

CURRICULUM VITAE

Peter D. Richardson

1. Business Address:

Division of Engineering and Dept of Molecular Pharmacology, Physiology
and Biotechnology, Box D, Brown University, Providence RI 02912-9104

Phone: 401-863-2687

FAX: 401-863-9120 (shared)

2. Education - Degrees and Diplomas by examination:

1983	D.Sc. (Physiology)	University of London, UK
1974	D.Sc.(Eng.) (Mechanical Engineering)	University of London, UK
1958	Ph.D. (Mechanical Engineering)	University of London, UK
1958	D.I.C.	Imperial College London, UK
1955	B.Sc.(Eng.)(hons) (Mech. Engineering)	University of London, UK
1955	A.C.G.I. Associate of the City & Guilds of London Institute	

3. Academic Professional Appointments:

at Brown University:

1984-	Professor of Engineering and Physiology
1968-1984	Professor of Engineering
1965-1968	Associate Professor of Engineering
1960-1965	Assistant Professor of Engineering
1959-1960	Research Associate in Engineering
1958-1959	Visiting Lecturer in Engineering

and at Imperial College, University of London, UK:

1955-1958	Demonstrator in Mechanical Engineering
-----------	--

4. Academic Leaves at Other Institutions:

1991	Universite de Paris XIII, Laboratoire de Recherche sur les Macromolecules (visiting professor)
1983	University of Pisa, Italy and King's College, London, UK
1976, 1977	Abteilung Physiologie, Medizinische Fakultät, RWTH, Aachen, Germany (with Senior US Scientist Prize of Alexander von Humboldt Stiftung)
1969	Orta Dogu Teknik Universitesi, Ankara, Turkey
1968	Universite de Paris, Laboratoire d'Aerothermique, Meudon (professor d'echange)
1967-1968	University of London, Imperial College (Senior Visiting Fellow)

5. Honors and Awards:

Surrey County Major full undergraduate scholarship	1952-1955
Unwin Scholar (premier graduate award, Imperial College)	1958
Humboldt-Preis (Senior US Scientist Award), Alexander von Humboldt Stiftung, Germany	1976-1977
Fellow of the American Society of Mechanical Engineers (Life Fellow 2001)	1983
Fellow of the Royal Society of London (FRS)	1986
Laureate in Medicine, Ernst Jung Stiftung, Germany	1987
Founding Fellow, American Institute for Medical and Biological Engineering	1991
Fellow of the City and Guilds of London Institute	2003
Inaugural Fellow of the Biomedical Engineering Society	2005
President's Award for Excellence in Faculty Governance	2010
Honorary Fellow of Royal College of Physicians (HonFRCP)	2010

6. Publications:

Book: Richardson PD, Steiner M. Principles of Cell Adhesion. CRC Press, Boca Raton, Florida 1995 ISBN 0-8493-4559-6

Chapters in books entitled:

- Basic Aspects of Blood Trauma
- Blood Cells and Vessel Walls: Functional Interactions
- Blood Oxygenators and Prolonged Extracorporeal Bypass
- Cerebrum, Blutgerinnung und Haemostase
- Diagnostic Vascular Ultrasound
- Handbook of Engineering
- Life Support Systems in Intensive Care
- Mechanics of Biological Tissue
- Medical Applications of Piezoelectric Polymers
- New Horizons in Diabetes Mellitus and Cardiovascular Disease
- Pathobiology of the Human Atherosclerotic Plaque
- Physiological and Clinical Aspects of Oxygenator Design
- Tissue Mechanics
- Ultrafiltration Membranes and Applications
- Vitamin E in Health and Disease

Publications in professional, peer-reviewed journals, listed by broad fields and full titles of journals therein (abbreviations are used in detailed list of Publications):

I. Engineering Sciences

- American Institute of Aeronautics and Astronautics, Journal
- American Institute of Chemical Engineers, Journal
- American Society of Civil Engineers, Journal of Hydraulics Division
- Bulletin of Mechanical Engineering Education
- Canadian Journal of Chemical Engineering
- Chartered Mechanical Engineer
- Chemical Engineering Science
- Engineering
- Forschung Gebiete Ingenieurwesens (*in German*)
- Institute of Electrical and Electronics Engineers, Computer Graphics and Applications
- International Journal of Mechanical Engineering Education

International Journal of Mechanical Sciences
Journal of Mechanical Engineering Sciences
Journal of the Royal Aeronautical Society
Letters in Heat and Mass Transfer
The Engineer
Transactions of the American Society of Mechanical Engineers,
 Applied Mechanics Reviews
 Journal of Applied Mechanics
 Journal of Basic Engineering
 Journal of Heat Transfer

II. Physical Sciences

American Journal of Physics
Applied Scientific Research
Ferroelectrics
International Journal of Heat and Mass Transfer
Journal of Fluid Mechanics
Journal of Sound and Vibration
Journal of the Acoustical Society of America
Nature
Physicochemical Hydrodynamics
Physics of Fluids

III. Geological Sciences

Journal of Sedimentary Petrology

IV. Biological and Medical Sciences

Advances in Cardiology
American Journal of Surgery
Annals of Biomedical Engineering
Annals of the New York Academy of Sciences
asaio Journal
Atherosclerosis
Biorheology
Blood
British Heart Journal
Bulletin of the New York Academy of Medicine
Circulation
Extracorporeal Technology
Institute for Electrical and Electronic Engineers (IEEE),
 Engineering in Medicine and Biology Magazine
International Journal of Artificial Organs
Journal of Applied Physiology
Journal of Biomechanics
Journal of Membrane Biology
Journal of the American Medical Association
Journal of the Franklin Institute
Journal of the Japanese Society for Artificial Organs
Journal of the Royal Society - Interface
Lancet
Nature
Philosophical Transactions of the Royal Society of London, Series B
Proceedings of the European Society for Artificial Organs
Proceedings of the National Academy of Sciences, United States

Proceedings of the Physiological Society of London
 Seminars in Thrombosis and Hemostasis
 Surgery
 Thrombosis and Haemostasis, Journal of the International Society on
 Thrombosis and Haemostasis
 Transactions of the American Society of Mechanical Engineers
 Journal of Biomechanical Engineering
 Transactions of the American Society for Artificial Internal Organs
 (and later, as ASAIO Journal)
 Transactions of the Society of Biomaterials
 Ultrasound in Medicine and Biology

V. Humanities and Social Sciences

Journal of the Royal Anthropological Institute

VI. Three most-cited professional journal papers:

Lancet 1989, Atherosclerosis 1991 and British Heart Journal 1993 - collectively have been cited close to 2,000 times, per Google Scholar

USA Government Agency Reports - include

National Aeronautics and Space Administration
 National Institutes of Health

Editorial Advisory Boards etc at various intervals from 1965 on:

International Journal of Heat and Mass Transfer
 Letters in Heat and Mass Transfer
 asaio Journal (Associate, Acting Editor)
 Journal of Physicochemical Hydrodynamics
 Life Support Systems (Journal of the European Society for Artificial Organs)
 Philosophical Transactions of the Royal Society of London, Series B
 (Biological Sciences)
 IEEE Press Book Series - emerging Technologies in Biomedical Engineering

US Government Agency Advisory Boards include -

from 1970s	NIH ad hoc Study Sections, mainly regarding artificial organs
from 1970s	NIH Task Forces on Test and Evaluation of Intra-aortic Balloon and Capillary Membrane Oxygenator
1978-1979	NIH Task Force on Blood-Material Interactions
1983-1986	NIH Study Section Surgery B (SYB)
1991	NSF Founding Member, Council on Biomedical Engineering for ABET-accredited programs

Voluntary Professional Society Committees include -

1960-1970	K-8, Theory and Fundamental Research in Heat Transfer, ASME
1967-1969	Chairman, Young Engineering Teachers, NE Region of American Society for Engineering Education
1975-1978	Membership Committee, ASAIO
1979-1979	Scientific Exhibits Committee, ASAIO
from 1981	Committee on Standards for Blood-Gas Exchange Devices, American Assoc for Advance of Medical Instrumentation (AAMI)

Service at Brown University includes more than 20 years as an elected Faculty Officer (one of five), in positions of Vice Chair, Chair, Past Chair and Parliamentarian; Chair of (original) Center for Biomedical Engineering, organized accreditation of ScB in Biomedical Engineering from 1973 to late 1990s; various Committees and Boards

1965 MA *ad eundem gradum* courtesy graduate of Brown University

Publications in citable detail:

6.a Book:

Richardson PD, Steiner M (eds) "Principles of Cell Adhesion"
CRC Press, Boca Raton, Florida, 1995
ISBN 0-8493-4559-6

6.b Chapters in books:

- 1 Schmid-Schonbein H, Born GVR, Richardson PD, Rohling-Winkel J, Blasberg P, Cusack N, Wehmeyer A, Jungling E. "ADP release from cells subjected to high shear stresses" Chapter 15 in Basic Aspects of Blood Trauma (H. Schmid-Schonbein and P. Teitel, Eds.), pp. 322-340, Martinus Nijhoff, The Hague, 1979.
ISBN 90-247-2279-9
- 2 Colton CK, Solomon BA, Galletti PM, Richardson PD, Takahashi C, Nuber SP, Chick WL. "Development of novel semipermeable tubular membranes for a hybrid artificial pancreas" Ultrafiltration Membranes and Applications (A.R. Cooper, Ed.) pp. 541-555, Plenum Press, 1980.
- 3 Richardson PD. "Artificial Organs," Chapter 2 in "Life Support Systems in Intensive Care," pp. 29-55, Ed. R. H. Bartlett, M.D., Yearbook Medical Publ. 1984.
ISBN 0-8151-0525-8
- 4 Richardson PD. "Artificial lungs and oxygenation devices," Chap. 27 in Handbook of Bioengineering, Eds: S. Chien and R. Skalak, pp. 27.1-27.11, McGraw-Hill, 1986.
ISBN 0-07-057783-8
- 5 DeRossi D, Richardson PD, Galletti PM, Dario P. "The electro-mechanical connection: piezoelectric polymers in artificial organs" Medical Applications of Piezoelectric Polymers, P. M. Galletti et al., eds. Gordon and Breach, Phila., pp. 65-81, 1988.
- 6 Dario P, Richardson PD, Bertoncini M, DeRossi D, Trudell LA, Galletti PM. "Prosthetic vascular graft monitoring by ultrasound using piezoelectric polymers" Medical Applications of Piezoelectric Polymers, P. M. Galletti et al., eds. Gordon and Breach, Phila., pp. 233-244, 1988.
- 7 Richardson PD, Galletti PM, Dario P. "PVF2 sensors for monitoring pulse and turbulence in prosthetic vascular grafts" Medical Applications of Piezoelectric Polymers, P. M. Galletti et al., eds. Gordon and Breach, Phila., pp. 121-137, 1988.
- 8 Born GVR, Richardson PD. "Mechanical properties of human

atherosclerotic lesions," Proceedings of Workshop on the Evolution of the Human Atherosclerotic Plaque, Rockville, Sept. 1986. In "Pathobiology of the Human Atherosclerotic Plaque," (S. Glagov, W. P. Newman, & S. Schaffer, eds.) Springer-Verlag, New York (1989/90).

- 9 Richardson PD. "Tissue mechanics of blood vessel walls" in "Tissue Mechanics," R. Skalak & C. F. Fox (Eds), 39-44, Alan R. Liss, New York, 1988.
- 10 Richardson PD. "Mechanics and physiology of arterial atherosclerosis" [invited paper at Atherosclerosis Workshop, Manchester, England] [to appear in volume edited by J.H. Gerrard; London] 1989/90.
- 11 Richardson PD. "Physical factors affecting the atherosclerotic plaque" Chapter 4 in "Diagnostic Vascular Ultrasound" edited by K.H. Labs, K.A. Jaeger, D.E. Fitzgerald, J.P. Woodcock and D. Neuerburg-Heusler, Edward Arnold, London, 1992
ISBN 0-340-55399-5
- 12 Richardson PD, Steiner M. "Adhesion of human platelets inhibited by Vitamin E", Chapter 24 in "Vitamin E in Health and Disease", ed. L. Packer & J. Fuchs, Marcel Dekker, NY, pp. 297-312
ISBN 0-8247-8692-0
- 13 Richardson PD. "Pancreatic transplantation, implantable insulin pumps, and hybrid artificial pancreas" Chapter in "New Horizons in Diabetes Mellitus and Cardiovascular Disease", ed G. Born & C. Schwartz, Science Press, London, 1994
- 14 Richardson PD. "Physical and molecular biochemical aspects of cell adhesion: Viewpoints approaching a mutual understanding", Chapter 1 in "Principles of Cell Adhesion", ed. P.D. Richardson & M. Steiner, CRC Press, Boca Raton, pp. 3-22, 1995

6.c through 6.i: **Note:**

Published accounts of completed research, other than 6.a and 6.b above, are listed under three headings, usually with the bibliographical standard style of their times:

PUBLICATIONS (items that have been subject to some level of editorial review - corresponds closely to ConFRAT 5.c) pages 7 - 22

REPORTS (longer items, or special items, generally not subject to editorial review - corresponds closely to category 6.d) pages 22 - 24

ABSTRACTS, DISCUSSIONS and REVIEWS (published Abstracts have been omitted if they were precursors of papers listed under Publications - corresponds to categories 6.e and 6.f) pages 24 - 32

Additionally, there are attributed publications and documents in the public domain, not primarily contributions to scholarly activities, listed as:

MISCELLANEOUS (A category newly added in 1988 to list published and public-domain materials not on research, and therefore outside the normal stream of academic publications; not yet fully retro-updated for such items prior to, or after, 1988; corresponds to part of ConFRAT category 5.i, here 6.i)

PUBLICATIONS - 6.c : [most recently (incompletely) updated to 31 December 2009]

- 1 Richardson PD. "Fuel consumption" Engineering, vol. 189, p. 112, Jan 1960.

