

Books I Found Useful

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Editor note: Accomplished professors and well recognized researchers never truly retire. Professional and trade associations are encouraging those who have already contributed much to our trade to continue their in-depth writing as they approach emeritus status.

The editors of JEFF thought it might be fruitful to have standout individuals reflect on their research careers and identify books that shaped it. In our view, such information may be helpful to some members of the younger generation and may possibly expedite their growth as researchers and top rate professionals. What do you consider the best or more meaningful references in your library?

When approached, I was hesitant. Today's generation is far better educated than I was. But then, may be few not so lucky ones might benefit from this attempt. Perhaps the editors know something I do not.

Having said that, I believe, it is useful to put my list in the context of my journey. My journey started in the so called "tribal areas" of the pre-1947 undivided India, now a part of Pakistan. Jumping ahead, I am a product of 1950s college education in the then recently independent India. My focus on textile technology was largely determined by fate.

My real education began in 1958 at MIT in the Mechanical Engineering department, whose then textile division was very active in research on mechanical behavior of fiber based structures. For me to get prepared for a research career in this arena, I had to learn mathematics and engineering. The experience convinced me that to pursue the career I envisioned required a Ph.D. in Mechanics, which took me to RPI (Rensselaer). My four years in RPI got me exposed/interested in applied mechanics (elasticity, plasticity, viscoelasticity, fluid mechanics, dynamics, heat transfer, thermal stresses...) which required a great deal more of applied mathematics. My professional career made me learn lubrication theory, and bits and pieces of fiber polymer physics.

Looking back, I remember fondly the following books:

A. MATHEMATICS

[Calculus and Analytic Geometry](#) by George B. Thomas
[Advanced Calculus for Applications](#)
by Francis B. Hildebrand

[Methods of Applied Mathematics](#)
by Francis B. Hildebrand

[Mathematics of Physics and Modern Engineering](#)
by I.S. Sokolnikoff and R.M. Redheffer

[Introduction to Complex Analysis](#) by Zeev Nehari

[Principles and Techniques of Applied Mathematics](#)
by Bernard Friedman

[Tensor Calculus](#) by Barry Spain

[Applications of Tensor Analysis](#) by A. J. McConnell

B. SOLID MECHANICS

[An Introduction to the Mechanics of Solids: Second Edition with SI Units](#) by Stephen H. Crandall and Thomas Lardner

[Mechanics](#) by Edward A. Fox

[Mathematical Theory of Elasticity](#) by Ivan S. Sokolnikoff

[Some Basic Problems of the Mathematical Theory of Elasticity](#) by N.I. Muskhelishvili

[Three-dimensional Problems of the Theory of Elasticity](#)
by A. I. Lure

[Thermo-Elasticity](#) by W. Nowacki

[Foundations of Solid Mechanics \(International Series in Dynamics\)](#) by Y. C. Fung

[Theory of Elasticity of an Anisotropic Body](#)
by Sergei Georgievich Lekhnitskii

C. DYNAMICS AND VIBRATIONS

[A Treatise on the Analytical Dynamics of Particles and Rigid Bodies, Fourth Edition](#)

by E.T. Whittaker

[Principles of Mechanics](#) by John L. Synge and Byron A. Griffith

[Theory of Mechanical Vibration](#) by Kin N. Tong

[Mechanical Vibrations](#)

([Dover Books on Engineering](#)) by J. P. Den Hartog

D. FLUID FLOW

[Theoretical Hydrodynamics](#)

by L.M. Milne-Thompson

[Hydrodynamics](#) by Horace Lamb

[Theory of Hydrodynamic Lubrication](#)

by Oscar Pinkus and B. Sternlicht

[Elasto-Hydrodynamic Lubrication](#)

by Dowson and Higginson

[Shape and Flow: The Fluid Dynamics of Drag](#)([Science study series, S21](#))

by Ascher H. Shapiro

E. HEAT

[Conduction of Heat in Solids](#)

by H. S. Carslaw and J. C. Jaeger

[Theory of Thermal Stresses](#)

by Bruno A. Boley and Jerome H. Weiner

F. VISCOELASTICITY

[Theory of Linear Viscoelasticity](#) by D.R. Bland

[Theory of Thermal Stresses](#) by Bruno A. Boley and Jerome H. Weiner (It has a chapter on viscoelasticity)

G. FIBERS AND POLYMERS

[Introduction to Polymer Science](#) by L. R. G. Treloar

[The Physics of Rubber Elasticity](#) by L. R. G. Treloar

[An Introduction to the Mechanical Properties of Solid Polymers](#) by Ian Macmillan Ward

[Fibre Science: Second Edition](#) by J.M. Preston (ed)

[The Mechanical Properties of Textile Fibres](#)

by R. Meredith

H. FIBERS AND TEXTILES

[Handbook of Textile Fibres: Man-Made Fibres](#)

by James Gordon Cook

[Handbook of Textile Fibres: Natural Fibres](#) by James Gordon Cook

[Handbook of Fiber Chemistry](#)

by Menachem Lewin (ed.)

[Technology of Cordage Fibres and Rope](#)

by D. Himmelfarb

[Impact Phenomena in Textiles](#) by W. James Lyons

In the words of the famous song: "These are some of my favorite..." As a reader, I hope you are either nostalgic about your favorite books, or are aspired to develop a list of your own "go to" books that have been extremely helpful in your work.

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Editor: We cordially invite you to share your thoughts on these and other associated subject areas. For example, a compilation of milestone books related to polymers might be helpful. Please submit your comments, suggested additions and letters to the editor at <http://jeff.edmgr.com>. Please be sure to provide us with your name and contact information.