OPTIMISING THE ALL-IMPORTANT WHEEL-RAIL SYSTEM
ASSURING NEARLY ZERO DERAILMENTS

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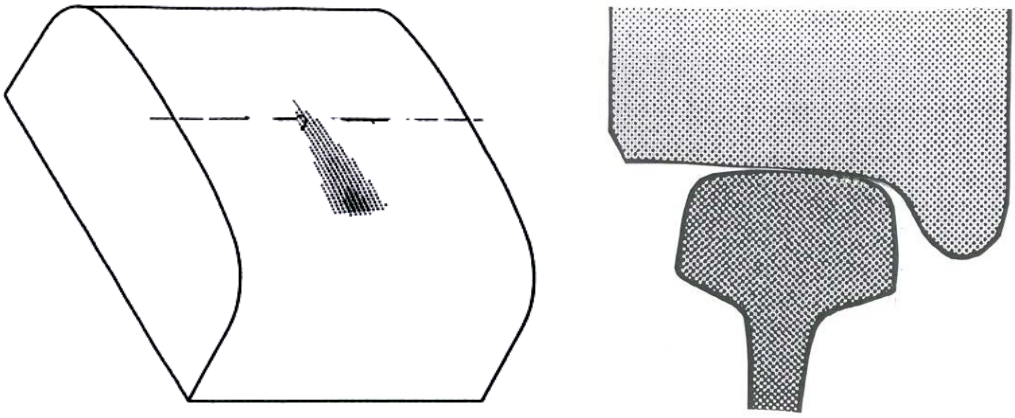
Wheel running on an outer Curve-Rail

Résumé: The all-important **WHEEL-RAIL SYSTEM** matters! A Railway with optimised **Wheel-Rail System** will face **NO DERAILMENT-DISASTER**, killing and injuring Train-Passengers. European Railways follow the conception of **OPTIMISING THE WHEEL-RAIL SYSTEM,** and they keep the Wheels of rolling stocks and Rails in sound and healthy condition. With well-maintained Wheels on **Modern Railway Tracks** the likelihood of Derailments will be nearly **ZERO**.

When a train derails, something is going terribly wrong at the **Wheel-Rail Interface.** The problem of a Train-Derailment can be characterized by the

pivotal events/interactions between rolling wheel and rail on the contact area of the size of less than 3 cm^2:



Wheel-on-Rail Contact Area between optimised Wheel-Treat and Rail-Head Profile on straight Run

Under the conception **"OPTIMISING THE WHEEL-RAIL SYSTEM"** the so-called ***"DACH"*** Railways, German (D), Austrian (A and Swiss (CH), are doing well in perusing this conception. European Railways have achieved to bring and keep their railway tracks in sound and healthy condition with nearly **ZERO** Train Derailments. British Network Rail also follows the **"DACH"** conception. In Great Britain, in the past 12 years not single train-passenger lost his live in a train-derailment.

With the support of the Technical University Graz, Austria, the manufacturer Plasser&Theurer is exporting the conception worldwide together with Heavy-Duty and High-Performance On-Track Machineries, nowadays a prerequisite for achieving modern rail-tracks of high quality with nearly **ZERO** Train-Derailments.

Leading European railway track engineering experts gather every two years in Austria on the ÖVG convention to discuss the current developments on the subject **"OPTIMISING THE WHEEL-RAIL SYSTEM",** which the author had the privilege to attend 2015 (together with Mr. J.S. Mundrey, Rail Consult India) and 2017. A summary of the papers discussed on the last September 2017 convention can be downloaded free from the website:

http://www.drwingler.com .

Indian Railways could benefit from this conception to get its problems under control, the problem with the spate of unwanted and nasty fatal Train-Derailment Disasters killing and injuring every year hundreds of train-passengers.

The Indian Government has developed an exact conception, plan and strategy how to cut the journey time between Mumbai and Ahmadabad to 2 hours and 10 minutes by the investment in a High-Speed Train Service:

Envisaged High-Speed Train for India, Type Shinkansen
Pict.: Railway Gazette

However, the question is, if the Indian Government is ready to develop as well conceptions, how to reduce the likelihood of train-passengers to get killed or injured in unwanted nasty and fatal Derailment-Disasters through optimising the all-important Wheel-Rail System on all of its routes and not only on some prestigious routes?

Fatal Indore Patna Express Derailment-Disaster near Kanpur, 20th November 2016

If the Indian Government is eager to shorten the journey time between Mumbai to Ahmadabad to 2 hours and 10 minutes through an investment in a High-Speed Train Service, thus one also wishes that the Indian Government will place the same value on it to reduce the risk of train-passengers to get killed or injured in nasty and unwanted **Train Derailment-Disasters**.

This can be achieved in a time bound programme of action bringing the all-important **WHEEL-RAIL SYSTEM** on all of Indian Railway`s routes through Modern Railway Technology and Engineering in a sound and healthy condition; in other words: By optimising the **Wheel-Rail System** on all of Indian Railway`s routes through Modern Railway Technology and Engineering. ***"Indian Railway Engineers have all the capabilities and competence to adopt those Technologies"*** (= J.S. Mundrey, Rail Consult India, October 2017).

For the **"ULTIMATE GOAL TO PREVENT UNWANTED NASTY DERAILMENT-DISASTERS"**, killing and injuring Train-Passengers, massive input in Capital Investment Schemes of long-term certainty und organisational as well logistic Measurements in Safety related Infrastructure Works are of paramount importance. With well-maintained Wheels on **Modern Railway Tracks** the likelihood of Derailments will be nearly **ZERO**.

Train-Passengers Freedom from bodily harm and injury should matter more than the introduction of High-Speed Train Services, although the introduction of India`s first High-Speed Train Service will be financed by foreign aid and long-term loans, whereas Safety related investments for the conventional vast rail-network have to be financed at spot by Governmental inland budgeting.

Massive Capital-Investment in Track Quality optimising the Wheel-Rail System is no Luxury. It not only cuts overall Life-Cycle Costs but also prevents that Train-Passengers are killed or injured in unwanted nasty Derailment-Disasters!

The costs of improving SAFETY all arise immediately, but the benefits emerge only in long-term. And "long-term" is really a long time and will cover the next 15 years.

Train-Passenger`s Freedom from bodily Harm and Injury matters!