Richardson PD. "Vector dimensional analysis" The Engineer, vol. 209, p. 866, May 1960.

Richardson PD. "Fuel consumption" Engineering, vol. 190, p. 854, June 1961.

Richardson PD. "Transition on a heated horizontal rotating cylinder" Trans.Amer Soc Mech Engrs Jl. of Heat Transfer, vol. 83, p. 386-7, August 1961.
- 5 Kestin J, Richardson PD. "Heat transfer across turbulent incompressible boundary layers" (in English), Colloque International du Centre National de la Recherche Scientifique (CNRS) No. 108, pp. 409-418, 1962.

Richardson PD. "Free Oscillations with small non-linear damping" ASME Jl. of Basic Engineering, vol. 84, p. 413, September 1962.

Kestin J, Richardson PD. "Heat transfer across turbulent incompressible boundary layers", Int. J. Heat and Mass Transfer, vol. 6, pp. 143-189, February 1963.

Richardson PD. "Heat and mass transfer in turbulent separated flows" Chem. Eng. Sci., vol. 18, p. 149-155, March 1963.

Richardson PD. "Economics and decision making" Chartered Mech. Eng., vol. 10, p. 159, March 1963.
- 10 Richardson PD. "Free oscillations with damping proportional to the square of the velocity" Appl. Sci. Res., vol. 11, p. 397, May 1963.

Richardson PD. "A swinging thermometer" Amer. Jl. Phys. vol. 31, no. 5, p. 395, May 1963.

Richardson PD. "On Hilpert's measurements of heat transfer from cylinders transverse to an airstream" ASME Jl. of Heat Transfer, vol. 85, p. 283, August 1963.

Kestin J, Richardson PD. "Warmeübertragung in Turbulenten Grenzschichten" Forschung Gebiete Ingenieurwesens, vol. 29, p. 93-104, 1963 (in German).

Richardson PD. "Comments on viscous damping in oscillating liquid columns" Int. Jl. Mech. Sci., vol. 5, p. 415, 1963.
- 15 Kestin J, Richardson PD. "The viscosity of superheated steam up to 275 C : a refined determination" ASME Jl. of Heat Transfer, vol. 85, pp. 295-301, November 1963.

Richardson PD. "Transcendental approximation for laminar boundary layers" AIAA Jl., vol. 1, p. 2659, November 1963.

- Richardson PD, Saunders OA. "Studies of flow and heat transfer associated with a rotating disc" J1. Mech. Eng. Sci., vol 5, pp. 336-342, December 1963.
- Richardson PD. "Unsteady one-dimensional heat conduction with a nonlinear boundary condition" ASME J1. of Heat Transfer, vol. 86, pp. 298-299, May 1964.
- Hanson FB, Richardson PD. "Mechanics of turbulent separated flows as indicated by heat transfer" ASME Symposium Volume on Fully Separated Flows (ed. A.G. Hansen) p. 27-32, May 1964.
- 20 Richardson PD, Wallace JP. "Heat exchanger design under engineering and economic uncertainty" ASME Symposium Volume on Air-Cooled Heat Exchangers (ed. E.L. Phillips) pp. 126-133, August 1964.
- Richardson PD. "A swinging thermometer - experience with a design project" Bull. Mech. Eng. Educ., vol. 3, p. 185-190, 1964.
- Richardson PD. "A note on heat transfer and the thermodynamics of irreversible processes" Bull. Mech. Eng. Educ., vol. 3, p. 287-291, 1964.
- Richardson PD. "Cold starts demand engine redesign?" Engineering, vol. 198, p. 576, November 1964.
- Hanson FB, Richardson PD. "Study of the laminar boundary layer using a transcendental approximation" Symposium on Fundamental Research in Fluid Mechanics, 57th A.I.Ch.E. Meeting, paper 43h, December 1964.
- 25 Richardson PD. "The influence of sound on local heat transfer from a cylinder" J1. of the Acoust. Soc. Amer., vol. 36, p. 2323-2327, 1964.
- Richardson PD. "Natural vibration with damping proportional to a power of the velocity" J1. of the Roy. Aero. Soc., vol. 68, p. 846-849, December 1964.
- Richardson PD. "Convection from heated wires at moderate and low Reynolds numbers" AIAA J1., vol. 3, p. 537-538, March 1965.
- Richardson PD. "The estimation of the temperature profile in a laminar boundary layer with a schlieren method" Int. J1. Heat Mass Transfer, vol. 8, p. 557-566, April 1965.
- Richardson PD. "A correlation of the influence of sound on heat transfer as measured by Fand and Kaye" ASME J1. of Heat Transfer, vol. 87, p. 314-315, May 1965.
- 30 Lee BH, Richardson PD. "The effect of sound on heat transfer from a horizontal circular cylinder at large wavelengths" J1. Mech. Eng. Sci., vol. 7, p. 127-130, June 1965.
- Hanson FB, Richardson PD. "Use of a transcendental approximation on laminar boundary layer analysis" J1. Mech. Eng. Sci., vol. 7, p. 131-137, June 1965.
- Richardson PD. "Comment on proposal concerning laminar wakes behind

- bluff bodies at large Reynolds number" AIAA Jl., vol. 3, p. 1982-1983, October 1965.
- Richardson PD. "Error bounds in relaxation" Bull. Mech. Engng. Educ., vol. 5, p. 129-134, April-June 1966.
- Hanson FB, Kozak SH, Richardson PD. "Velocity spikes in separated flows" Jl. Fluid Mech., vol. 25, pp. 43-50, May 1966.
- 35 Richardson PD. "Heat transfer by acoustic streaming" 5th U.S. National Congress for Applied Mechanics, June 1966.
- Richardson PD. "The influence of sound on heat transfer in separated flows" Chem. Engng. Sci., vol. 21, p. 609-610, June-July 1966.
- Richardson PD. "Local details of the influence of a vertical sound field on heat transfer from a circular cylinder" Proc. 3rd Intl. Heat Transfer Conference, vol. 3, p. 71-77, August 1966.
- Richardson PD. "Effects of sound and vibrations on heat transfer" Applied Mechanics Reviews, vol. 20, p. 201-217, March 1967.
- Auerbach J, Richardson PD. "Development of wind-driven waves in a cylindrical vessel" Physics of Fluids, vol. 10, p. 1342-1344, June 1967.
- 40 Richardson PD. "Free oscillations of fluids in manometers" A.I.Ch.E. Journal, vol. 13, p. 821, July 1967.
- Richardson PD, Whitelaw JH. "The response of human skin to localized heat sources" Seventh International Conf. on Medical and Biological Engng., p. 398, August 1967.
- Richardson PD. "Heat transfer from a circular cylinder by acoustic streaming" Journal of Fluid Mechanics, vol. 30, pp. 337-355, November 1967.
- Richardson PD. "Bias effects in numerical solution of differential equations" Bull. Mech. Engng. Educ., vol. 7, p. 73-76, 1968.
- Richardson PD. "Further results from use of a transcendental profile function in conduction and convection" Intl. Jl. Heat Mass Transfer, vol. 11, pp. 359-365, February 1968.
- 45 Richardson PD. "Teaching design: an annotated bibliography" Bull. Mech. Engng. Educ., vol. 7, pp. 107-115, April-June 1968.
- Richardson PD, Whitelaw JH. "Transient heat transfer in human skin" Jl. Franklin Inst., vol. 286, pp. 169-181, September 1968.
- Cygan DA, Richardson PD. "A transcendental approximation for natural convection at small Prandtl numbers" Can. Jl. Chem. Engng., vol. 46, pp. 321- , October 1968.
- Hanson FB, Richardson PD. "The near-wake of a circular cylinder in crossflow" Trans ASME Jl. Basic Engng., vol. 90, pp. 476-484, December 1968.

- Richardson PD. "The generation of scour marks near obstacles" *Journal of Sedimentary Petrology*, vol. 38, 38, p. 965-970, December 1968.
- 50 Richardson PD, Shum Y-M. "Surface temperatures of the Galilean satellites of Jupiter" *Nature* vol. 220, p. 897-898, December 1968.
- Richardson PD. "Heat transfer in fully-separated flows: a streaming model examined" *Chem. Engng. Sci.*, vol. 24, p. 193, 1969.
- Peterka JA, Richardson PD. "Effects of sound on separated flows" *Journal of Fluid Mechanics*, vol. 37, p. 265-287, June 1969.
- Peterka JA, Richardson PD. "Natural convection from a horizontal cylinder at moderate Grashof numbers" *Intl. Jl. Heat Mass Transfer*, vol. 12, pp. 749-752, June 1969.
- Richardson PD. "Local effects of horizontal and vertical sound fields on natural convection from a horizontal cylinder" *Jl. Sound and Vibration*, vol. 10, pp. 31-41, July 1969.
- 55 Richardson PD, Shum Y-M. "The use of finite element methods in the solution of transient heat conduction problems" *Symposium on Finite Element Methods, ASME; ASME Paper 69-WA/HT-36*, 7 pp., November 1969.
- de Vahl Davis G, Richardson PD. "Natural convection in a sound field giving large streaming Reynolds numbers" *Paper 33c, AICHE Meeting, San Juan, Puerto Rico*, May 1970.
- Richardson PD. "Effects of secondary flows in augmenting gas transfer in blood: analytic considerations" *Fifth Ann. Meeting, AAMI, Boston (March 1970); Advances in Cardiology*, vol. 6, pp. 2-16, 1971.
- Richardson PD, Snider MT, Galletti PM. "Oxygen transfer to blood in membrane lungs: correlation with and prediction from in vitro measurements" *American Society for Artificial Internal Organs, Transactions*, vol. 17, pp. 323-329, April 1971.
- Friedman LI, Richardson PD, Galletti PM. "Observations of acute thrombogenesis in membrane oxygenators" *American Society for Artificial Internal Organs, Transactions*, vol. 17, p. 369-375, April 1971.
- 60 Richardson PD. "The performance of membranes in vascular prosthetic devices" *Symposium on Problems in Evaluating the Blood Compatibility of Biomaterials, N.Y. Acad. of Medicine (February 1971); Bulletin N.Y. Acad. of Medicine*, vol. 48, p. 379-405, February 1972.
- Friedman LI, Richardson PD. "Control of flow in the evaluation of blood compatibility of biomaterials" *Symposium on Problems in Evaluating the Blood Compatibility of Biomaterials, N.Y. Acad. of Medicine (February 1971); Bull. N.Y. Acad. of Medicine* vol. 48, pp. 429-448, February 1972.
- de Vahl Davis G, Richardson PD. "Interaction between a sound field and natural convection on a horizontal cylinder" *IUTAM Symposium on Recent Research on Unsteady Boundary Layers, E.A. Eichelbrenner, Ed., les*

Presses de l'Universite Laval, Quebec, vol. 2, 1584-1652, 1972.

Galletti PM, Richardson PD, Snider MT, Friedman LI. "A standardized method for defining the overall in vivo performance of blood oxygenators" American Society for Artificial Internal Organs, Transactions, vol. 18, pp. 359-374, April 1972.

The above paper was listed in the 120 Most Important Papers published by ASAIO 1955-2003 in ASAIO GOLD: 50 years of artificial organs from discovery to clinical use (Bartlett RH, McKellar S, eds), prepared for the 50th anniversary meeting of ASAIO by Project Bionics of ASAIO, June 2004

Trudell LA, Friedman LI, Kakvan M, Galletti PM, Richardson PD. "Evaluation of a disposable membrane oxygenator" American Society for Artificial Internal Organs, Transactions, vol. 18, p. 538-544, April 1972.

- 65 de Vahl Davis G, Richardson PD. "Natural convection in a sound field giving large streaming Reynolds numbers" International J. Heat and Mass Trans. vol. 16, pp. 1245-1265, June 1973.

Richardson PD, Gogus Y. "Natural convection from a horizontal cylinder: an examination of profiles" Canad. J. Chem. Engng. vol. 51, p. 507-510, August 1973.

Richardson PD. "Effect of blood flow velocity on growth rate of platelet thrombi" Nature vol. 245, pp. 103-104, Sept. 14, 1973.

Snider MT, Richardson PD, Friedman LI, Galletti PM. "Carbon dioxide transfer rate in artificial lungs" J. Appl. Physiology vol. 36, pp. 233-239, February 1974.

Richardson PD, Tanishita K. "Analysis of Lowe's measurements of effects of vibration on heat transfer" Int. J. Heat Mass Trans. vol. 17, pp. 1118-1119, September 1974.

- 70 Murphy W, Trudell LA, Friedman LI, Kakvan M, Richardson PD, Karlson K, Galletti PM. "Laboratory and clinical experience with a microporous membrane oxygenator" Trans. Amer. Soc. Intl. Organs vol. 20A, pp. 278-285, 1974.

Lee CK, Richardson PD. "Forced convection from a cylinder at moderate Reynolds numbers" International J. Heat Mass Trans. vol. 17, p. 609-613, May 1974.

Richardson PD, Shum Y-M. "Thermal consequences of a tall vertical mirror on the lunar surface" Lett. Heat Mass Trans. vol. 1, p. 13-18, July-Aug. 1974.

Peterka JA, Richardson PD. "Local variation of heat transfer around a circular cylinder in a sound field" Fifth Intl. Heat Transfer Conference, Tokyo, vol. II, p. 368-372, September 1974.

