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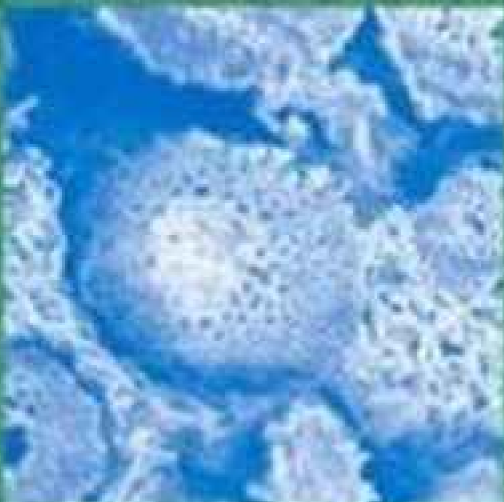

Bast and other plant fibres

Edited by Robert R Franck

The Textile Institute

Bast and other plant fibres

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About the editor

Robert R. Franck graduated from the now Faculty of Textiles of Heriot-Watt University, Edinburgh, Scotland in 1948 with various diplomas in textile manufacturing and design. After a short time as an Assistant Buyer with a London-based apparel manufacturer he joined the Fibres Division of Imperial Chemical Industries, Ltd (manufacturers of polyester and polyamide fibres) and was, successively in their marketing department, Sales Manager of their South American area in Buenos Aires, Marketing Section Leader in the UK, and Director of their French operations in Paris. He left ICI in 1976 and became the Commercial Director of the second-largest French worsted spinner after which he joined the Western European Flax and Hemp Association (CILC) as their Director for the UK and the Far East.

On retiring from the CILC in 1991 Robert Franck set up his own consultancy and has since been involved in projects in Eastern Europe, Asia, Australia and the UK. He joined the Textile Institute in 1958, is a Chartered Textile Technologist, a Fellow of the Textile Institute and of the Royal Society of Arts. He has also edited and part-authored a previous book in this Textile Institute-Woodhead Publishing series on textile fibres: *Silk, mohair, cashmere and other luxury fibres*.

About the contributors

Doctor K. P. Chellamani obtained his M.Tech (Textile Technology) Degree from Anna University and his Ph.D. from Bharathiar University, Coimbatore. He joined The South India Textile Research Association (SITRA) in 1981 soon after graduation and at present he is working as Deputy Director and Head of the Spinning Division, SITRA. Doctor Chellamani has to his credit over 200 research and review publications and he is also a co-author of ten books published by SITRA. He is a co-author of two of the Textile Progress Monographs on *Pineapple Leaf Fibres in Textile Scenario* and *Ginning – Art and Status*, published by The Textile Institute, Manchester in 1993. He is a Director of The South India Cotton Association (SICA), Coimbatore and a member of the Editorial Board of *Indian Journal of Fibre and Textile Research*, New Delhi.

Doctor Chellamani was awarded the F.T.A. by The Textile Association, India in the year 1991 and F.I.E. by the Institution of Engineers (India), Kolkata in 2003. He is a qualified Lead Assessor for ISO 9000 Quality Systems and has received thirteen awards in recognition of his work in the areas of pineapple leaf fibres, jute, quality control, manufacture of technical textiles, etc.

Sándor Cziger was born in 1941, in Dunafóldvár, Hungary. Sándor Cziger studied at the Textile College, the Technical University and the University of Economics, Budapest. He worked at the Hungarian Hemp Trust for many years and was also responsible for R & D at the Textile Research Institute. His last position before retiring was Chief Engineer at the Hird Spinning and Weaving company.

Ms Indra Doraiswamy obtained her B.Sc. Degree from Madras University and M.S. in Industrial Management in the USA. She joined The South India Textile Research Association (SITRA) in 1963 soon after graduation and her excellent work over the years has elevated her to the post of Director of SITRA. At present she is the Research Adviser of SITRA.

Ms Indra Doraiswamy has to her credit over 100 research publications and she is also a co-author of five books published by SITRA. She is the principal co-author of two Textile Progress Monographs on *Pineapple Leaf Fibres in Textile Scenario* and *Ginning – Art and Status*, published by The Textile Institute, Manchester in 1993. She is a past member of the Senate of Bharathiar University, Coimbatore, Tamil Nadu. She is member of various Committees/ Boards of Educational and Research Institutions, etc., constituted by private bodies, State and Central Governments and also of other social service organisations. She was awarded the Fellowship of the Textile Institute Institute, Manchester in 1987 and has received a number of National and International Awards in recognition of her outstanding work in various areas.

Doctor Jens Dreyer, born 1966, is a biologist who lives in Hamburg and works as a Post Doctor at the Technical University Hamburg-Harburg in the field of enzyme development and the enzymatic treatment of fibres. His doctorate research at the Institute of Applied Botany at the University of Hamburg examined the biology and agronomy of high fibre *Urtica dioica* L. cultivars, the study of which was first initiated by Prof Dr G. Bredemann in 1927. He started his work on nettles in 1992 and now has a small nettle-fibre company together with two partners.

