. Later, when I analysed their development, I could understand the Philosophy behind that development, a study which I enjoy even today immensely.

The meticulous customers of Japan did not know that two products can only be similar. They were demanding the same product in Hundreds of wallet that a factory produced!

(My exaggerated statement made above may be taken for its spirit)

These experiences showed me clearly that each one of these nations had its own signature. That perception encouraged me to develop my own concepts from the common base of Technology. I started working with greater confidence as time went by.

In due course, these experiences gave me insights of other branches of life. I started to focus on form, color, Texture and technology, simultaneously. It was a very hard period initially. Today, it is no longer an issue. I find many young persons are with me in this exercise and I feel optimistic.

I must admit that I have had my own share of failures too. One has to take such matters in its stride.

FRIENDS !

My earlier account brought in certain derivatives which I might term as philosophical thoughts in to which we shall now dwell a little.

Technology has great links with socioeconomic/ geographical and historical factors.

If one studies development of Technology, in different parts of our world, one can see how much of developments have taken place technologically, due to geographical, political and economic factors.

The development of Aviation Technology owes itself to the vastness of area of United States and the need to connect cities, from East to West, North to South with at least four time zones, decades ago. Today it uses atleast nine time zones. The political and economic factors were very favourable for such a development.

On a comparison, USSR had no less than ten time zones and still, commercial Aviation for Citizens was not allowed to be developed though missile & Rocket Technology was developed by soviet scientists.

The major contributing reason was one of political , as travel was restricted.

Scandinavian Furniture design & Technology has been developed, mainly ,due to geographical advantage the Swedes have. Even today, Sweden leads in furniture manufacturing Technology, besides enjoying leadership in making renowned high quality steel.

A phenomenal illustration can be the agricultural failure of Denmark, during the early part of last century, leading to its growth in developing Poultry technology. Even today, grading of Eggs by the Danish, remains unsurpassed and they are the most famed for providing breakfast to other European nations.

Drip irrigation system developed by Israel, is yet another technological marvel showing the world, how we can modify our time-honoured methods of production, in a revolutionary manner.

Small changes in approach, can cause great differences. It is like adding that small percentage of salt to the food, changing its taste dramatically.

We need to take advantage of the "disadvantage" that we have and that forms the key for development.

We stand limited only by our efforts and imagination.

Technology not only gets what cannot be done without, it reduces cost of manufacture substantially as it advances. We can see it in many fields often as, what was unreachable once, becoming "easy to reach".

However, it has become increasingly clear that the development of Technology has to assume responsibility to protect both the short and long term interests of our planet. We have necessarily to develop Technology without hurting our existing environment and the future, that we leave behind. Here comes its superiority as we have seen that many, regrettably even elected, Governments becoming unmindful of other nation's interest with a short sighted view that they are insulated from the wrong spills of manufacturing country.

We have to look at the broad picture and fit our micro actions into it properly with accountability in order to draw the final balance sheet of comfort for every moment.

India is going through a critical transition period and these factors will influence our journey to a very great extent.

Let us now look at some of the major needs of this development at this point of time:

ABSOLUTE & RELATIVE VALUE

Human ability to measure absolute values is NEAR impossibility. The reason, I state that Word NEAR in special letters is, to make a safety measure as I have no clue to what the future will unfold.

Relative values do start with a point of reference. The rest of the values get measured in either linear or non-linear scale, in terms of the first point of reference.

When the multiple points get into the system, there starts a complexity. Each one of these value points, reflect not only, their relation to the first point, but also, exhibit a secondary inter-relationship with one another.

Let us list the major value index of leather. They happen to be substance, area, proportion of flesh- corium- grain and its structure, its ionic state in its layers. They all come under interactive play with chemical and physical treatments that we give. This also extends to the product making Technology.

By altering even only one of these value Indexes while freezing the rest of the values and processing techniques, we start developing varieties.

For example, in manufacturing a dry milled leather, a mere increase in substance will yield a bolder grain, keeping the rest of the values constant.

Variety forms this way.

Let us consider another example where we shaved down the flesh more and increased the proportion of grain layer in the whole substrate as a percentage share. If the rest of the factors are frozen, then available area of leather increases in relation to the weight and the proportion of chemicals such as dye/ fat liquor increase in relation to the pelt weight/ area. A softer and more saturated coloured crust results and its stretch increases as more elastin is available in the system than before on a relative value.

Increase the float in the Drum . Do nothing else.

Mechanical action of Drum comes down. Chemical reactions continue to their newer Equilibrium of concentration. Penetrative effects come down to give a modified leather.

Let us take multiple factors as an additional case to study from Leather Industry: An ironing press or a rotary iron, used by leather Industry, has three variables for the finisher to deal with:

Heat, Pressure, and time.