Karlson K, Murphy WR, Kakvan M, Anthony P, Cooper GN, Richardson PD, Galletti PM. "Total cardiopulmonary bypass with a new microporous teflon membrane oxygenator" Surgery vol. 76, pp. 935-945, December 1974.

- 75 Richardson PD. "Simple and short series for laminar forced convection" Lett. Heat Mass Trans. vol. 2, pp. 5-7, January 1975.
- Chick WL, Like AA, Lauris V, Galletti PM, Richardson PD, Panol G, Mix TW, Colton CK. "A hybrid artificial pancreas" Trans. Amer. Soc. Artificial Internal Organs vol. 21, pp. 8-14, April 1975.
- Tanishita K, Richardson PD, Galletti PM. "Tightly wound coils of microporous tubing: progress with secondary-flow blood oxygenator design" Trans. Amer. Soc. Artificial Internal Organs vol. 21, pp. 216-222, April 1975.
- Murphy WRC, Galletti PM, Richardson PD. "Determinants of performance in spiral coil membrane oxygenators" 3rd Ann. N.E. Bioengng. Conf. pp. 279-285, May 1975.
- Richardson PD, Galletti PM. "Gas transport and flow resistance as diagnostic tools of membrane oxygenator malfunction" 3rd Ann. N. E. Bioengng. Conf. p. 271-278, May 1975.
- 80 Trudell LA, Murphy WRC, Boudreau LA, Richardson PD, Galletti PM. "Evaluation of the Travenol Teflo membrane oxygenator (STX 433 and 434)" J1. Extracorporeal Techn. vol. 7, pp. 127-131, August 1974.
- Richardson PD, Tanishita K, Galletti PM. "Mass transfer in annuli of grooved or splined microporous tubing twisted to generate swirl" Lett. Heat Mass Trans. vol. 2, p 445-450, Nov.-Dec. 1975.
- Richardson PD, Tanishita K, Galletti PM. "Mass transfer through tubes wound in serpentine shapes" Lett. Heat Mass Trans. vol. 2, pp. 481-486, Nov.-Dec. 1975.
- Richardson PD. "A transient high resistance encountered in priming capillaries with blood" Biorheology vol. 13, pp. 181-183, 1976.
- Richardson PD, Galletti PM, Born GVR. "Regional administration of drugs to control thrombosis in artificial organs" Trans. Amer. Soc. Artif. Int. Organs vol. 22, pp. 22-28, 1976.
- 85 Melling A, Richardson PD, Whitelaw JH. "Development of laser anemometry for blood-velocity measurement in small-diameter tubes" 4th Ann. N.E. Bioengineering Conf., Proceedings pp. 243-246, Pergamon, 1976.
- Richardson PD. "Oxygenator testing and evaluation: meeting ground of theory, manufacture and clinical concerns" Chap. in Blood Oxygenators and Prolonged Extracorporeal Bypass, W. Zapol and J. Qvist, Editors, Proceedings of Internat. Conf. at Rungsted Kyst, pub. by Academic Press/Hemisphere, pp. 87-102, 1976.
- Richardson PD. "Design factors affecting thrombosis during extracorporeal membrane oxygenation" Chap. in Blood Oxygenators and prolonged Extracorporeal Bypass, W. Zapol and J. Qvist, Editors, Proceedings of Internat. Conf. at Rungsted Kyst, publ. by Academic Press/Hemisphere, pp. 141-156, 1976.
- Richardson PD, Galletti PM. "Correlation of effects of blood flow

- rates, viscosity and design features on artificial lung performance" Physiological and Clinical Aspects of Oxygenator Design, S.G. Dawids and H.C. Engell, Eds., pp. 29-44, Elsevier/North Holland, 1976.
- Richardson PD. "Flow beyond an isolated rotating disk" Internat. Jl. Heat Mass Trans. vol. 19, pp. 1189-1195, 1976.
- 90 Mason RG, Mohammad SF, Chuang HYD, Richardson PD. "The adhesion of platelets to subendothelium, collagen and artificial surfaces" Seminars in Thrombosis and Hemostasis vol. 3, p. 98-116, October 1976.
- Tanishita K, Tamiya K, Higashijima I, Sugawara M, Sakurai Y, Richardson PD, Galletti PM. "Oxygenator design with curved pipe wound in Figure-Eight shape" (in Japanese) Supp. Artificial Organs vol. 5, pp. 439-442, 1976.
- Richardson PD. "Systematic approach to calculation of engine cycles where the working substance is a perfect gas" Internat. Jl. Mech. Eng. Educ. vol. 5: 31-36, 1977.
- Laska E, Richardson PD, Galletti PM. "Dynamical characteristics of a sheet-flow membrane oxygenator" Proc. 5th N. E. Bioengineering Conf., pp. 58-62, Pergamon Press, April 1977.
- Whittemore AD, Chick WL, Galletti PM, Like AA, Colton CK, Lysaght MJ, Richardson PD. "Effects of the hybrid artificial pancreas in diabetic rats" Trans. Amer. Soc. Artif. Int. Organs vol. 23, pp. 336-340, 1977.
- 95 Richardson PD. "Blood oxygenators: 1977 view of progress and problems" Proc. 7th Internat. Symp. on Cybernetics and Society (publ. by IEEE), p. 562, September 1977.
- Richardson PD, Mohammad SF, Mason RG. "Chamber for observation and measurement of platelet adhesion to foreign surfaces in shear flow" 1977 Advances in Bioengineering, p. 35, Amer. Soc. Mech. Engrs., 1977.
- Richardson PD, Mohammad SF, Mason RG. "Flow chamber studies of platelet adhesion at controlled, spatially varied flow rates" presented at European Soc. Artif. Organs, London, November 1977; Europ. Soc. Artif. Organs vol. 4, pp. 175-188, 1978.
- Richardson PD, Galletti PM, Trudell LA. "Performance of the Rhone-Poulenc non-occlusive roller blood pump" Proc. Sixth N.E. Bioengineering Conf. pp. 3-6, Pergamon, March 1978.
- Laska E, Winter BA, Richardson PD, Van De Water JM. "Investigation of microporous teflon tubing for use in an artificial glomerulus" Proc. Sixth N. E. Bioengineering Conf. pp. 133-136, Pergamon, March 1978.
- 100 Baffoni FA, Galletti PM, Panol G, Hager J, Richardson PD, Like AA, Chick WL. "Techniques for histological studies of hybrid artificial organs" Proc. Sixth N. E. Bio-engineering Conf. pp. 327-330, Pergamon, March 1978.
- Abts LR, Beyer RT, Richardson PD, Galletti PM, Panol G, Karlson KE. "Ultrasonic identification of microparticles in extracorporeal circuits" Proc. Sixth N. E. Bioengineering Conf. pp. 190-193, Pergamon,

March 1978.

Prince MA, Galletti PM, Panol G, Richardson PD. "Chemically etched, microfibrillar polytetrafluoroethylene as a biomaterial" Proc. Sixth N. E. Bioengineering Conf. pp. 313-316, Pergamon, March 1978.

Abts LR, Beyer RT, Galletti PM, Richardson PD, Karon D, Massimino R, Karlson KE. "Computerized discrimination of microemboli in extracorporeal circuits" American J1. Surgery vol. 135, pp. 535-538, April 1978.

Trudell LA, Boudreau L, Van De Water JM, Jauregui H, Richardson PD, Galletti PM. "Alcohol-treated PTFE vascular grafts" Trans. Amer. Soc. Artif. Internal Organs vol. 24, pp. 320-323, 1978.

- 105 Tanishita K, Nakano K, Sakurai Y, Hosokawa T, Richardson PD, Galletti PM. "Compact oxygenator design with curved tubes wound in weaving patterns" Trans. Amer. Soc. Artif. Internal Organs vol. 24, pp. 327-331, 1978.

Richardson PD, Gurland J, Chen C-H. "Heat and mass transfer in spark machining" Proceedings 6th Internat. Heat Transfer Conf. vol. 4, pp. 73-78, August 1978.

Galletti PM, Chick WL, Panol G, Richardson PD. "Design and evaluation of a flat spiral coil device for pancreatic beta cell culture" Proc. European Soc. Artif. Organs vol. 5, pp. 132-136, November 1978.

"Hydrodynamics of blood manifolds on artificial organs" (with P.M. Galletti) Proc. 7th N. E. Bioengineering Conf. pp. 53-56, Pergamon, March 1979.

Richardson PD. "Platelet adhesion in a flow chamber" Proc. 7th N. E. Bioengineering Conf. pp. 57-60, Pergamon, March 1979.

- 110 Abts L, Richardson PD, Schmid-Schonbein H. "Ultrasound detection of aggregation of red cells in blood flow" Proc. 7th N. E. Bioengineering Conf. pp. 228-231, Pergamon, March 1979.

Richardson PD, Mohammad SF, Mason RG, Steiner M, Kane R. "Dynamics of platelet interaction with surfaces in steady flow conditions" Trans. Amer. Soc. Artif. Internal Organs vol. 25, pp. 147-151, 1979.

Trudell LA, Peirce EC, Teplitz C, Richardson PD, Galletti PM. "A surgical approach to the implantation of an artificial lung" Trans. Amer. Soc. Artif. Internal Organs vol. 25, pp. 462-465, 1979.

Murphy WRC, Galletti PM, Richardson PD. "Performance characteristics of the spiral coil membrane lung" asaio J1. vol. 2, pp. 92-100, 1979.

Karlson KE, Abts L, Beyer RT, Richardson PD, Galletti PM, Massimino R, Fisher G. "Computerized monitoring of microemboli in extracorporeal circuits", J1. Japanese Soc. Artificial Organs vol. 8, 381-385, 1979.

- 115 Naber SP, Takahashi C, Chick WL, Solomon BA, Galletti PM, Richardson PD, Colton CK. "Progress in development of a hybrid artificial endocrine pancreas" in Proceedings, X Congress of the International

- Diabetes Federation, Vienna, Sept 9-14, 1979; Excerpta Medica, Amsterdam, pp. 227-231, 1980.
- Richardson PD. "Dynamic theory of leukocyte adhesion" in "Blood Cells and Vessel Walls: Functional Interactions" Ciba Foundation Symposium 71, 313-335, Excerpta Medica, 1980.
- Born GVR, Richardson PD. "Activation time of blood platelets" J1. Membrane Biol. vol. 57, pp. 87-90, 1980.
- Galletti PM, Richardson PD, Trudell LA, Panol G, Tanishita K, Accinelli D. "Development of an implantable booster lung" Trans. Amer. Soc. Artif. Internal Organs, vol. 26, pp. 573-576, 1980.
- Schmid-Schonbein H, Wurzinger L, Blasberg P, Rohling-Winkel I, Forst R, Fischer T, Stohr-Liesen M, Born GVR, Richardson PD. "Zur Pathogenese arterieller Thrombosen und Embolien-rheologische Deutung der Auslösung von Gerinnungsvorgängen in stromendem Blut" in Cerebrum, Blutgerinnung und Hamostase, Ed. R. Marx and H.A. Thies, Editiones Roche, Basel, pp. 247-263, 1980.
- 120 Tanishita K, Nakano K, Richardson PD, Galletti PM, Sugwara M, Sakurai Y. "Augmentation of gas transfer with pulsatile flow in the coiled tube membrane oxygenator design" Trans. Amer. Soc. Artif. Internal Organs, vol. 26, pp. 561-565, 1980.
- Fischer T, Richardson PD. "Blood cell interactions in shear flow and consequences for diffusion and aggregation" Amer. Soc. Mech. Engrs. 1980 Advances in Bioengineering, V.C. Mow (Ed.), pp. 305-308, 1980.
- Lazarra S, Richardson PD. "Rheology of blood oscillating in a tube" Proceedings of the Ninth Northeast Bioengineering Conference, pp. 54-57, Pergamon, 1981.
- Galletti PM, Richardson PD, Panol G, Trudell LA, Whittemore A. "Effect of tube diameter on duration of patency of hybrid artificial pancreas prototypes in ex vivo shunts" Proceedings of the Ninth Northeast Bioengineering Conference, pp. 401-404, Pergamon, 1981.
- Richardson PD. "Activation delay time of platelets" Symposium on Cell Membrane in Function and Dysfunction of Vascular Tissue, Foundation Cardiologique Princesse Liliane, Elsevier North Holland, pp. 102-104, 1981.
- 125 Richardson PD. "Rheological factors in platelet-vessel wall interactions" Phil. Trans. Roy. Soc. (Lond.) B vol. 294, pp. 251-266, 1981.
- Galletti PM, Trudell LA, Panol G, Richardson PD, Whittemore A. "Feasibility of small-bore A-V shunts for hybrid artificial organs in non-heparinized beagle dogs" Trans. Amer. Soc. Artif. Internal Organs vol. 27, pp. 185-187, 1981.
- Richardson PD, Kane RL, Aggarwal K. "Effects of drugs on adhesion of human platelets" Trans. Amer. Soc. Artif. Internal Organs vol. 27, pp. 203-207, 1981.

