A HISTORY OF FLOW VISUALIZATION: CHRONOLOGY

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ABSTRACT
Flow visualization experiments contributed greatly to the conceptual developments of fluid mechanics in the last 500 years. We present a brief survey on the history of flow visualization based mainly on the pioneering works of Leonardo, Mach, Reynolds, Prandtl, von Kármán, and Taylor. The observation and investigation of fluid flow by visualization methods was started in modern scientific form by Leonardo around 1500. Reynolds and Prandtl belong to the first group of his followers. Recent history also shows that the use of flow visualization can play a substantial role in improving the physical understanding of complicated transition and turbulent phenomena.

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In this respect, he used his flow visualization studies of aortic flow as a tool both for discovery and for validation, since both methods were exploited in a complimentary manner in science of the period. In keeping with an era in which procedures were not recorded in the modern manner, Leonardo himself did not indicate the sequence of events that resulted in his discoveries. The order in which he recorded observations in his notebooks, as far as their chronology can be reconstructed, should be considered as the best evidence to prove the chronology of his hypothesis formation and experimental procedures. Finally, we need to remember that with all of his experimental genius, he was obsessed by the mathematical structure of things. A history of flow visualization: Chronology. Article. Jan 1997. J Flow Visual Image Process. K. C. Cheng. Flow visualization experiments contributed greatly to the conceptual developments of fluid mechanics in the last 500 years. We present a brief survey on the history of flow visualization based mainly on the pioneering works of Leonardo, Mach, Reynolds, Prandtl, von Kármán, and Taylor. Recent history also shows that the use of flow visualization can play a substantial role in improving the physical understanding of complicated transition and turbulent phenomena. View. Show abstract. Handbook of Holographic Interferometry. Article. Jan 2005. Thomas Kreis. Read "Flow Visualization Techniques and Examples" by A J Smits with Rakuten Kobo. This is the 2nd edition of the book, Flow Visualization: Techniques and Examples, which was published by Imperial College. Obtaining high quality flow visualization results is, in many ways, more of an art than a science, and experience plays a key deciding role. The depth and breadth of the material will make this book invaluable to readers of all levels of experience in the field. Sample Chapter(s) Chapter 1: Interpretation of Flow Visualization (4,633 KB) Chapter 2: Hydrogen Bubble Visualization (15,745 KB). Contents: Interpretation of Flow Visualization. Hydrogen Bubble Visualization. Dye and Smoke Visualization. Molecular Tagging Velocimetry and Thermometry.