



Professor John William Stanley Hearle, MA (Physics), PhD, ScD, FTI, F.Inst. Physics.

Emeritus Professor John Hearle, former Professor of Textile Technology, Head of the Department of Textiles, and Dean of the Faculty of Technology at the University of Manchester Institute of Science and Technology (UMIST) died on 24 May 2016 at the age of 91.

Professor Hearle took his BA and MA degrees in Physics with First Class Honors at St. John's College Cambridge University in 1947 and 1950. He received his PhD in Physics in 1952 at the University of Manchester and ScD from Cambridge University in 1973. He worked as a Research Officer at the British Cotton Industry Research Association from 1946-1948. He joined UMIST in 1949 as a Lecturer, became a Reader in 1962, and became a Professor of Textile Technology in 1974 and served in that capacity until 1985. He was the Dean of Faculty at UMIST from 1980 - 1982. He retired from UMIST in 1985.

Professor Hearle was a post-doctoral fellow at Clemson University, South Carolina, US, in 1954 in the Department of Physics, where he did research on the electrical properties of fibers. He served as visiting associate professor in Mechanical Engineering at the Massachusetts Institute of Technology (MIT) from 1963-64. He was a Distinguished Visiting Professor in Mechanical Engineering at the University of Delaware from 1986 - 1988 and Visiting Professor of Materials Science from 1989-1990 at the same institution.

After his retirement from UMIST, John Hearle served as the Chairman of Tension Technology International from 1986 to 1995 and remained as Chairman emeritus and Senior Consultant, advising on the performance of fibers and ropes.

Professor Hearle was engaged in the structural mechanics of fibers, yarns, and fabrics throughout his professional career, which spans more than six decades. During his early tenure at UMIST he co-authored a seminal text on the *Physical Properties of Textile Fibers* with Professor W. E. Morton, published in 1962, which has gone through four editions (the most recent edition being published in 2008) and is considered a classic in the field of fibers.

His contributions to the field of structural mechanics of fibers and the development of the detailed analysis of the mechanics of twisted yarns, which were confirmed experimentally, established John Hearle as the international authority on this subject. His personal research and those of his many graduate students and post-doctoral fellows culminated into many research publications and advances in the field of the structural mechanics of textiles. As a result of this work, he co-authored a textbook on *The Mechanics of Fibers, Yarns, and Fabrics* Vol. 1, 1969 with S. Backer and Percy Grossberg, which had now become a reference book on this subject.

The Mechanics of Flexible Fiber Assemblies was the outcome of a NATO conference held in Greece in 1979 that was organized by John Hearle. He authored and co-authored a least a dozen books and contributed to other books on the science and technology of fibers and textiles.

John Hearle identified the advanced understanding of many aspects of both fibers and fabrics and pioneered widely applicable mathematical models for predicting the behavior of textile structures in use. He identified and classified twelve models of failure of fibers through electron microscopic studies. He developed new fatigue tests for fibers, which correlate with performance in ropes and industrial fabrics. He promoted an engineering approach to the study of textile studies and processes. He also published over 200 papers in textile and other scientific journals.

John Hearle's reputation as a teacher and researcher attracted students from all over the world. He consulted with industry and lectured in over thirty countries in Europe, Asia, Africa, Australia, New Zealand and North and South America.

John Hearle, because of his many contributions and the scope of his influence, was honored by international fiber and textile scientific organizations. The Textile Institute appointed him a Fellow and awarded him the Warner Memorial Medal for Research and the Institute Medal for his general contributions to its affairs. *The Fiber Society* awarded the Honorary Membership in recognition of his outstanding contributions to the field of research in fibers and textiles.

John Hearle's extraordinary energy, his brilliance in theoretical and applied areas, the scope of his influence, and the generosity with which he treated his students and colleagues have made a powerful and lasting impact upon all who studied and worked with him and the entire field of fibers and textile mechanics.

Bhuvanesh C. Goswami
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