- Schmid-Schonbein H, Born GVR, Richardson PD, Cusack N, Rieger H, Forst R, Rohling-Winkel I, Blasberg P, Wehmeyer A. "Rheology of thrombotic processes in flow: the interaction of erythrocytes and thrombocytes subjected to high shear forces" *Biorheology* vol. 18, pp. 415-444, 1981.
- Richardson PD, Galletti PM. "Comparison of flow pulsation and mechanical oscillation in augmentation of gas transport through a coiled tube" *Proceedings Tenth Ann. Northeast Bioengrg. Conf.* pp. 279-282, IEEE, March 1982.
- 130 Barthelemy R, Puel P, Enjalbert A, Trudell LA, Richardson PD, Galletti PM. CO2 removal through a microporous membrane lung. *Int J Artif Organs* 5(3): 149-152, May 1982
- "The elasticity of the urinary bladder for large deformations" (with C. Regnier, H. Kolsky, J. Susset and P. Ghoniem) *Proc. 1st Southern Biomedical Engineering Conference*, pp. 183-186, Pergamon Press, June 1982.
- Barthelemy R, Galletti PM, Trudell LA, MacAndrew J, Richardson PD, Puel P, Enjalbert A. "Total extracorporeal CO2 removal in a pumpless artery-to-vein shunt" *Trans. Amer. Soc. Artif. Internal Organs*, vol. 28 pp. 354-358, 1982.
- Bodziak K, Richardson PD. "Turnover of adherent platelets: some effects of shear rate, ASA and reduced anticoagulation" *Trans. Amer. Soc. Artif. Internal Organs*, Vol. 28 pp. 426-492, 1982.
- Barthelemy R, Puel P, Enjalbert A, Trudell LA, Richardson PD, Galletti PM. CO2 removal through a microporous membrane lung" *Internat J Artif Organs* 5(3): 149-152, 1982
- 135 Richardson PD, Galletti PM. "Wound drainage improved by pulsation" *35th Ann. Conf. on Engrg. in Medicine and Biology, Proceedings* vol. 24, p. 273, 1982.
- Barthelemy R, Puel P, Enjalbert A, Trudell LA, Richardson PD, Galletti PM. CO2 removal through a microporous membrane lung. *Int J Artificial Organs* 5(3): 149-152, 1982
- Richardson PD, Lazzara S. "Human Blood oscillating axially in a tube" *Biorheology* vol. 20, pp. 317-326, 1983.
- DeRossi D, Richardson PD, Galletti PM, Dario P. The electro-mechanical connection: piezoelectric polymers in artificial organs. *ASAIJ* vol. 6, pp. 1-11, 1983.
- Republished in: *Medical Applications of Piezoelectric Polymers*, P. M. Galletti et al., eds. Gordon and Breach, Phila., pp. 65-81, 1988.
- Regnier CH, Kolsky H, Richardson PD, Ghoniem GM, Susset JG. The elastic behavior of the urinary bladder for large deformations *Jl. Biomechanics* vol. 16, pp. 915-922, 1983.
- 140 Galletti PM, Richardson PD, Trudell LA. "Oscillating blood flow enhances membrane plasmaphoresis" *Trans. Amer. Soc. Artif. Internal Organs* vol. 29, pp. 279-282, 1983.

- Dario P, Richardson PD, Galletti PM. "Monitoring of prosthetic vascular grafts using piezoelectric polymer sensors" Trans. Amer. Soc. Artif. Internal Organs vol. 29, pp. 318-322, 1983.
- Tanishita K, Nakano K, Richardson PD, Galletti PM, Sugawara M, Suma K. "Effect of pulsatile blood flow on gas transport in serpentine oxygenators" *asaio J.* vol. 6, pp. 153-160, 1983.
- Peterka JA, Richardson PD. "Effects of sound on local transport from a heated cylinder" *Internat. J. Heat Mass Trans.* vol. 27, 1511-1523 (1984).
- Dario P, Richardson PD, Bertoncini M, DeRossi D, Trudell LA, Galletti PM. "Prosthetic vascular graft monitoring by ultrasound using piezoelectric polymers" Trans. Amer. Soc. Artif. Internal Organs, vol. 30, 645-651, 1984.
Republished in: *Medical Applications of Piezoelectric Polymers*, P. M. Galletti et al., eds. Gordon and Breach, Phila., pp. 233-244, 1988.
- 145 Richardson PD, Galletti PM, Dario P. PVF sensors for monitoring pulse and turbulence in prosthetic vascular grafts. *Ferroelectrics*, vol. 60, pp. 175-191. 1984.
Republished in: *Medical Applications of Piezoelectric Polymers*, P. M. Galletti et al., eds. Gordon and Breach, Phila., pp. 121-137, 1988.
- Richardson PD. "Blood flow in prosthetic devices" *Science Progress*, Oxford, vol. 69, pp. 375-391, 1985.
- Richardson PD. "Qualitative and quantitative methodology for investigating gas emboli in blood" *Medical Instrumen.* 19, pp. 55-58, March/April 1985.
- Owens C, Richardson PD. "Mechanical properties of carotid artery walls" *Proceedings 11th Annual NE Bioengineering Conf.* pp. 12-15, 1985.
- Christo JL, Richardson PD. "Flow in a tube with a side branch" *Proceedings 11th Annual NE Bioengineering Conf.* pp. 139-142. 1985.
- 150 Galletti PM, Trudell LA, Chiu TH, Sasken H, Richardson PD, Parhizgar A, Aebischer P. "Coated bioresorbable mesh as vascular graft material" Trans. Amer. Soc. Artif. Internal Organs, vol. 31, 257-262, 1985.
- Tanishita K, Ujihira M, Watabe A, Nakano K, Richardson PD, Galletti PM. "Design feature of serpentine tube membrane lung for ECCO R" Trans. Amer. Soc. Artif. Internal Organs, vol. 31, 622-626, 1985.
- Sasken H, Galletti PM, Ip TK, MacMillan P, Chiu TH, Richardson PD, Trudell LA. "Prolonging bioresorbable polyester implant stability" Trans. 11th Ann. Meet. Soc. Biomaterials, Vol. 8, p. 188, 1985.
- Richardson PD, Parhizgar A, Sasken HF, Chiu T-H, Aebischer P, Trudell LA, Galletti PM. "Tissue characterization by micromechanical testing of growths around bioresorbable implants," *Progress in Artificial Organs - 1985*, Y. Nose, C. Kjellstrand and P. Ivanovich, Editors, pp. 1015-1019, ISAO Press, Cleveland, 1986.

- Trudell LA, Aebischer P, Panol G, Richardson PD, Galletti PM. "An implantable continuous ultrafiltration device," Progress in Artificial Organs - 1985, Y. Nose, C. Kjellstrand and P. Ivanovich, Editors, pp. 1097-1102, ISA0 Press, Cleveland, 1986.
- 155 Richardson PD, Sasken H, Parhizgar A, Aebischer P, Panol G, Chiu TH, Galletti PM. "Tissue developed around bioresorbable implants: load-bearing versus histology," Trans. Amer. Soc. Artif. Int. Organs, 32: 342-345, 1986.
- Lawton MT, Richardson PD. "Blood oxygenators made of tube in Chinese Button knots," Proc. 39th Ann. Conf. Engrg. Med. Biol., vol. 28, p. 313, Alliance for Engrg. Med. Biol. 1986.
- Aebischer P, Sasken H, Chiu T-H, Valentini R, Richardson PD, Galletti PM. "Effect of stereoconfiguration and starting molecular weight on the subcutaneous resorption of polylactides in mice," Trans. Soc. Biomat. vol. 9, p. 115, 1986.
- Richardson PD. "Update to effects of sound and vibrations on heat and mass transfer [AMR 20 (1967): 201-217]" Applied Mechanics Update 1986, C. R. Steele & G. S. Springer Eds. pp. 1-29, Amer. Soc. Mech. Engrs., 1986.
- Richardson PD. "A theory for the in vitro bleeding time," Proc. 13th Northeast Bioengineering Conf. IEEE vol. 1, 48-51, 1987.
- 160 Richardson PD. "Physiological aspects of physico-chemical hydrodynamics," Plenary lecture at Sixth International PhysicoChemical Hydrodynamics Conference, Oxford; PhysicoChemical Hydrodynamics, vol. 9, p. 361-368, 1987.
- Richardson PD. "Interaction of transport phenomena and surface reaction," Proceedings Conf. Blood in Contact with Natural and Artificial Surfaces, Ann. New York Acad. Sci., vol. 516, 492-501, 1987.
- Keeny SM, Richardson PD. "Stress analysis of atherosclerotic arteries," Proceedings Ninth Annual Conference, Engineering in Medicine and Biology Soc. vol. 3, 1484-5, IEEE, 1987.
- Richardson PD. "Mechanical factors in bioresorbable grafts," Bull. New York Acad. Medicine, vol. 64, 132-144, 1988.
- Jandak J, Steiner M, Richardson PD. "Reduction of platelet adhesiveness by vitamin E supplementation in humans," Thrombosis Research, vol. 49, 393-404, 1988.
- 165 Fine A, Brenner S, Mason W, Richardson PD, Pye RJ, Gray WR, Fuller B, Waldman H, Raisman G, Scaravilli F, Charlton HM, Price J. "Cell transplantation - Report of a Conference held at the Royal College of Physicians." J Roy Coll Physicians 22 (3): 188-191, Jul 1988
- Jandak J, Steiner M, Richardson PD. "Alpha-tocopherol, an effective inhibitor of platelet adhesion," Blood, vol.73, 141-149, Jan. 1989.

- Richardson PD, Keeny SM. "Anisotropy of human coronary artery intima" Proceedings 15th Annual Northeast Bioengineering Conference, 205-206, 1989.
- Richardson PD. "Piezoelectric polymers," IEEE Engineering in Med. & Bio. Mag., vol. 8, no. 2, 14-16, June 1989.
- Richardson PD, Davies MJ, Born GVR. "Influence of plaque configuration and stress distribution on fissuring of coronary atherosclerotic plaques" The Lancet, ii, 941-944, October 21, 1989.
- 170 Richardson PD. "Structural issues arising in hybrid reconstruction of tubular tissues" Proceedings of ASME Symposium on Tissue Engineering, BED-Vol. 14: 15-17, Dec 1989. ISBN 0-7918-0410-0
- Richardson PD, Christo J. "Flow separation opposite a side branch" Proceedings 2nd Internat. Symposium on Biofluid Mechanics and Biorheology, June 25-28, 1989, Munich, W. Germany; Biofluid Mechanics: Blood Flow in Large Vessels, D. Liepsch (ed), pp. 275-283, Springer-Verlag, Munich, 1990.
- Lendon C, Davies MJ, Richardson PD, Born GVR. "Pathogenesis of fissuring in human atherosclerotic arteries" In: The Management of Acute Myocardial Ischemia, D.A. Chamberlain, D.G. Julian and P. Sleight (eds) Chapman & Hall Medical Publ., 1990.
- Lendon CL, Davies MJ, Born GVR, Richardson PD. "Atherosclerotic plaque caps are locally weakened when macrophage density is increased" Atherosclerosis, vol. 87, 87-90, 1991.
- Tanishita K, Ujihara M, Watanabe A, Nakano K, Richardson PD, Galletti PM "Gas transport in serpentine microporous tubes under steady and pulsatile blood flow conditions" ASME Transactions, J Biomechanical Engineering 113: 223-229, 1991.
- 175 De Feyter PJ, Serrys PW, Davies MJ, Richardson P, Lubsen J, Oliver MF. "Quantitative coronary angiography to measure progression and regression of coronary atherosclerosis. Value, limitations and implications for clinical trials", Circulation 84: 412-423, 1991.
- Burleigh MC, Briggs AD, Lendon CL, Davies MJ, Born GVR, Richardson PD. "Collagen types I and III, collagen content, GAGs and mechanical strength of human atherosclerotic plaque caps: span-wise variations" Atherosclerosis 96: 71-81, 1992
- Lendon C, Born GVR, Davies MJ, Richardson PD. "Plaque fissure - the link between atherosclerosis and thrombosis" Nouv. Rev. Fr. Hematol. 34: 27-29, 1992
- Lendon C, Born GVR, Davies MJ, Richardson PD. "Platelet function in cardiovascular disease" Platelets 3, 105-107, 1992
- Davies MJ, Richardson PD, Woolf N, Katz DR, Mann J. "Risk of thrombosis in human atherosclerotic plaques: role of extracellular lipid, macrophage, and smooth muscle cell content" Brit Heart J 69:377-381, 1993

- Richardson PD. "The progression of atherosclerosis - role of plaque fissuring and thrombosis" Chapter 11b in "New Horizons in Coronary Heart Disease", Science Press, London, 1993
- 180 Lendon CL, Davies MJ, Richardson PD, Born GVR. "Testing of small connective tissue specimens for the determination of the mechanical behavior of atherosclerotic plaques" J1 Biomed Engng 15: 27-33, 1993
- Richardson PD. "Intracorporeal oxygenation" Artificial Organs 18: 793-796, Nov 1994
- Tanishita K, Panol G, Richardson PD, Galletti PM "Gas transport in the intracorporeal oxygenator with woven tubes" Artificial Organs 18: 797-800, Nov 1994
- Davies MJ, Woolf N, Rowles P, Richardson PD. "Lipid and cellular constituents of unstable human aortic plaques." Basic Res in Cardiology 89: 33-39, Suppl 1, 1994
- Davies MJ, Treasure T, Richardson PD. "The pathogenesis of spontaneous arterial dissection." Heart 75: 434-435, 1996.
- 185 Richardson PD. "Critical stresses in critical arteries", Challenges in Medicine - Symposium aus Anlass des 100. Geburtstages von Ernst Jung, pp. 110-116, eds W. Siegenthaler und R. Haas, Publicationen der Jung-Stiftung fur Wissenschaft und Forschung, Georg Thieme, Stuttgart, 1996.
- Richardson PD. "Flows and Wall Mechanics in Critical Arteries", Japan Society of Mechanical Engineers, Centennial Grand Congress, Proceedings of the International Conference on New Frontiers in Biomechanical Engineering (Tanishita K, Sato M, eds), 23-25, July 1997.
- Guo D, Richardson PD. Intravascular Ultrasound video processing for blood vessel measurement. IEEE Computers in Cardiology 125:173-176, 1998.
- Guo D, Richardson PD. Automatic vessel extraction from angiogram images. IEEE Computers in Cardiology 125: 441-444, 1998.
- Richardson PD. Audit culture in higher education. J Roy Anthropol Inst 6 (4): 721-722, Dec 2000
- 190 Richardson PD. Arterial Gaussian curvature and the shapes of atherosclerotic plaques. Proc 27th NorthEast Bioengineering Conference ISBN 0-7803-6717-0, IEEE, pp. 29-30, 2001
- Richardson PD. Vitamin E supplementation in healthy persons. J Amer Med Assoc 285 (19): 2449-2450, 16 May 2001
- Westin J, Choi C-H, Huang P, Kao Z, Breuer KS, Caswell B, Richardson P. Rheological testing of small sample volumes at high shear rates in microfabricated geometries. Proceedings, ASME IMECE, 2: 3183-3190, November 2001
- Westin KJA, Breuer KS, Choi C-H, Huang P, Cao Z, Caswell B, Richardson PD, Sibulkin M. Liquid transport properties in sub-