Let us go further.

Input , that is Leather, has factors such as tannage, substance , resilience and moisture content.

Now imagine the variables playing in interaction of permutation and combination.

What is the probability for consistency of operational results ? It needs no explanation.

Wide band spectrum is guaranteed !

If the differential results fall outside the spectrum of sensitivity of the consumer , none of these variations would matter.

But are there not narrow band requirements ? How does one fulfill them ?

Keeping one variable alone changing, while freezing the rest at a time, the effects can be studied . These trials can be extended to one/two/three/four variables and so on, to develop a master record . At the end of such trials , correlations and interpretations will become possible to develop the system of operation, for consistency of results.

Standard deviation values and such Scale-up Technological tools will be of great use for obtaining optimum and consistent results.

Let us take even straight scientific findings for practical application for colour matching of leather as illustrations to reveal the tip of the Ice berg..

Sun Light varies in composition when it reaches Earth even within a single day. Even an amateur Photographer will know that evening lights contain more yellow and turn towards orange. Warmer colours get into the light composition during later part.

Cloudy day Lights are very different to Sunny days. Even inside a room, a brick structure close to the matching area can throw a different light on the leather while matching.

Green Trees around, can alter the colour of ambience to a great extent.

Technology used must be comprehensive. It has "DOS" and "DONTs" as well. Every small detail is important for a good final result. Marketing gets easier and easier once Reliability sets in .

We shall take a case study in product making, where relative values help.

When one takes two leather panels and stitch them on the reverse side and turn from inside out, sac construction develops. If one of the panels has lesser pliability, the softer one will turnover upon the harder panel giving a turnaway effect keeping the harder panel as the face of the product.

If on the contrary, they are equal, then, tug-of-war results. They become neutral in their turn between themselves.

We now see the wide application of the relative value theory.

My dear Friends !

I must unhesitatingly share with you all, an observation of mine which stood out in my endeavour to market products in North America and Europe..

In European markets, I saw a demand for leather goods , saddled with many varieties and forms with differing preferences for meticulously crafted products whereas in North

American market, I saw a vibrant, voluminous demand for products which are straight forward, hassle-free in design expressions, with less of excellence and more of consistency.

In dealing with these fundamental differences while marketing and manufacturing, I found often, my thoughts on relative values, to be valid.

Consequently, shift of goal became necessary to change over from "Perfection" to "Excellence". That is a big step of dissolving illusions of Absolute value which does not exist and move over to Relative value.

I have had the fortune of picking the segment of the market that I enjoyed to serve, rather than coming under compulsion to make products which are only bought for their low prices.

TROUBLE RESOLUTION

There were plenty of moments when I have had marketing and technological impasse. Though not all, I crossed over many of them, by writing down my problem with very basic questions and breaking them down for answers which I list below:

WHAT? LEADING TO OBSERVATION & PERCEPTION

WHEN? LEADING TO TIME REFERENCE

WHY? LEADING TO CAUSE & EFFECT

WHERE? LEADING TO SPACE

HOW? LEADING TO TECHNOLOGY & ACTION

I found one of the most important part of Technology to be language and word interpretations.. To become sensitive enough to differentiate between two subtle subjects, Language and its development with nuance is very important. The above small chart already serves as an example.

A Technical Manual is a very useful document and helps in production, consistency, and reference.

LADIES & GENTLEMEN !

I graduated at the Central Leather Research Institute and during the span of last forty years professionally, I never felt restricted in my development as the knowledge that I acquired at the Institute stood in good stead.

If there were issues, they were always due to my limitations.

As such, I owe a deep sense of gratitude to my Professors who taught me at this Institute.

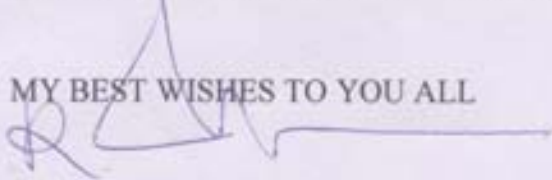
India is a great country. It will emerge as a world class economic power in the coming decades. We have tremendous potential to grow and we are already advancing very encouragingly.

We all have a duty to do our might to raise the level of Technology of our Industry with wisdom and foresight. In our quest for higher plane of Technology and Management, prosperity of the Industry can be taken for granted as "Given".

I thank ALFA for honouring me with the ALFA Award 2009. It has also been a great pleasure for me to be with you all this morning and share my thoughts through this Oration 2009.

THANK YOU, LADIES & GENTLEMEN FOR YOUR ATTENTION

MY BEST WISHES TO YOU ALL



R.MURALIDHARAN
5th DECEMBER 2010
CHENNAI