



SANDS OF TIME

VOLUME IX, ISSUE 1, 2010

TATA CENTRAL ARCHIVES NEWSLETTER

CHARLES PAGE PERIN - THE EMINENT CONSULTING ENGINEER



Charles Page Perin, metallurgist and consulting engineer, was born at West Point, N.Y., on August 23, 1861. He was the son of Glover Perin, an army officer and later Assistant Surgeon General, and Elizabeth Spooner (Page) Perin. On his mother's side he was related to the Page and Lee families of Virginia. His grandfather, Lemuel Perin, had been an engineer and a bridge builder.

After graduating from Harvard in 1883, Perin continued his studies for an additional year and then, having received a legacy, studied for a year at the École des Mines in Paris.

He began his professional career as a metallurgist and later superintendent of a small mine in West Stockbridge, Mass., serving subsequently as superintendent or general manager for several mining, steel, and railroad

operations in the U.S. and Canada. In 1900, he opened a consulting office in N.Y. City. One of his first assignments took him to Siberia in the winter to search for coal supply for the Trans-Siberian Railroad.

The most important project of Perin's career began in 1902, with a visit from Jamsetji Nusserwanji Tata, who was planning to establish the first modern steel plant in India. Jamsetji had approached the American steel firm of Julian Kennedy, Sahlin and Co. Ltd., to construct the plant who engaged, along with a younger Harvard geologist, C. M. Weld to find a suitable location. Jamsetji called at Perin's office to discuss the possibility of manufacturing pig iron and steel in India. Perin said: "I was poring over some accounts in the office, when the door opened and a stranger in strange garb entered. He walked in, leaned over my desk, and looked at me for fully a minute in silence. Finally he said in a deep voice, 'Are you Charles Page Perin?' I said yes."

Jamsetji, stared at me again silently for a long time. Then slowly he said, "I believe I have found the man I have been looking for. Julian Kennedy of Pittsburgh has written to you that I am going to build a steel plant in India. I want you to come to India with me, to find suitable iron ore and coking coal and the necessary fluxes. I want you to take charge as my

consulting engineer. Mr. Kennedy will build the steel plant wherever you advise, and I will foot the bill. Will you come to India with me?" "That was a pretty quick decision to make. I was dumbfounded, naturally," Perin said, and then smiled. "But you don't know what character and force radiated from Tata's face. And kindness, too. Well, I said yes, I'd go."

He engaged Mr. C. M. Weld in 1902, and sent him to India for prospecting Iron ore. By this time Perin had arrived in India, and with Weld he tramped the Orissa hills during the hottest season of the year, finding at last a good quality of iron ore in apparently unlimited quantity, and much nearer the coal fields and a constant supply of water. After a lengthy survey Perin and Weld picked out a very advantageous site about 155 miles west of Calcutta, and there a plant was constructed by Kennedy and the Swedish engineer, Axel Sahlin. The set-up was nearly ideal: iron ore, coal, suitable fluxes (limestone, which is combined with silica and added to the ore), lay not far away, the confluence of rivers seventy miles from the coal and fifty miles from the ore, on the Bengal Nagpur Railway - all the needed raw materials plus a water supply. Furthermore, the important port of Calcutta was only a hundred and fifty miles away. The Tatas were now free to organise a company to run the steel

Inside this issue:

CHARLES PAGE PERIN - THE EMINENT CONSULTING ENGINEER	1
BURJORJI PADSHAH - THE MAN WHO WORKED CLOSELY WITH PERIN	3
LE PALAIS ROSE	4
T'SAI LUN, THE FATHER OF TRUE PAPER	4

"IT MAY BE MENTIONED THAT THE ENGINEERS WHO CAME OUT FOR PROSPECTING FROM AMERICA REMARKED THAT THEY HAD PROSPECTED IN AMERICA, IN EUROPE AND EVEN IN SOUTH AMERICA, BUT IN NONE OF THOSE COUNTRIES WERE THE SURVEY MAPS AS ACCURATE AND AS FULL OF DETAILS AS THE SURVEY MAPS OF THE GOVT. OF INDIA."

MISS BEHROZE CURSETJEE THE TATA STAFF COLLEGE, TURF CLUB, POONA 1956.



A view of the Tata Iron and Steel Works, Sakchi - image circa 1911.

plant.