- micron channel flows. Proceedings of IMECE2001, 2001 International Mechanical Engineering Conference and Exposition, New York, ASME Micro-electromechanical Systems Division Publication (MEMS) 3: 611-618, 2001
- Richardson PD. Biomechanics of plaque rupture: progress, problems and new frontiers. *Ann Biomed Engng* 30: 524-536, 2002
- 195 Sobel JA, Forsberg A, Richardson PD, Laidlaw DH, Keefe DF, Pivkin I, Karniadakis GE. Arterial flows seen in virtual reality. *Biomedical Engineering: Recent Developments*, Vossoughi J (ed). Proceedings 21st Southern Biomedical Engineering Conference, Sept 2002, pp.349-350. Biomed Res Foundation, Olney MD, 2002. ISBN 1-930636-01-6
- Richardson PD. Elliptic delamination as an early stage in atherosclerotic plaque evolution: Fluid mechanical aspects. *Biorheology* 40: 417-421, 2003.
- Forsberg A, Laidlaw D, Sobel JS, Zelenik R, Keefe D, Richardson PD, Karniadakis GE, Pivkin I. Particle flurries: A case study of synoptic 3D pulsatile flow visualization. (Feature Article) *IEEE Computer Graphics and Applications* 24(2): 76-85, March-Aprl 2004
- Richardson PD. The artificial lung facility at Brown: More than a dozen years with Pierre Galletti. *ASAIO J* 51(2): 165-172, March/Apl 2005.
- Pivkin IV, Richardson PD, Laidlaw DH, Karniadakis GE. Combined effects of pulsatile flow and dynamic curvature on wall shear stress in a coronary artery bifurcation model. *J Biomechanics* 38: 1283-1290, June 2005
- 200 Richardson PD. Mechanical properties of atherosclerotic tissues. *Proceedings of International Union of Theoretical and Applied Mechanics (IUTAM) Symposium; publ. in: Mechanics of Biological Tissue*, Holzapfel GA, Ogden RW, eds. Springer-Verlag, pp. 207-223, 2006
- Guo D, Richardson P. Detection of cardiac cycle from intracoronary ultrasound. *Ultrasound in Medicine and Biology* 32: 345-356, March 2006
- Richardson PD, Pivkin IV, Karniadakis GE, Laidlaw DH. Blood flow at arterial branches: complexities to resolve for the angioplasty suite. Alexandrov VN, van Albada GD, Sloot PMA, Dongarra J (eds.) *Computational Science - ICCS 2006, Part III, Lecture Notes in Computer Science* 3993, 538-545, Springer-Verlag Berlin Heidelberg 2006
- Richardson PD, Tsuyuki GT. Approximate analysis for conjugate heat transfer in solids under steady convection. *Proc. Internat. Heat Transfer Conf.-13, Sydney Australia, Contrib. Paper FCV-15, August 2006*
- Pivkin IV, Richardson PD, Karniadakis G. Blood flow velocity effects and role of activation delay time on growth and form of platelet thrombi. *Proc Nat Acad Sci* 103(46): 17164-17169, November 14, 2006

- 205 Liew S, Man A, Parente J, Samaroo H, Stoner I, Richardson PD. Adhesion and Rouleau Formation of Red Cells in a Shear Flow. Proc 33rd North East Bioengineering Conf, 2007, 4.06, pp. 179-180, IEEE, ISBN 1-4244-1033-9

Richardson PD. Malaria in the Microcirculation: Mechanics from Histology. Proc. 34th Annual Northeast Bioengineering Conf, 2008, pp.219-220

Pivkin IV, Richardson PD, Karniadakis GE. Effect of red blood cells on platelet aggregation: enhanced diffusivity of platelets. IEEE Engng Med Biol Mag 32-37, Mar/Apl 2009 doi:10.1109/MEMB.2009.931788

Baek H, Jayaraman MV, Richardson PD, Kariadakis GE. Flow instability and wall shear stress variation in intracranial aneurisms. J Royal Soc Interface publ. on line 18 Dec 2009 doi: 10.1098/rsif.2009.0476; 7(47): 967-988, June 6, 2010

REPORTS - corresponding closely to category 6.d:

- R1 Richardson PD. "Estimation of the heat transfer from the rear of an immersed body to the region of separated flow" WADD TN 59-1, Division of Engineering, Brown University, January 1960. Reprinted as ARL 62-423, September 1962.

Richardson PD. "Comparison of heat and mass transfer from the rear stagnation point of a circular cylinder immersed in a normal fluid stream and effect of tunnel blockage" Appendix to "Heat transfer from surfaces on non-uniform temperature distribution, Part I" by H.H. Sogin, V.S. Subramanian and R.J. Sogin, AFOSR TR60-78, Division of Engineering, Brown University, July 1960.

Richardson PD. "Heat transfer in separated flows, Part II: survey on separated flows, with special reference to heat transfer" USAF, Wright Air Development Division ARL Tech. Rept. No. 4, July 1960.

"Design under economic and engineering uncertainty" (with J. Wallace) Econ-Eng/1. Division of Engineering, Brown University, April 1964.

- R5 Hanson FB, Richardson PD. "Hot wire measurements in the near-wake of a circular cylinder" Division of Engineering, Brown University, Rept. No. NSF GP-978, February 1965.

Hanson FB, Richardson PD. "Upstream fluctuations in flow in a forward stagnation region" USAF ARL 65-72, April 1965.

Richardson PD. "The effect of vibrations and oscillations on heat transfer from a circular cylinder" Division of Engineering Rept. AF1263/2, February 1966.

"Transient radiation and conduction in a slotted slab and a hollow cylinder" (with Y.-M. Shum) NASA Report CR-905, October 1967.

"The Schlieren interferometer" (with J.B. Brackenridge) Brown University

Division of Engineering Report AF1754/2, October 1967.

- R10 "Natural convection from a horizontal cylinder in the presence of a sound field giving large streaming Reynolds numbers" (with G. de Vahl Davis) Brown University Division of Engineering Report AF1754/3, October 1967.

"Use of a transcendental approximation in transient conduction analysis" (with W.W. Smith) NASA Report CR-955, December 1967.

"The effects of free-stream turbulence and of sound upon heat transfer" (with J. Kestin) USAF Aerospace Research Labs ARL 69-0062, April 1969.

"Blood oxygenator testing and evaluation, Part I: evaluation techniques" (with P.M. Galletti and M.T. Snider) Rept. NIH-69-2047-1, January 1971.

"Blood oxygenator testing and evaluation, Part II: procedures and results" (with L.I. Freedman and P.M. Galletti) Report NIH-69-2047-2, May 1973.

- R15 "Progress report: Subcommittee for blood gas exchangers" (with R.H. Bartlett, R.P. De Filippi, K.H. Keller, A.J. Lande, J. Martinez, E. C. Peirce 2nd and D.B. Skinner) Trans. Amer. Soc. Artif. Intl. Organs vol. 20B, p. 765, 1974.

"Draft proposal: Standard for blood gas exchangers" (with E.C. Peirce 2nd, R.H. Bartlett, R.P. DeFilippi, K.H. Keller, A.J. Lande, J. Martinez and J.H. Kennedy) Trans. Amer. Soc. Artif. Internal Organs, vol. 22, pp. 734-740, 1976.

"Platelet adhesion with streak formation, aggregation and embolization in controlled flow" (with S.F. Mohammad and R.G. Mason) Videotape presentation shown at American Soc. Artif. Internal Organs, Annual Meeting, Chicago, April 27-29, 1978.

Richardson PD. "Platelets and artificial organs" Panel Conference Report, Trans. Amer. Soc. Artificial Internal Organs vol. 25, p. 525, 1979.

Richardson PD, Dobelle WM, Mason RG, Weinberg S "Hybrid organs" Panel Conference Report, Trans. Amer. Soc. Artificial Internal Organs vol. 26, pp. 584-587, 1980.

- R20 "Guidelines for blood-material interactions: report of the National Heart, Lung and Blood Institute Working Group" (with others) NIH Publication No. 80-2185, September 1980.

Sparks RE, Dorson WJ, Richardson PD, Colton CK, Malchesky P. "Membranes in artificial organs: a state-of-the-problem discussion" Panel Conference Report, Trans. Amer. Soc. Artificial Internal Organs vol. 29, pp. 760-763, 1983.

Bartlett RH, Kolobow T, Cooper JD, Richardson PD. "Extracorporeal gas exchange, lung transplantation, and the artificial lung" Panel Conference Report, Trans. Amer. Soc. Artificial Organs, vol. 30, pp. 679-681, 1984.

Richardson PD, Participant in and Contributor to "The Recent History

of Platelets in Thrombosis and Other Disorders" Witness Seminar held by the Wellcome Trust Centre for the History of Medicine at UCL, London, 25 November 2003: edited by L.A. Reynolds and E.M. Tansey, publ. by Wellcome Trust Centre for the History of Medicine, Aug 2005 ISBN 0-85484-103-2

Above revised 03/14/88 ; 12/10/97; 8/24/05

ABSTRACTS, DISCUSSIONS and REVIEWS (A xx below):

6.e: Book reviews - see A 4 5 6 11 12 16 17 27 33 40 97 98

6.f: Abstracts - see A 25 32 34 35 36 37 41 42 43 55 58 61 64 65 66 67
68 69 70 71 72 73 74 78 79 80 81 83 84 85 86 87 88
89 90 91 92 93 94 95 96 99 100 101 103 104 105 106
107 108 109 110 111 112 113 114 115

6.i.3: Published Discussions - see A 1 2 3 7 8 9 10 13 14 15 18 19 20 21
22 23 24 26 28 29 30 31 38 39 44 45 46 47
48 49 50 51 52 53 56 57 59 60 62 63 75 76
77 82 102

- A1 "Flow phenomena of partially enclosed rotating disks" ASME Jl. of Basic Engineering, vol. 82, p. 550, September 1960.

Discussion on "The influence of sound on free convection from a horizontal cylinder" ASME Jl. of Heat Transfer, vol. 83, p. 146, May 1961.

Discussion on "Forced convection heat transfer from an isothermal sphere to water" ASME Jl. of Heat Transfer, vol. 83, p. 174, May 1961.

Review of "Engineering Thermodynamics" by J.B. Jones and G.A. Hawkins, ASME Jl. of Appl. Mech., vol. 28, p. 479, September 1961.

- A5 Review of "Theories of engineering experimentation" by H. Schenck, Jr., ASME Jl. of Appl. Mech., vol. 28, p. 638, December 1961.

Review of "Fundamentals of heat transfer" by H. Grober and S. Erk, revised by U. Grigull, ASME Jl. of Appl. Mech., vol. 29, p. 448, June 1962.

Discussion on "Forced convection heat transfer from a uniformly heated cylinder" ASME Jl. of Heat Transfer, vol. 84, p. 262, August 1962.

Discussion on "Mass and heat transfer from an enclosed rotating disk with and without source flow" ASME Jl. of Heat Transfer, vol. 85, p. 162, May 1963.

Discussion on "A design-oriented optimization of simple tapered radiating fins" ASME Jl. of Heat Transfer, vol. 85, p. 201, August 1963.

- A10 Discussion on "On the teaching of design in universities" Proc. I Mech. E., vol. 177, p. 759, September 1963.

Review of "Introduction mathematique a la mecanique des fluides" by C. Jacob, ASME Jl. of Appl. Mech., vol. 30, p. 639, December 1963.