Gillian Edom works as a field teacher for Chichester Harbour Conservancy, West Sussex. She has been researching the botany of the nettle (*Urtica dioica*) and its uses for over six years and is currently researching for a Master of Philosophy degree in nettle fibre extraction at De Montfort University, Leicester.

Michael Karus obtained his degree in Physics and Mathematics at the University of Cologne and majored in Nuclear Physics and Relativity. After graduating he worked as a teacher at the Universität Tübingen, in the tele-education programme, Ecology, as well as working as a part-time staff scientist at the KATALYSE-Umweltinstitut in Cologne. From 1989 until 1991 he worked as a member of the public relations staff at Flachglas Solartechnik, in Cologne where he focused on solar-thermal power plants. In 1991 he returned to the KATALYSE-Umweltinstitut, where he worked as a staff scientist and department manager, focusing on energy, ecology and electrosmog. He is a founding partner and director of the nova-Institut für politische und ökologische Innovation GmbH, in Hürth, and also manager of their renewable resources, market research and economy departments. Since 2000 he has been the co-ordinator of the European Industrial Hemp Association (EIHA), and since 2002 the Chief Editor of the news portal, www.renewable-resources.de.

Professor Ryszard Kozlowski graduated in Applied Chemistry at the University of Poznan in 1961. He did his Ph.D. in the area of the biochemistry of retting of flax and hemp. He went to work at the Institute of Natural Fibres, where he is now General Director. He was awarded the degree of Professor of Technical Science at Poznan University in 1990.

In addition to his work at INF, Professor Kozlowski is co-ordinator of the FAO/ESCORENA Research Network on Flax and other Bast Plants and a member of several international organisations, including the Society for Sustainable Agriculture and Resource Management (SSARM) and the American Association for the Advancement of Science (AAAS).

Professor Kozlowski has received a number of awards for his research in the field of natural fibre resources, such as the Officer Cross of the Order of Restoration of Poland in 2000. In 2004 he received recognition from the American Chemical Society, Division of Polymer Chemistry for five years involvement and input in advancement of polymer science. He has authored or co-authored numerous books and over 250 papers.

K.B. Krishnan graduated (B.E. Mechanical) in 1961 from Madras University. After serving two years as Design Engineer in M/s Textool company, he joined the Lakshmi Machine company in 1963 and served in different positions including General Manager (Engineering), Technical Director-Development (Textiles), and Vice-President. He is, at present, Management Advisor R & D. He specialised in Textile Machinery design at M/s Rieter Machine Works Ltd, Switzerland in 1963–1965 and has published seven papers in the textile field.

He is the Chairman of the Technical and R & D committee of the Textile Machinery Manufacturers Association and a member of the advisory committees of other research organisations such as SITRA, BTRA, ATIRA, and NITRA and is also a Member of Council of the Textile Institute, Manchester, UK. He is the Chairman of the Spinning Preparatory, Spinning Doubling Machinery Sectional Committee TX of the Bureau of Indian Standards.

P.M. Mathai is a graduate physicist and was awarded the Secured First Rank and Gold Medal of the Coir Technology Course conducted by the Coir Board of India. He was then appointed to the Coir Board as Quality Control Inspector and promoted to Controlling Officer of this department. After years of experience Mr Mathai was appointed Deputy Director and was, in particular, resposible for recommending prices for Coir products to the Indian Government (at that time the government operated a scheme of minimum export prices). He was also responsible for preparing and implementing various schemes concerning the industry and was a visiting faculty member and external examiner of the National Training and Design Centre of the Coir Board of India. He was then promoted to the Joint Directorship and posted as Regional Officer responsible for the activities of the board in twelve states of the Republic of India. A short time ago he took voluntary retirement from his Coir Board activities and is now the General Manager of a major Coir company that is 100% export orientated.

Jörg Müssig obtained his degree in Mechanical Engineering at the Gerhard-Mercator University in Duisburg in 1995 and his doctorate from Bremen University in 2001.

After graduating in 1995 he joined the Faserinstitut Bremen e.V. From 1996 until 1996 he was a member of the 'New materials' working group of the Academy for the study of the consequences of scientific and technical advances at Bad Neuenahr-Ahrweiler GmbH, Germany. From 1998 to 2001 he carried out research in the areas of composites and fibres at the Department of Material Science of Bremen University and in 2001 rejoined the Faserinstitut Bremen as leader of the Bio-based Materials/Sustainability department.

Since 2000 he has been a member of the 'Quality' working group of the German Association of Natural Fibres (DNV) and of the 'Natural fibre composites' working group of the 'Consortium of reinforced plastics – technical federation' (AVK-T). Since 2001 he has been a member of the European co-operative research network on flax and other bast plants (Italy) and since 2002 of the sustainable composites network (GTB).

Since 2004 he has been an appointed member of the Young Academy at the Berlin-Brandenburg Academy of Sciences and Humanities and the German Academy of Natural Scientists Leopoldina.

