urge to delve deeper into the subject. The simple monosyllabic question of 'how' was resonating in my mind constantly, prodding my conscious to exalt the perceptive boundaries of my knowledge and imagination.

Warped time, singularities, fifth dimension, relativity and gravitational anomalies, what do they mean? How real are they? It was the science behind, the reasoning and deduction showcased in the film that instantly acted upon my curiosity and inspired me to peek behind the curtain. If some movies present food for thought, *Interstellar* provided me with a buffet for the same. But it would not have been easier to ingest and comprehend all that information had it not been for Kip Thorne and his newly authored: *The Science of Interstellar*.

World renowned Feynman Professor of Theoretical Physics, who was also the scientific advisor and executive producer of *Interstellar*, Kip Thorne has not acted as science police and enforced upon his theories and equations, but as a patient narrator, as an understanding guide, takes us by the route of least discomfort on our way to reach the destination. Using the film as the foundation stone, Thorne enables the reader to un-weave the complex fabric of science and universe, thread by thread in his relentless drive to make science accessible to those of us who do not possess a massive intellect or an immense body of knowledge. Without using the complex scientific equations that only a physicist can decipher, he narrates the significance of the science in the film and answer the 'how' in the most articulate and informative manner.

Kip Thorne's *The Science of Interstellar*, helps answer many questions that the film raises, enriching the visuals. It helps to imagine the higher dimensions while trapped in a three-dimensional world, to unlearn much of what one has grown up learning and to contemplate the weight and significance of those written words that inspires one's intellect to go further afield into unexplored territories, tapering towards a personal Eureka moment!

The humble brilliance of Thorne's agile mind is showcased in how well he recognizes the disability of a reader with a comparably trivial knowledge of science. Admittedly, some portions of this book may be rough going, but that is the nature of real science and it will require thought, sometimes deep thought and other times hours of sleep as you lay wondering in the dead of the night about the enormity of space-time and feel humbled by the universe and its mystique. However, Thorne provides the freedom to the readers with a science-phobia to skip such parts without decaying essence of the book. Yet for the curious bookworms, he provides enough to help stretch those brain cells after a day's read.

But what really strikes is the reasoning, the hours of debating and the weeks of efforts it took for Thorne and his team to make every single thought or detail in the plot of the film have a solid scientific foundation. As the book also documents the entire behind the scene brainstorming sessions, it is remarkable to discover that director Christopher Nolan and Thorne never left any loose end that would pull down the credibility of the science in the film. Instead if the background science were not concrete enough in a scene, they would simply cut it off than resort to rote copying or guess work. From why only a sandstorm could threaten human life on Earth to the reason behind the visual appearance of a black hole, to the cause of the 4000 feet high tidal wave, every minute detail was iron clad in solid scientific facts and reasoning. As Thorne explains in the book, *Interstellar* and its visual effects are not only beautiful to look at but are the most apt visual representation of the equations a theoretical physicist has to grapple with on a daily basis.

This remarkable leap from 'fantasy science fiction' to a 'justified science fiction' is what sets *Interstellar* miles ahead of its nearest rival. It is as if one day human race evolves to undertake interstellar space travel, then the black holes, the wormholes, alien planets and the entire cosmos most likely, would appear to be an actual rendition of the film itself and its sound scientific explanation expanded in the book.

While the general readership is not wholly biased towards reading hard-core science literature (except for probably *The Brief History of Time* by Stephen Hawking), *The Science of Interstellar* takes on some of the most gruelling theories which are at or just beyond the frontier of human understanding in today's world. Yet, Thorne still manages to keep its content relevant and engaging to the general readership with the inclusion of references and screenshots from the film, plus the supportive visuals and engaging diagrams that were specially fabricated for the book by Double Negative team (who also provided the visual effects for *Interstellar*).

Thorne's book allows the readers to skirt the edge of the metaphorical black hole much like the Endurance did with the Gargantua, keeping the readers in a comfortably contemporary orbit without the hampering inconvenience of sucking them into the incoherent world of physical equations and theories. However, I would not want to be the one to scratch my way away when there was an infinite vista of knowledge between Thorne's written words, which were constantly tickling my curiosity. So not unlike Cooper, I knowingly plunged headlong into the black hole. And just like Cooper had TARS for help down there, I had Kip Thorne for guidance towards my emergence into enlightenment.

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Tectonic Inheritance in Continental Rifts and Passive Margins. Achyuta Ayan Misra and Soumyajit Mukherjee. Springer Cham Heidelberg New York Dordrecht London. 2015. pp. 88. ISBN 978-3-319-20576-2. E-book available. Price: € 49.99 (softcover).

The main purpose of this book is to provide a clear understanding on the control of pre-existing tectonic weaknesses on the evolution of rift zones and passive margins. The authors have explained the relationship between the pre-existing structural elements and rifting architecture, and in attempting to do so, they have succeeded in connecting with readers. This work is a good summary of the available information from previously published books and research papers, and credit goes to the authors for presenting the assimilated information in a single volume.