- Review of "Introduction to heat and mass transfer" by E.R.G. Eckert and J.E. Gross, ASME Jl. of Appl. Mech., vol 31, p. 368, June 1964.
- Discussion (with J.F. Kennedy and S.P. Sutera) on "Geometry of river channels" ASCE Jl. of the Hydraulics Division, vol. 90, p. 332, November 1964.
- Discussion on "Establishment of the wake behind a disk" ASME Jl. of Basic Engineering, vol. 86, p. 880, December 1964.
- A15 Discussion on "The transient temperature distribution in a slab subjected to thermal radiation" ASME Jl. of Heat Transfer, vol. 87, p. 130, February 1965.
- Review of "Thermodynamics of irreversible processes" by P. van Rysselberghe, Quart. Applied Math., vol. 23, p. 202, October 1965.
- Review of "Boiling heat transfer and two-phase flow" by L.S. Tong, ASME Jl. Appl. Mech., vol. 33, p. 478, June 1966.
- Discussion on "Heat transfer from an oscillating horizontal wire to water and ethylene glycol" Trans. ASME Jl. Heat Trans., vol. 88, p. 364, November 1966.
- "Reply to comments on influence of sound on local heat transfer from a cylinder" Jl. Acoust. Soc. Amer., vol. 40, p. 1558, December 1966.
- A20 Discussion on "A new type of roughened heat transfer surface selected by flow visualization techniques" Third Intl. Heat Trans. Conf., vol. VI, p. 63, 1967.
- Discussion on "Heat and mass transfer on sweptback circular cylinders in supersonic flow" Third Intl. Heat Trans. Conf., vol. VI, p. 134, 1967.
- Discussion on "The effects of oscillation on instantaneous local heat transfer in forced convection from a cylinder" Third Intl. Heat Trans. Conf., vol. VI, p. 198, 1967.
- Reply to Report and Discussion on "Local details of the influence of a vertical sound field on heat transfer from a circular cylinder" Third Intl. Heat Trans. Con., vol. VI, p. 202, 1967.
- Discussion on "The unsteady flow and wake near an oscillating cylinder" ASME Jl. Basic Engrg., vol. 91, p. 503, 1969.
- A25 Abstract on "Heat transfer fluctuations in separated flows" Heat and Mass Transfer in Flows with Separated Regions and Measurement Techniques, 1969 meeting of International Centre for Heat and Mass Transfer, Abstracts pp. 37-38, 1969.
- Discussion of "Measurements of mean flow beyond a rotating disk" Trans. ASME Jl. Basic Engrg. vol. 93, p. 204, 1971.
- Review of "Variational Principles in Heat Transfer" by M. A. Biot, Internat. Jl. Heat Mass Trans. vol. 14, p. 1230, August 1971.

- Discussion on "The use of resonating devices to make small mass measurements" Bull. N.Y. Acad. Med. vol. 48, p. 465, February 1972.
- Discussion on "Energy instability of unsteady flows" IUTAM Symposium on Unsteady Boundary Layers, Proceedings vol. 1, p. 224, 1972.
- A30 Discussion on "On acoustic streaming in a channel" IUTAM Symposium on Unsteady Boundary Layers, Proceedings vol. 2, p. 1739, 1972.
- Discussion on "Heat transfer from a hot-film in a non-reversing oscillary flow, with application to measurement of blood flow" IUTAM Symposium on Unsteady Boundary Layers, Proceedings vol. 2, p. 1908, 1972.
- Abstract on "Performance comparison of large membrane oxygenators" (with M.T. Snider, L.I. Friedman and P.M. Galletti) ASAIO Abstracts, vol. 1, p. 41, April 1972.
- Review of "Cardiac engineering: advances in biomedical engineering and medical physics" edited by Y. Nose, Cardiology vol. 57, p. 246, 1972.
- Abstract on "Performance of spiral coil membrane oxygenators" (with L.I. Friedman, P.M. Galletti and W.R. Murphy) ASAIO Abstracts vol. 2, p. 22, April 1973.
- A35 Abstract on "Achievement of standardized blood input conditions for in vivo oxygenator evaluation" (with P.M. Galletti, L.A. Trudell, W.R. Murphy, L.I. Friedman and M.T. Snider) ASAIO Abstracts vol. 2, p. 22, April 1973.
- Abstract on "Gas transfer performance of Bentley Bubble Oxygenators (Infant, Pediatric and Adult sizes)" (with W.R. Murphy, L.A. Trudell, L.I. Friedman and P.M. Galletti) ASAIO Abstracts vol. 2, p. 44, April 1973.
- Abstract on "Analysis and prediction of in vivo and in vitro gas transfer in capillary blood oxygenators" (with K. Tanishita) ASAIO Abstracts vol. 2, p. 54, April 1973.
- Discussion on "Analysis of unsteady laminar boundary layer flow by an integral method" Trans. ASME, Jl. Fluids Engrg. vol. 95, p. 247, June 1973.
- Discussion on "Effect of an oscillating free stream on the unsteady pressure on a circular cylinder" Trans. ASME, Jl. Fluids Engrg. vol. 95, p. 253, June 1973.
- A40 Review of "Extended surface heat transfer" by D.Q. Kern and A.D. Kraus, ASEE Mechanical Engineering News vol. 10, no. 4, p. 26, November 1973.
- Abstract on "Microporous teflon helical coil oxygenator" (with P.M. Galletti and K. Tanishita) Amer. Soc. Artif. Intl. Organs Abstracts vol. 3, p. 24, 1974.
- Abstract on "Pathophysiology and pathological anatomy of artificial lungs" (with P.M. Galletti) Amer. Soc. Art. Intl. Organs Abstracts vol. 3, p. 58, 1974.

Abstract on "Role of compliance in the performance of membrane oxygenators" (with W. Murphy and P.M. Galletti) Amer. Soc. Art. Intl. Organs Abstracts vol. 3, p. 58, 1974.

Rapporteur commentary for Session FC8 (Forced convection-single bodies, tube banks), 5th Internat. Heat Transfer Conference, Tokyo, vol. VI, p. 190, September 1974.

- A45 Discussion of "Normalization of oxygen transfer data in membrane oxygenators" and the "Limited models for the transfer of CO₂ and O₂ in membrane oxygenators" Trans. Amer. Soc. Artif. Intl. Organs vol. 20A, p. 227, 1974.

Discussion of "A combined membrane pump-oxygenator: design and testing" Trans. Amer. Soc. Artif. Intl. Organs vol. 20A, p. 261, 1974.

Discussion on "Thermal characteristics of Apollo 16 lunar fines" Fifth Internat. Ht. Trans. Conf. vol. 7, p. 20, 1974.

Discussion on "The nature of electron beam effect on metals" Fifth Internat. Ht. Trans. Conf. vol. 7, p. 22, 1974.

Discussion on "Local heat transfer characteristics of two-dimensional impinging air jets" Fifth Internat. Ht. Trans. Conf. vol. 7, p. 30, 1974.

- A50 Discussion on "Local heat transfer characteristics of two-dimensional impinging round jet by free-stream turbulence" Fifth Internat. Ht. Trans. Conf. vol. 7, p. 58, 1974.

Response to Rapporteur for "Local variation of heat transfer around a heated circular cylinder in a sound field" Fifth Internat. Ht. Trans. Conf. vol. 7, p. 63, 1974.

Authors' Rebuttal, Fifth Internat. Ht. Trans. Conf. vol. 7, p. 64, 1974.

Discussion on "Local convective-heat transfer coefficients for jets impinging on a plate: experiments using a liquid-crystal technique" Fifth Internat. Ht. Trans. Conf. vol. 7, p. 155, 1974.

Abstract on "A roller pump-membrane oxygenator system which obeys Starling's Law" (with P.M. Galletti) Amer. Soc. Artif. Int. Organs Abstr. vol. 4, p. 20, 1975.

- A55 Abstract on "Water transfer and accumulation in membrane oxygenators" (with P.M. Galletti, L.A. Trudell and W.R.C. Murphy) Amer. Soc. Artif. Int. Organs Abstr. vol. 4, p. 53, 1975.

Discussion on "Pathophysiology and mechanics of membrane lung performance deterioration" Trans. Amer. Soc. Artificial Internal Organs vol. 21, p. 214, April 1975.

Discussion on "Hematologic responses to prolonged extracorporeal circulation (ECC) with microporous membrane devices" Trans. Amer. Soc. Artificial Internal Organs vol. 21, p. 257, 1975.

Abstract on "Redistribution of blood flow under assisted circulation through veno- arterial oxygenation" (with P.M. Galletti, J.M. Van De

- Water and L.A. Trudell) Amer. Soc. Art. Int. Organs vol. 5, p. 27, 1976.
- Discussion on "Kinetics of thrombus formation" Trans. Amer. Soc. Artif. Int. Organs vol. 22, p. 227, 1976.
- A60 Discussion on "Periodic flow in a wind tunnel produced by rotating shutters" ASME Jl. Fluids Engng. vol. 98, p. 281, June 1976.
- Abstract on "Microparticle detection with focused ultrasound" (with L.R. Abts, R.T. Beyer, P.M. Galletti and K.E. Karlson) Jl. Acoust. Soc. Amer. vol. 60, Suppl. 1, p. S53, Fall 1976.
- Discussion on "Platelet adhesion to foreign surfaces under controlled conditions of whole blood flow" Trans. Amer. Soc. Artif. Int. Organs vol. 23, pp. 150-151, 1977.
- Discussion on "The floating droplets oxygenator: developments using fluorocarbons with coaxial rotating cylinders" Trans. Amer. Soc. Artif. Int. Organs vol. 23, p. 469, 1977.
- Abstract on "Detection of microparticles in flowing blood using focused ultrasound" (with L.R. Abts, R.T. Beyer, P.M. Galletti and K.E. Karlson) Amer. Soc. Artif. Int. Organs Abstr. vol. 5, p. 1, 1977.
- A65 Abstract on "Enhancement of human platelet adhesion by exposure to shear stress in a flow chamber" (with S.F. Mohammad and R.G. Mason) Amer. Soc. Artif. Int. Organs Abstr. vol. 5, p. 72, 1977.
- Abstract on "Aggregation of human platelets in an accelerating uniform shear" (with H. Rieger and H. Schmid-Schonbein) Amer. Soc. Artif. Int. Organs Abstr. vol. 5, p. 73, 1977.
- Abstract on "Microparticle detection in a flowing fluid stream" (with L.R. Abts, R.T. Beyer, P.M. Galletti and K.E. Karlson) Internat. Acoustic Soc., Madrid, July 1977.
- Abstract on "Low heparin levels and microemboli size and their effects on the Johnson & Johnson arterial line filter" (with L.R. Abts, R.T. Beyer, P.M. Galletti and K.E. Karlson) Amer. Soc. Extracorp. Tech. Abstr. 1977.
- Abstract on "Theory for speed of response of the hybrid artificial pancreas" (with P.M. Galletti) Amer. Soc. Artif. Internal Organs Abstr. vol. 7, p. 49, 1978.
- A70 Abstract on "Influence of blood flow on granulocyte adhesion in venules" (with G.V.R. Born and M. Planker) Proc. Physiol. Soc. Lond. 100P, December 1978.
- Abstract: Abts LR, Beyer RT, Richardson PD, Galletti PM, Karlson KE. Reflection from microparticles in a flowing liquid. J Acoust Soc Amer 64: S62-S62, Suppl.1, 1978
- Abstract on "Haemorheological effects in thrombocyte adhesion and aggregation found under controlled flow conditions" Thrombosis Haemostas. (Stuttgart) vol. 42, p. 337, 1979.
- Abstract on "Release of ADP from erythrocytes under high shear stresses

in tube flow" (with H. Schmid-Schonbein, I. Rohling-Winkel, P. Blasberg, E. Jungling, A. Wehmeier and G.V.R. Born) Thrombosis Haemostas. (Stuttgart) vol. 42, p. 349, 1979.

Abstract on "Influence of blood flow on granulocyte adhesion in venules" (with Born GV and Planker M) J Physiol 289: 76P-77P, Apr 1979

- A75 Abstract on "Control of blood film thickness in sheet flow membrane oxygenators" (with J.P. Gille and P.M. Galletti) Amer. Soc. Artificial Intl. Organs Abstr. vol. 9, p. 20, 1980.

Abstract on "Fibroblast attachment and growth on modified microfibrillar polytetra- fluoroethylene (PTFE)" (with M.A. Prince, N. Hayner, G. Panol, L.A. Trudell, H. Jauregui and P.M. Galletti) Amer. Soc. Artificial Int. Organs Abstr. vol. 9, p. 37, 1980.

Discussion on "Enhanced thromboresistance of surfaces by denucleation" Trans. Amer. Soc. Artif. Internal Organs vol. 26, p. 158, 1980.

Discussion on "Investigation of pulsating turbulent pipe flow" Trans. ASME Jl. Fluids Engng. vol. 102, p. 244, June 1980.

Discussion on "Turbulent flow measurements by laser-Doppler anemometry in motored piston-cylinder assemblies" Trans. ASME Jl. Fluids Engng. vol. 102, p. 251, June 1980.

- A80 Abstract on "Mass transport to pulsatile flows in circular tubes given curvature in different patterns" (with P.M. Galletti and K. Tanishita) Fourth Annual Conference, American Society of Biomechanics, p. 26, October 1980.

Abstract on "Performance of high flow rate roller pumps with very compliant tubes" (with P.M. Galletti and L.A. Trudell) Amer. Soc. Artificial Int. Organs Abstracts vol. 10, p. 34, May 1981.

Abstract on "Adhesion of human platelets in steady shear flow: effects of drugs" (with R. Kane and K. Agarwal) Thrombos. Haemostas. (Stuttgart) vol. 46, no. 1, p. 174, July 1981.

Abstract on "Rheology of human blood observed in oscillating flow in a tube" (with S. Lazzara) 2nd European Conference on Clinical Haemoeology, London, p. 107, Sept.-Oct. 1981.

Discussion on "the pathological basis and microanatomy of occlusive thrombus formation in human coronary arteries" Phil. Trans. Roy. Soc. (London) B vol. 294, p. 229, 1981.

- A85 Abstract of "Effect of pulsatile blood flow on gas transport in serpentine tube membrane oxygenator" (with K. Tanishita, K. Nakano, P. M. Galletti, M. Sugawara, and K. Suma) Amer. Soc. Artif. Int. Organs Abstracts, vol. 11, p. 19, April 1982.

Abstract on "CO2 removal through a microporous membrane lung" (with R. Barthelemy, R. Puel, A. Enjalbert, L. A. Trudell and P. M. Galletti) Internat. Jl. Artif. Organs, vol. 5, p. 54, 1982.