By 1911, the first pig iron was produced, and a modern city was growing around the site of the Tata Plant.

"MR. C. P. PERIN AND C. M. WELD WERE TO WRITE THEIR REPORT IN BOMBAY AND PUT TOGETHER THE INFORMATION THEY HAD COLLECTED.

THE PRINTED COPY OF THE REPORT, WHICH WAS ALWAYS KNOWN AS THE "PERIN AND WELD" REPORT CAME OUT IN MAY 1904."

MISS BEHROZE CURSETJEE THE TATA STAFF COLLEGE, TURF CLUB, POONA 1956.

During World War I, the need for more steel, East of the Suez, led to a great expansion of the Tata Iron and Steel Company and for this expansion Perin was called in as engineer. Between 1916 and 1920, he and his partner, Stewart M. Marshall, provided plans for a new, electrically driven blooming mill, a rail and structural mill, a sheetbar mill, and many other additions. They introduced into the Tata plant the "duplex process" of producing steel, a combination of Bessemer converter and open-hearth processes. These additions increased the plants capacity to 30,000 tonnes of steel a month. Steel products from Jamshedpur and the growth of the Tata company had a farreaching effect upon India's industrialisation.

Throughout World War I, Perin made numerous trips to Jamshedpur to supervise the plant's expansion which was accomplished in the face of wartime shortages of materials and transportation difficulties.

The man who worked most

closely with Perin, was Burjorji Padshah. He used to drive Perin wild because he had his own way of going about things. In the middle of a serious technical discussion Padshah would go off into a description of the future India, with its giant fleet of merchant ships, manned by Indian sailors. Or he would open his desk drawer, take out a book of poetry and read from it. Perin would despair of ever accomplishing anything. The dynamic Perin, was happiest when he was working under high pressure.

Both Perin and Padshah were enthusiasts, and when enthusiasts get together nothing is impossible. A small point is discussed early in the morning, it is discarded for something entirely different over the luncheon table, built up during the afternoon, dreamed about that night, and made a reality the next day.

During this period the firm of Perin and Marshall also designed the electric furnace for the steel plant at Toronto, Canada.

In 1919, Perin served briefly as chief engineer of the appraisal commission attached to the Peace Commission. Other projects of the war and post war years included blast furnaces in Mysore, India and China and a study of iron and steel in South Africa. He later patented it and in 1925, his firm built a plant at Niagara Falls, N.Y. where he attempted to produce pure iron directly by this process. The product, however, was brittle, being high in hydrogen, and he lost a substantial sum in the venture. He also lost money in an attempt to beneficiate the iron and recover the nickel

and chromium from a lowgrade ore deposit at Moa Bay, Cuba. In 1931, after the withdrawal of Stewart M. Marshall Perin and Frank L. Estep continued the consulting firm as the Perin Engineering Company. Perin served as President of the American Institute of Consulting Engineers from 1932-34. He was awarded a Honorary doctorate in Engineering by Rensselaer Polytechnic Institute in 1933.

Morally courageous as well as notable for his technical accomplishments, Dr. Perin retained his physical fitness late in life. On June 22, 1933 he organised a crew of Harvard oarsmen who had rowed with him during his college days (all over 70 years of age). They celebrated their fiftieth reunion by rowing on the Charles River at Cambridge, Mass., giving a remarkable exhibition of precise rowing, stamina, and speed.

A cultured man, with an imposing personality, Perin occupied centre stage at any gathering. His tastes were expensive, and he had a tendency to plunge into projects with insufficient grounds.

As a result, though he was at one time comparatively wealthy, the depression which began in 1929 wiped out his fortune.

In 1935, he contracted dysentery at Baghdad, from which he never fully recovered. He died at his home in New York City, of pneumonia, after a short illness, and was buried at Rock Creek Cemetery, Washington, D.C.

A general view of the Coke Oven Plant of Tata Steel – image circa 1911.



BURJORJI PADSHAH - THE MAN WHO WORKED CLOSELY WITH PERIN

From the very inception of the idea of manufacturing steel in India, Burjorji Padshah had collaborated first with Jamsetji and then with his sons and it is largely to his vision, foresight that the Tata Iron and Steel Company owes its foundation and growth.

Both Charles Page Perin and Burjorji Padshah were enthusiasts, and when enthusiasts get together nothing is impossible. Padshah used to drive Perin wild because he had his own way of going about things.