The contents of the book are divided into seven chapters. Chapter 1 deals with the general concepts of rift and passive margin formation in relation to tectonic inheritance. Though the authors have mentioned various parameters controlling

rift architecture and passive margins in the introductory chapter, detailed explanation is missing in the later chapters. Moreover, the authors also make the readers aware of the gaps in our knowledge on tectonic inheritance. Chapter 2 deals with the general trend of developmental aspects of rift axis and faults. The authors could have merged the first two chapters into one, as the contents of both seem to be introductory and similar. Chapter 3 discusses the brittle fracture behaviour of anisotropic rocks, based on the modified Mohr–Coulomb failure criterion and also fracture orientation. The development of fractures along varying orientations depends on the angular relationship between anisotropic plane and maximum principal stress axis direction.

Chapter 4 deals with the features responsible for tectonic inheritance. These pre-existing crustal anisotropic features are either 'pervasive' or 'discrete'. The control of such fabrics is discussed with examples drawn from different parts of the world like the East African rift, Cenozoic continental rifts of Europe, Tertiary Rift System of Thailand, South Atlantic passive margins, eastern coast of North America's passive margin, and eastern and western passive margins of India. Chapter 5 discusses the rheological heterogeneities and mechanical weaknesses in the lithosphere that control rift architecture. The geometry and genesis of rifts depend on the strength, thickness, composition, strain rate and thermal state of the lithosphere. The introduction of analogue modelling to understand crustal stretching due to pre-rift fabrics in chapter 6, gives the readers a better idea of the controlling parameters due to tectonic inheritance. It would have been better if the authors introduced some numerical models along with the analogue models for explaining the concerned topic. Chapter 7 presents a summary.

This book will be useful to all researchers and students of geology. It will challenge them to think further. The book is one of its kind and must be welcome in college/university libraries.

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The Face of the Earth: The Legacy of Eduard Suess. Thomas Hofmann, Günter Blöschl, Lois Lammerhuber, Werner E. Piller and A. M. Celâl Şengör. Edition Lammerhuber, Austria. 2014. 104 pages. Price: US$ 45 (Hardcover). ISBN-10: 3901753699. ISBN-13: 978-3901753695.

Many geologists, especially the younger generations, may not know of Eduard Suess (1831–1914). Yet, the work of this great Austrian geologist had a tremendous impact on geology. Consider the terms Gondwana (land), Laurentia, Tethys, shield, eustasy, batholith, foreland, listric fault, backthrust (backfold); these and many other geologic terms we commonly use today were coined by Suess. It is a delight to see that Suess' legacy is appreciated by this book on the 100th anniversary of his death. Readers may refer to Sorkhabi[1] for more information on Suess and his work.

The book begins with an autographed photograph of Suess, and quotes from two obituaries of him published in 1914. John Wesley Judd (*Nature*, 93) remarked: 'Suess held much the same position among German-speaking peoples as did Huxley among English and Americans.' Charles Schuchert (*Science*, 39) wrote: 'The greater part of Suess's long life was devoted to working out the evolution of the features of the earth's surface.'

There are five essays (almost the first half of the book) and 'quotes from the writings of Eduard Suess', which cover the rest of the volume. The five essays include: 'Eduard Suess and the origin of modern geology' (by Sengör from Istanbul Technical University); 'From palaeontology and stratigraphy to Earth system science' (by Piller from University of Graz); 'Suess and the dynamics of the plane earth' (by Sengör); 'Two water problems of a big city' (by Blöschl from Vienna University of Technology); and 'Milestones of a life beyond the geoscience' (by Hofmann, Geological Survey of Austria).

The image of Suess portrayed in these essays is indeed impressive. He was a dedicated geologist from Vienna, who should be celebrated as one of the founders of tectonic. He was a well-read, cultured, multilingual geologist whose brilliant ideas were later incorporated into the modern theory of plate tectonics (even though only a few geologists today are aware of it). For example, consider his ideas about the former supercontinents of Gondwanaland in the south and Laurentia and Angaraland in the north, and the vanished Tethys Ocean between these two realms, out of which the entire Alpine–Himalayan belt emerged as an asymmetrical orogenic system (with hinterlands and forelands) consisting of large-scale folds generated by compressional (tangential) stresses (not vertical or thermal uplifts). This was proposed by Suess (before the plate tectonics theory) and is still valid. The reader is also reminded that Suess started his career as a palaeontologist, but instead of being stuck with taxonomy, he moved on to embrace stratigraphy, and eventually integrated these two traditional disciplines in geology with tectonics and the global record of rocks. It was in this manner that he could propose, for instance, the idea of eustasy (global changes in sea level). Certain facts about his life may surprise the reader. He was also an applied geologist, whose 1862 book on the soil of Vienna marks the beginning of what we today call urban geology. Suess was not only a university professor at Vienna, but also a prominent member of the Austrian parliament representing the liberal left party. He played an important role in designing the First Vienna Spring Water Main that brought fresh, unpolluted water from the Alps to the growing population of Vienna in 1873, which still supplies 40 per cent of Vienna's urban water. Suess' son Franz Eduard (1867–1941) was also a geologist.

Quotes from the writings of Suess (in German and English) are well selected to convey some key information about his vision and work. Most of these quotes are from his masterpiece, *The Face of the Earth* (*Das Antlitz der Erde*), which illustrate, how he wrote science in a lyric style: 'What I offer you is little more than a number of questions, but questions are the buds on the tree of knowledge.'