Abstract on "The elastic response of rubber balloons and hollow viscera,

based on large deformation theory" (with C. H. Regnier, H. Kolsky, J. F. Susset and G. M. Ghoneim) Proc. 3rd International Conference on Mechanics in Medicine and Biology, Compiègne, France, p. 120, July 1982.

Abstract on "Histopathologic characterization of tissue-material interactions in bioresorbable vascular prostheses" (with H. F. Sasken, L. A. Trudell, P. M. Galletti; T.-H. Chiu, and E. Nyilas) 9th Annual Meeting of the Society for Biomaterials, Birmingham, Alabama: Trans Ann Meeting of Society of Biomaterials in conjunction with the Interna 6: 82, April 1983.

Abstract on "Rheology of obstruction thrombosis and embolism in artificial organs" Amer. Soc. Artif. Int. Organs Abstracts, vol. 12, p. 31, April 1983.

- A90 Abstract on "Microporous tubing used as an artificial glomerulus" (with L. A. Trudell and P. M. Galletti) Amer. Soc. Artif. Int. Organs Abstracts, vol. 12, p. 68, April 1983.

Abstract on "Strength of capsule tissue formed around lactic acid polymer implants" (with C. Owens, G. Panol, H. Sasken and T.-H. Chiu) Amer. Soc. Artif. Int. Organs Abstracts, vol. 13, p. 72, 1984.

Abstract on "Flow separation in branched ducts under pulsatile flow conditions" Amer. Soc. Artif. Int. Organs Abstracts, vol. 14, p. 21, 1985.

Abstract on "Tissue-material interactions between Vicryl and bioresorbable polymeric coated Vicryl " (with H. Sasken, T. K. Ip, T.-H. Chiu, L. A. Trudell and P. MacMillan) Amer. Soc. Artif. Int. Organs Abstracts, vol. 14, p. 28, 1985.

Abstract on " Fluid dynamics around arterial branches" Amer. Assoc. Med. Inst. 20th Ann. Meeting, p. 75, 1985.

- A95 Abstract on "Rheological analysis of bleeding time" Satellite Symposium on Blood Rheology in Thrombogenesis, Xth Congress Internat. Soc. Thrombosis Hemostasis, San Diego, July 1985.

Abstract on "An implantable continuous ultrafiltration device" (with L. A. Trudell, P. Aebischer, G. Panol; and P. M. Galletti) Artificial Organs, vol. 9(A), p. 22, Oct. 1985.

Abstract on "Tissue characterization by micromechanical testing of growths around bioresorbable implants" (with A. Parhizgar, H. F. Sasken, T. H. Chiu, P. Aebischer, L. A. Trudell and P. M. Galletti) Artificial Organs, vol. 9(A), p. 71, Oct. 1985.

Abstract on "Laboratory evaluation of bioresorbable vascular grafts" (with P. M. Galletti, L. A. Trudell, H. F. Sasken, P. Aebischer; and T. H. Chiu) Artificial Organs, vol. 9(A), p. 67, Oct. 1985.

Review of "Handbook of Heat Transfer Fundamentals" 2nd Edn., ASME Jl. Appl. Mech. vol 53, p. 232, March 1986.

- A100 Review of "Numerical simulation of fluid flow and heat/mass transfer processes (Lecture Notes in Engineering)," N. C. Markatos, D. G.

- Tatchell, M. Cross & N. Rhodes, Eds. Trans. ASME, J. Appl. Mech., vol. 53, 963-4, December 1986.
- Abstract on "Concentric total artificial heart (CTAH) and biventricular assist systems (CBVAS) with integral toroidal energy converters" (with A. J. Lande, J. D. Nixon, R. L. Peterson, Z. Khan and E. F. Leonard) Amer. Soc. Artif. Int. Organs Abst., vol. 16, p. 11, 1987.
- Abstract on "Performance of a new tube configuration for artificial lungs: Chinese button knots" (with M. T. Lawton) Amer. Soc. Artif. Int. Organs Abstr., vol. 16, p. 63, 1987.
- Abstract on "Design of membrane sheet oxygenators for minimum flow resistance," Amer. Soc. Artif. Int. Organs Abst., vol. 16, p. 63, 1987.
- "Soft tissue remodeling," in "Tissue Mechanics," R. Skalak & C. F. Fox (Eds.), 65-67, Alan R. Liss, New York, 1988.
- A105 Abstract on "Developments in blood oxygenation," Physics in Med. and Biol., vol. 33, p.?, 1988.
- "Tissue mechanics in blood vessel walls" (with S.M. Keeny) First World Congress of Biomechanics, San Diego, Abstracts vol II, p.52, 1990
- "Biomechanics of coronary plaque fissure" (with M.J. Davies and G.V.R. Born) First World Congress of Biomechanics, San Diego, Abstracts vol II, p.246, 1990
- "Blood flow, pressure, and wall stress near arterial branches" First World Congress of Biomechanics, San Diego, Abstracts vol II, p.332, 1990
- Richardson PD. "Does ABET do its job well - Response." Engng Education 80 (5): 512-513, July-Aug 1990.
- A110 Richardson PD, Shaw R, Crisman E, Loomis A, Laszewski Z. "Eye-wink controlled wheelchair for persons with severe physical disability." Ann Biomed Engng 19(5): 648-649, 1991.
- "Platelet Adhesion to Platelet-prepared Sites" Abstract vol of Annals of Biomedical Engineering vol 23, 1995.
- Richardson PD, Portnoy L, Ryan A. "Assessment of drug effects on thrombosis using an in vitro bleeding time model" ASAIO J1 43(2): 3, 1997.
- Guo D, Richardson PD. "Arterial lumen assessment from intravascular ultrasound: time-series analysis" Ann Biomed Engng vol. 25, Suppl. 1, #386, p. S25, 1997.
- Guo D, Hughes JF, Richardson PD. "Automatic microscope image mosaic." Ann Biomed Engng 26: S14, October 1998.
- A115 Guo D, Richardson PD. "Intravascular ultrasound of coronary arteries can be analysed for phasic dilatation" 3rd European Meeting on Pulse Wave Analysis, Royal Soc Medicine, London, Feb 2001.
- Forsberg A, Richardson PD, Sobel JA, Laidlaw DH, Keefe DF, Pivkin I,

Karniadakis GE. Arterial Motions and Flows Seen in Virtual Reality. Internat. Fed. for Medical and Biological Engineering vol 4, Proceedings World Congress on Medical Physics and Biomedical Engineering, Sydney Australia, Aug 2003; ISBN 1-877040-14-2

Pivkin IV, Richardson PD, Karniadakis GE. Simulation of platelets in Arterioles and Venules. 56th Annual APS Division of Fluid Dynamics Meeting, Meadowlands NJ, 23-25 November 2003

Guo D, Richardson PD. Using video sequence analysis to detect heartbeats automatically from intravascular ultrasound recorded in vivo: Applications to time invariant 3D shape reconstruction and measurements. RSNA 2004 meeting, Abstract Code SSC18-03 [oral presentation made Mon 29 Nov 2004]

A118 Richardson PD, Pivkin IV, Karniadakis GE. Red cells in shear flow: Dissipative particle dynamics modeling. Biorheology 45(1-2): 107-108, 2008

[this category not consistently updated since 1996]

6.i OTHER (e.g. exhibitions, performances, etc)

6.i.1 EXHIBITIONS

From March 2005: in The Childrens' War Exhibition, Imperial War Museum, Lambeth, London - I contributed photographs, kindergarten school report, contemporaneous drawing of airplane crashed behind a house, and notes, all part of exhibit attributed to me (located on wall of prefab house, facing the "1940s House"); exhibition planned for 3 years in first instance; now extended to 29th February 2012

6.i.2 MISCELLANEOUS

(A category newly added in 1988 to list published materials outside the normal stream; not yet fully retro-updated for such items prior to, or after, 1988).

M1 Richardson PD and fellow student: Form 1A Report for John Fisher School Magazine, 1945

Richardson PD. Letter in "The Autocar" advocating advantages of front-wheel drive for cars, about 1953

Richardson PD. Letter in Road & Track, re "Driving to Save Fuel", describing measurement of effect of drafting with trucks, April 1974

Richardson PD. "Lord Rayleigh and Thick Pancakes" in "But the Crackling is Superb: An Anthology on Food and Drink by Fellows and Foreign Members of the Royal Society" (ed by N & G Kurti) Adam Hilger, Bristol, 1988

- reprinted 1989 (twice), 1993

- reprinted in paperback, Institute of Physics, Bristol/Philadelphia, 1997; pp. 29-33

M5 Richardson PD. "Mish Mush" in "But the Crackling is Superb: An Anthology on Food and Drink by Fellows and Foreign Members of the Royal Society" (ed by N & G Kurti) Adam Hilger, Bristol, 1988
- reprinted 1989 (twice), 1993

- reprinted in paperback, Institute of Physics, Bristol/Philadelphia, 1997; p. 231
- Richardson PD. "Brian Spalding and the Humphrey Pump" Festschrift for D.B Spalding, FRS, on his retirement (Sept 1988)
- Richardson PD. "Priorities for action", Brown Univ Faculty Bulletin 1(1): 12, 1988
- Richardson PD. "Consent Decree in brief", Brown Univ Faculty Bulletin 1(2): 2-4, 1988
- Richardson PD. "New grievance procedure", Brown Univ Faculty Bulletin 1(5): 13-15, 1989
- M10 Landow G, Richardson PD, Wegner P. "Putting the grievance procedure to bed", Brown Univ Faculty Bulletin 1(7): 2, 1989
- Richardson PD. "Cathedral Town Revisited", Brown Univ Faculty Bulletin 1(7): 13-15, 1989
- Richardson PD. "Integrating synthesis and analysis in science education" Brown Univ Faculty Bulletin 3(2): 19-20, October 1990.
- Richardson PD. "Campus-wide contribution to reducing health insurance costs" Brown Univ Faculty Bulletin 3 (3): 15-16, November 1990.
- Richardson PD. "After "Two Cultures", another academic divide" Brown University Faculty Bulletin 5 (1): 21-23, Sept 1992
- M15 Richardson PD. "What should be in the Faculty Rules", Brown Univ Faculty Bulletin 5 (3): 6-9, 1992/3
- Richardson P, Freund B. Kestin, Joseph, 1913-1993 - in Memoriam. Trans ASME J Appl Mech 60 (2): 259-259, June 1993
- Richardson PD. "Marble machine", Letter to Editor, Brown Alumni Monthly, 95(7): 5, April 1995
- Richardson PD. "Four decades of collegiality", Brown Univ Faculty Bulletin 9 (1): 35-36, 1996
- Richardson PD. "Giraffes, volcanic mountains, artificial hearts and other summer sights" Brown Univ Faculty Bulletin 10 (1):33-35, November 1997
- M20 Richardson PD. "My Artificial Organs Research and Teaching with Pierre Galletti." Brown University Faculty Bulletin vol 10(2): 56-58, May 1998.
- Born GVR, Richardson PD. Contribution to Obituary for Sir James Lighthill, FRS, The Independent, London, 1 August 1998
- Richardson PD. Letter to the Editor (re University Admission procedures), Daily Telegraph, London, 28 August 2000.
- Richardson PD. "Those who study history may find that, in their own

way, they have repeated it already anyway." Brown University Faculty Bulletin, New Series vol 1(1): 15-17, October 2000.

Richardson PD. "Can reliving history teach and change us?" Brown Univ News Service Op-Ed 00-063, December 2000

- M25 Richardson PD, Wegner P. Editorial. Brown University Faculty Bulletin 3-4, Fall 2001.

Richardson PD. Footnotes: Letter to the Editor, The Times, London, 16 February 2002.

Wegner P, Richardson PD. Editorial. Brown University Faculty Bulletin May 2002.