Reproduced is letter dated December 26, 1904 written by Burjorji Padshah to R. D. Tata about Perin suggesting one or two possible programmes for the steel company.

S. S. Oriental,
Dec. 26, 1904.
Near Port Said

My dear RDT,

Sorry could not look you up before finally leaving. So I send you and yours greetings from the sea.

The Perins are with me. They look dead tired, and Weld has today a slight indigestion. So I have not yet opened my battery. They look very good people, and Perin appears rather an imposing personality.

Today we are to compose a wire for Bombay, urging not to let Holland go, nor the Orissa ore; and suggesting one or two possible programmes.

Perin is very sanguine that the venture is going to make another fortune for the Tatas if they go about it the right way. We have told him that he will have to go deeper with me into the matter of profits and we have talked pleasantly about Louis. He gave me the impression that his Report had purposely minimised profits lest we should have to show it to the Railway or Colliery Companies. I rather think he is speaking without book; but we shall see. If prices have to be taken 5% lower than the prices of imports, and as Mr. Perin's figures are based on import prices, this will knock

out of receipts and reduce our profits by about £40,000 while the whole promised profit is £120,000. Then when we come to the deductions for coal & limestone, our margin might be wiped out.

But on the other hand, the reduction of freight, might add to our profits anything like £100,000. So we shall wait and see. He told me today that we must make large profits, and build up a

Reserve Fund against the risk of accidents such as blast furnaces are only too liable to. I asked him if insurance against this risk was included in his estimate of cost of protection and Perin rather thought not. We must look into the figures more closely.

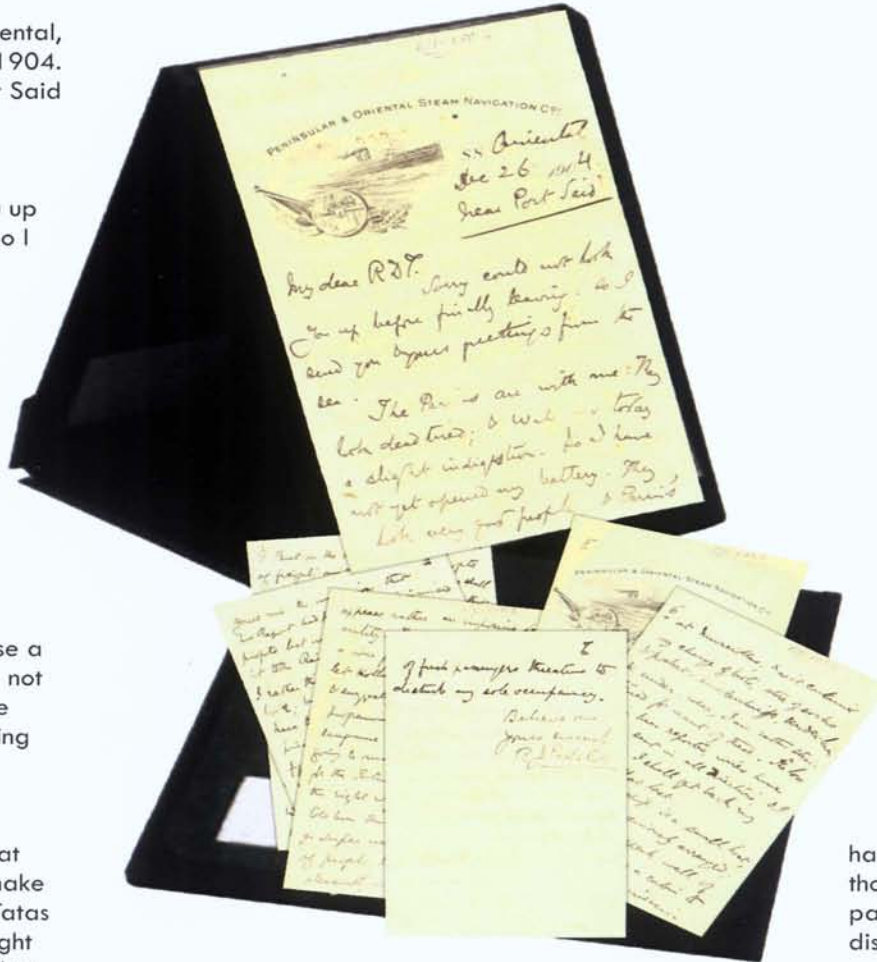
I had a long conversation, or two conversations with Louis last Monday and Tuesday. The substance of them I sent over to Weld who does not appear to have shown you

my letters. But as all of it will figure in the final Reports of Louis, it is useless to trouble you with the matter now.