Jack Salmon-Minotte is General Secretary of the Confederation Européenne du Lin et du Chanvre and Director of 'Masters of Linen' (the promotional organisation of European Linen). He is also a Graduate of the Ecole Superieure des Techniques Industrielles et Textiles (Villeneuve d'Asq, France) also of the Université Dauphine, Paris, in Business Studies.

Jack joined the French Linen Industries Trade Association after working for two years in the apparel sector and six years in a subsidiary of the Empain-Schneider group. He is a member of the Flax and Hemp Group of the European Commission and a Member of the Board of 'Expofil' (the yarn trade exhibition).

Jenó Sponner was born in 1937, in Moson, Hungary, and studied at the University of Economics, Budapest. After graduating he joined the Hungarohemp Magyar Kenderipari Tröszt (Hungarian Hemp Trust). During his 42 years with this organisation, at first as an economic analyst, then as a factory director, he became Deputy General Manager of the Trust. He was then appointed General Manager of Elsó Magyar Kenderfonó in Szeged, the largest Hemp company in Hungary.

László Tóth was born in 1926, in Szeged, Hungary in 1926 and studied at the Textile College, Szeged and the Technical University, Budapest. He then joined the Hungarian Hemp Trust (cotton spinning and weaving), became Director of the weaving factory and subsequently R & D Director. He was then appointed General Manager of the Trust in Szeged, a position he held for 23 years.

Chongwen Yu was born in 1962, Ph.D, Professor and Head of Dept. Textile Engineering, College of Textiles, Donghua University, Shanghai, China. He has a Bachelor's degree in Textile Engineering, China Textile University (1980–1984), and a Master's degree in Textile Engineering (1987), China Textile University (1984-1987). He obtained a Ph.D. in Textile Engineering, China Textile University (1990–1994). He was Visiting Scholar, North Carolina State University, 1997–1998, and Associate Chairman of Bast and Leaf Fiber Processing Committee of China, Associate Chairman of New Spinning Committee and a Member of Standard of Textile Product Committee (Bast and Leaf Product Group) of China. He is a Member of the Fiber Society of the USA.

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Chapter 9 Pineapple, curauá, crauá, macambira, nettle, sunn hemp, Mauritius hemp and fique

Pineapple

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Pineapple, curauá, crauá (caroá), macambira, sunn hemp, Mauritius hemp and fique

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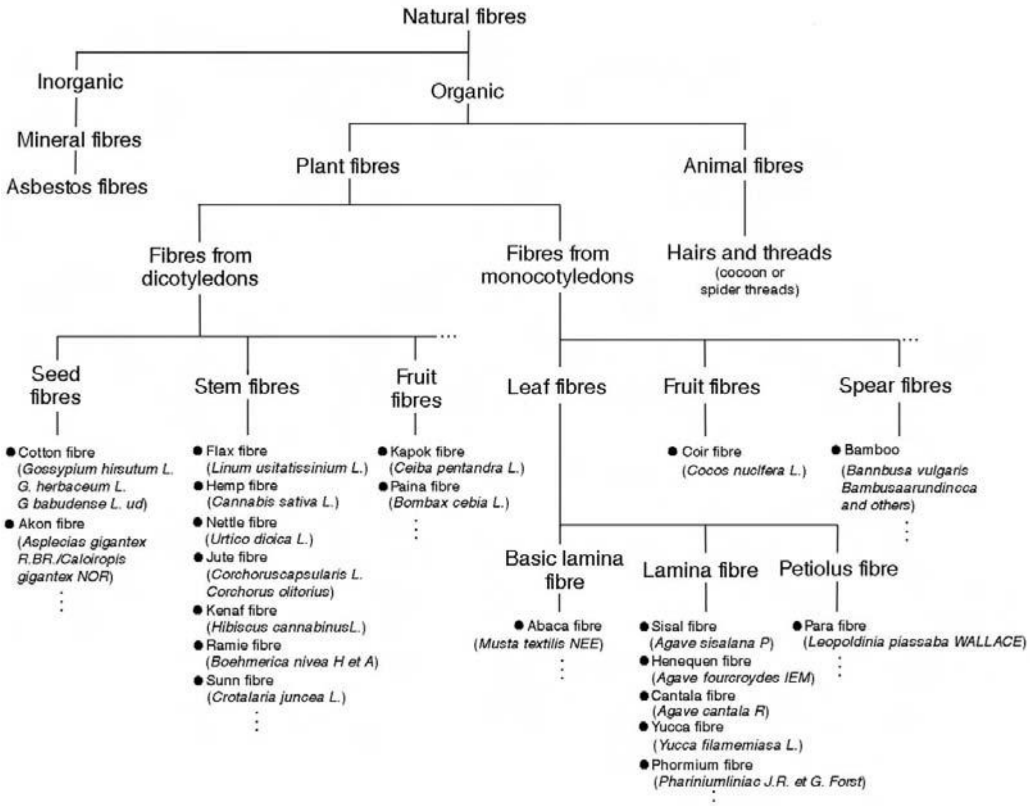
Editor



Overview of natural fibres (Müssig, 2001, reproduced with permission).