Your French Rly. Companies have between them lost my hold-all. The P.L.M. was unable to deliver it to me at Marseilles, and as it contained my change of boots, store of socks and pocket-handkerchiefs, under-linen and underwear, I am rather straitened for want of these. The loss has been reported, wires have been sent in all directions, and I suppose I shall get back my hold-all at last.

The ship is a small boat, not very ingeniously arranged; but the Perins' speak well of the food. I have a cabin to myself, though an invasion of fresh passengers threatens to disturb my sole occupancy.

Believe me.
Yours sincerely,
BJ Padshah



LE PALAIS ROSE



Sir Ratan Tata - image circa 1900 - digitally enhanced 2009.

Just outside Paris lies the pleasure palace of Versailles. This majestic shrine to the glory of the French monarchy was once the carnival ground of an earlier epoch. Rivaling the Royal Palace itself in grandeur are numerous outbuildings and pavilions. One of the most notable is the Grand Tranion. In 1899, this single storeyed structure, with a façade of pink and white marble, served as a model when an affluent engineer, Arthur Schweitzer, commissioned a private home built in Le Vésinet, the exclusive Parisian suburb, about ten miles west of the city. It

reproduces the rectangular plan, with its advanced side-doors and arched windows separated by pilasters of



Le Palais Rose, Le Vésinet, France.

pink marble. The mansions surface of pink marble would later determine the estate's name, Le Palais Rose.

Ideally situated at the corner of the Allee des Fetes and the rue Diderot, it included extensive grounds, various outbuildings, and prestigious lake views.

Within only a few years, the financially ruined Schweitzer was forced to sell the property to the wealthy

Indian industrialist, Ratanji Jamsetji Tata for the reputed price of three pearls and one perfect emerald.

Two years later, Ratanji sold the property to the Count Robert de Montesquiou. The sale took place on October 29, 1908 and the Count moved immediately to Vésinet.

Source: <http://mapage.noos.fr/shv2/palaisrosehisto.htm>

T'SAI LUN, THE FATHER OF TRUE PAPER

WAYS TO GIVE

The Tata Central Archives is built on contributions from the Group companies. We are the proud guardians of thousands of documents, carefully preserved paintings and several such collections.

To discover how your Company can get involved with the Tata Central Archives, please contact:

Tata Central Archives
1 Mangaldas Road,
Pune 411 001

Ph: 91-20-6609 2020
E-mail: tca@tata.com

Even in this hi-tech age it is difficult to imagine a world without paper. When we think of paper at its earliest we usually think of Egypt, but it was the Chinese, in AD 105, who first made paper.

It was almost 5000 years ago when a marsh grass called "Cyperous Papyrus" was first harvested and carefully woven into a fine matt. Since they were lightweight and portable it became the writing medium of choice of Egyptians, Greeks, and Romans for record keeping, spiritual texts, and works of art. Paper is derived from the word Papyrus. The papyrus tablets found in the tomb excavations, while similar to paper in usage, are actually closer to cloth fabric than to what we consider paper.

Excavations of tombs of the former Han Dynasty (207



BC-9AD) have revealed silk cloth bearing the texts of Lao Tzu, the father of Taoism (born in 604 BC). In 105 AD, Han Emperor Ho-Ti's chief eunuch T'sai Lun experimented with a wide variety of materials and refined the process of macerating the fibre of plants until each filament was completely separate. The individual fibres were mixed with water in a large vat. Next, a screen was

submerged in the vat and lifted up through the water, catching the fibres on its surface. When dried, this thin layer of intertwined fibre became what today we call paper. T'sai Lun's thin, yet flexible and strong paper with its fine, smooth surface was known as T'sai Ko-Shi, meaning: "Distinguished T'sai's Paper" and he became revered as the patron saint of papermaking.

Due to the lack of widespread communication, it took a long time for T'sai Lun's ideas to spread. Papermaking remained a secret in China until around 700 A.D. when Arab nations, then at war with China, captured an entire town of papermakers. The captives were taken back to the middle-east and forced into papermaking.