Richardson PD. After spending more than forty years at Brown. Brown University Faculty Bulletin, new Series, vol III, No 1, 20-22, 26 November 2002

Wegner P, Richardson PD, Lipsitt L. Editorial Introduction. Brown University Faculty Bulletin, new Series, vol III, No 1, 3-4, 26 November 2002

- M30 Richardson PD. Thoughts on Making the University a Better Place. Brown University Faculty Bulletin, new Series, vol III, No 2, 23-27, June 2003

Wegner P, Richardson P. Editorial Introduction. Brown University Faculty Bulletin, new Series, vol III, No 2, 2-3, June 2003

Lipsitt LP, Richardson P. The Elderbears have arrived and the Neighborhood may Never Be the Same. Brown University Faculty Bulletin, new Series, vol IV, No 1, 5-9, February 2004

Wegner P, Richardson P. Editorial Introduction. Brown University Faculty Bulletin, new Series, vol IV, p.2, February 2004

Wegner P, Richardson P. Editorial. Brown University Faculty Bulletin, new Series, vol V, No.1, December 2004

- M35 Richardson PD. Sixty years after World War II ended in Europe: some reflections on its impact on Brown, and a personal footnote. Brown University Faculty Bulletin, new Series, vol. V, No.2, 33-34, May 2005

Wegner P, Richardson PD. Editorial Introduction. Brown University Faculty Bulletin, new Series, vol. V, No.2, p.2, May 2005

Richardson PD. Letter to the Editor, The Times, London, p.16, 28 June 2005 (regarding recall of living scientists' names by teenagers and others)

Wegner P, Richardson PD. Editorial Introduction. Brown University Faculty Bulletin, vol. VI, No.1, p.2, December 2005

Wegner P, Richardson PD. Editorial Introduction. Brown University

- Faculty Bulletin, vol. VI, No.2, p.2, June 2006
- M40 Richardson PD. Curricula and Grading Systems: Time for Another Change? Brown University Faculty Bulletin, vol. VI, No.2, pp.20-23, June 2006
- Wegner P, Richardson PD. Editorial Introduction. Brown University Faculty Bulletin, vol VII, No.1, 3-4, December 2006
- Richardson PD. The problems of cheating and plagiarism. Brown University Faculty Bulletin, vol. VII, No.1, 28-30, December 2006
- Richardson PD. A short history of biomedical engineering at Brown. Brown University Faculty Bulletin, vol. VII/No.2, pp. 25-30, June 2007
- Richardson PD. Interaction with Birds. Brown University Faculty bulletin, vol. VIII/No.1, pp. 21-22, Feb. 2008
- M45 Richardson PD. Your Car, Your Gas Consumption, How to do Better. Brown University Faculty Bulletin, vol. VIII/No.1, pp. 22-23, Feb 2008
- Richardson PD. Editorial Supplement. Brown University Faculty Bulletin, vol. VIII, No.2, pp.33-35, July 2008
- Wegner P, Richardson PD. Editorial Introduction. Brown University Faculty Bulletin, vol IX, No.1, pp.2-3, Feb. 2009
- Richardson PD. A Sadder Side of Teaching. Brown University Faculty Bulletin, vol. IX, No.1, pp. 24-26, Feb 2009
- Wegner P, Richardson PD. Editorial Introduction. Brown University Faculty Bulletin, vol.IX, No.2, p.2, May 2009
- M50 Richardson PD. Charles Darwin and my Ancestral Family. Brown University Faculty Bulletin, vol.IX, No.2, pp. 18-20, May 2009
- Richardson P. Comment posted to article in Daily Telegraph (UK), "University is worth it", 20 August 2009 7:24 AM
- Richardson PD. How Does Teaching Improve Your Research? Brown University Sheridan Center Teaching Exchange, issue 15.1, Faculty Forum pp. 3-6, September 2009
- Richardson PD. Honoring the war dead at Brown. Brown Daily Herald vol. CXLIV, no.106, p.6, 13 November 2009
- Wegner P, Richardson PD. Editorial Introduction. Brown University Faculty Bulletin, vo. X, No.1, pp.2-3, December 2009
- M55 Richardson PR. Armistice Day-Veterans Day. Brown University Faculty Bulletin, vol. X, No. 1, pp.26-28, December 2009
- Wegner P, Richardson P. Editorial Introduction. Brown University Faculty Bulletin, vol. X, No. 2, pp. 2-3, May 2010
- Richardson P. Cover Photo: Spring Weekend by Seekonk River. Brown University Faculty Bulletin Vol. X. No. 2

Richardson PD. On Voyaging into the History of Medicine. Brown University Faculty Bulletin vol. X, No. 2, pp. 23-24, May 2010

6.i.2

Proof-read 4th edition of H. Schlichting's "Boundary Layer Theory", McGraw-Hill, 1960.

Interview in PULS, Video-Forum fur den fortschrittlichen Arzt, following Award of the Jung Laureate in Medicine, 6/87 (June 1987).

6.g. INVITED LECTURES

No systematic records kept prior to 1978

- I1 Division of Engineering series on Man, His Environment, and Engineering "Man and/or Machine: Problems and Prospects in Bioengineering", 17 December 1970

Artificial Organ Laboratory series, Biomed Brown, 21 June 1977
"Red cell response to shear flow conditions"

Surgical Grand Rounds, VA Hospital, Providence, Friday April 21, 1978
"Some fluid mechanical effects in blood flows: effects on thrombosis"

"Ultrasound detection of emboli" invited presentation (about 2 1/2 hours) at Columbia University Seminar on Biomaterials, 31 March 1978

"Rheology of thrombotic processes occurring in flow: the interaction of erythrocytes and thrombocytes" by H. Schmid-Schonbein, P.D. Richardson, G.V.R. Born et al., Invited lecture at 3rd International Congress of Biorheology, La Jolla, delivered by HSS (Sept 1978)

Artificial Organ Laboratory series, Biomed Brown, 16 October 1978
"The implantable artificial lung project"

Artificial Organ Laboratory series, Biomed Brown, 20 November 1978
"Fluid dynamics of wound drainage systems"

Artificial Organ Laboratory series, Biomed Brown, 12 February 1979
"Manifolding of artificial organs: flow resistance and thrombosis"

"Dynamic theory of leukocyte adhesion" Ciba Foundation Symposium, London, March 1979

- I10 Artificial Organ Laboratory series, Biomed Brown, 16 April 1979
"Platelet adhesion in controlled flow conditions"

Artificial Organ Laboratory series, Biomed Brown, 14 April 1980
"Transport aspects of the implantable artificial lung"

"Time dependence of adhesion forces between blood cells and walls" Symposium on Cellular Adhesion applied to Thrombosis and Haemostasis, St. Paul de Vence, October 1980

"Rheology" Royal Society Meeting on Interaction of the Platelets and the

- Vessel Walls, London, November 1980
- "Effects of rheological factors in transport from blood flowing in tubes"
Physiological Flow Studies Unit, Imperial College, London, November 1980
- Artificial Organ Laboratory series, Biomed Brown, 1 December 1980
"Mechanical testing of vascular grafts"
- "Biorheology and artificial organs" University of Pisa, 3 July 1981
- "Platelet adhesion in a flow chamber" invited presentation (about 2 1/2 hours) Columbia University Seminar on Biomaterials, 30 April 1982
- Grand Rounds, Memorial Hospital, Pawtucket, 17 November 1982
- Artificial Organ Laboratory series, Biomed Brown, 6 December 1982
"Systems with large compliance"
- I20 Artificial Organ Laboratory series, Biomed Brown, 2 May 1983
"A theory of in vitro bleeding time"
- Artificial Organ Laboratory series, Biomed Brown, 3 October 1983
"PVF2 sensors to monitor vascular graft performance"
- "Artificial Organs", lecture given at Postgraduate Medical Education Course, University of Michigan, Ann Arbor, 30 May 1984.
- "Qualitative and quantitative methodology for investigating gas emboli in blood", Assoc. Adv. Medical Instrum. Annual Meeting, Washington, D.C., 17 April 1984.
- "Fluid Dynamics Around Arterial Branches," Assoc. Adv. Med. Instrum. Annual Meeting, Boston, 6 May 1985.
- "Fluid Mechanics in Thrombosis," University of Rhode Island, 8 April 1986.
- "Mechanics of blood vessel walls," College of Physicians and Surgeons, Columbia University, October 1986.
- "Biomedical engineering and artificial organs: twenty years of development," Fourth Sir Owen Saunders Lecture, University of London - Imperial College, 25 November 1986.
- Plenary Lecture, 6th International Conference on PhysicoChemical Hydrodynamics: "Physiological aspects of physicochemical hydrodynamics," Oxford, England, 6 April 1987.
- "Transport and wall interactions of flowing blood," University Stuttgart, W. Germany, 14 May 1987.
- I30 "Transplantation and artificial organs," 40th Anniversary Symposium, British Postgraduate Medical Federation, 4 June 1987.
- "Platelet adhesion and aggregation on various surfaces," RIBB Soc., Pawtucket, RI, 17 September 1987.
- "Mechanics and physiology of arterial atherosclerosis," Atherosclerosis

Workshop, University of Manchester, 2 September 1987.

Faculty Colloquium: "Blood Vessels: Meeting Ground of Many Sciences," 11 November 1987.

"Tissue mechanics of blood vessel walls" at Tissue Engineering Workshop, Granlibakken, Lake Tahoe, 1988

"Mechanical stresses and fracture of atherosclerotic arteries" Dept Pathology, RI Hospital, 24 Feb 1988

"Developments in blood oxygenation" at First World Congress on Medical Physics and Biomedical Engineering, San Antonio, Aug 1988

"Adhesion/departure of cellular elements," Gordon Conference on "consequences of Initial Biomaterial/Biosystem Contacts," Holderness School, Plymouth, New Hampshire, 10-14 July 1989.

"Fissuring of plaques in atherosclerotic human arteries", Surgical Research Conference, 18 February 1992.

"Plaque Rupture" (with M.J. Davies) Inaugural William Harvey Research Institute / UT HSC Biomedical Conference, Marlow, Buckinghamshire, September 1992.

I40 "The status of Pancreatic Transplantation and Islet Cell Culture" International Workshop of Diabetes Mellitus and Cardiovascular Disease, Cancun, Mexico, May 1994

"Critical stresses in critical arteries," Jung Foundation Centennial Celebration Meeting, Hamburg, Germany, May 1996

"Flows and wall mechanics in critical arteries," Keynote Lecture, Japan Society of Mechanical Engineers, Centennial Grand Congress, Tokyo, Japan, July 1997

"Haemodynamic factors in atherogenesis and lesion localization," presented at Symposium on New Data and Concepts of Atherogenesis, International Union of Angiology European Congress of Angiology, Rome, Italy, 25 October 1997

"Elliptic delamination as an early stage in atherosclerotic plaque evolution", Euromech 420 meeting, M,canobiologie des Cellules et des Tissus, 25th April 2001

"Arterial elasticity and district differences" 20th World Congress of the International Union of Angiology, Plenary Session VIII - Patients with peripheral arterial disease and changes in the upper limb vessels, New York, April 8, 2002

"Biomechanics insight of plaque vulnerability and rupture", 4th Annual Molecular Imaging Workshop, Radiology Dept., Medical School, Michigan State University, 30 July - 1 August 2003

Comments at Wellcome Trust History of Medicine Seminar on Platelets in Thrombosis and Other Disorders, Wellcome Trust Building, London UK, 25 November 2003 (volume of Witness Seminar edited and published;

see under "REPORTS")

"Biophysics and biochemistry: An example of dialog in cardiac arteries"
The 101 Forum, Thursday May 6th, 2004

"Mechanical Properties of Atherosclerotic Tissues" Keynote Lecture,
(PowerPoint) IUTAM Symposium on Mechanics of Biological Tissue, Graz,
Austria, delivered in Session 12, 1 July 2004; Symposium Abstracts
p.62

- I50 "Our collaboration with Michael Davies on the Vulnerable Plaque"
after-Dinner speech at the Joint Meeting of the British Atherosclerosis
Society and the British Society for Cardiovascular Research, Oxford
University, 2nd April 2009

6.g.ii INVITED PANELIST

"Prolonged Respiratory Support" ASAIO, April 1979

"Platelets and Artificial Organs" ASAIO, April 1979

"Haemorheological Aspects of Thrombosis" 7th Internat. Congr. on
Thrombosis and Haemostasis, July 1979

"Hybrid Artificial Organs" American Society for Artificial Internal
Organs, April 1980 (Chairman and Organizer: panelists Dobelle WM,
Mason RG, Weinberg S.)

"Membranes in artificial organs: a state-of-the-problem discussion"
American Society for Artificial Internal Organs, April 1983

"ECMO--Artificial Lung, Lung Transplant", American Society for Artificial
Internal Organs, May 1984, Washington, DC.

"Flow in stenosed coronary arterial vessels" Invited Discussion at Joint
British Atherosclerosis Discussion Group / European Atherosclerosis
Society Meeting, Cambridge, England, September 1992

- 6.h. PAPERS READ PERSONALLY, since 1974 (no systematic records before that
date) (In addition to INVITED PAPERS)

"Forced convection - single bodies, tube banks" Rapporteur's commentary
5th Int. H. T. Conf., Tokyo, Japan, August 1974

"Oxygenator testing and evaluation: meeting ground of theory,
manufacture, and clinical concerns" Rungsted Kyst, Denmark, June 1975

"Design factors affecting thrombosis during extracorporeal membrane
oxygenation" Rungsted Kyst, Denmark, June 1975

"Correlation of effects of blood flow rates, viscosity and design
features on artificial lung performance," Rungsted Kyst, Denmark, June
1975

"Regional administration of drugs to control thrombosis in artificial
organs" San Francisco, April 1976

"Development of laser anemometry for blood-velocity measurement in small diameter tubes" New Haven, May 1976

"Blood oxygenators: 1977 view of progress and problems" Washington, D.C., September 1977

"Flow chamber studies of platelet adhesion at controlled, spatially varied flow rates" London, England, November 1977

7th N. E. Bioengineering Conference, Troy, N.Y., March 1979:

"Hydrodynamics of blood manifolds on artificial organs"; "Platelet adhesion in a flow chamber"; "Ultrasound detection of aggregation of red cells in blood flow"

Amer. Soc. Artif. Internal Organs Annual Meeting, N.Y., N.Y. April 1979: "Dynamics of platelet interaction with surfaces in steady flow conditions"

7th Internat. Congr. Thrombosis & Haemostasis, London, July 1979:

"Haemorheological effects on thrombocyte adhesion and aggregation"

Symposium on Cell Membrane in Function and Dysfunction of Vascular Tissue, Fondation Cardiologique Princesse Liliane, Argenteuil, Belgium, July 1980: "Activation delay time of platelets"

Fourth Annual Conference, American Society of Biomechanics, Burlington, VT, October 1980: "Mass transport to pulsatile flows in circular tubes given curvature in different patterns"

Ninth Northeast Bioengineering Conference, New Brunswick, NJ, "Rheology of blood oscillating in a tube"

Annual Meeting, American Society for Artificial Internal Organs, Anaheim, CA, "Effects of drugs on adhesion of human platelets"

Eighth International Conference on Thrombosis and Haemostasis, Toronto, Ontario, "Adhesion of human platelets in steady shear flow: effect of drugs"

Second European Conference on Clinical Haemorheology, London, England "Rheology of human blood observed in oscillating flow in a tube"

"Comparison of flow pulsation and mechanical oscillation in augmentation of gas transport through a coiled tube" 10th North East Bioengineering Conference, Hanover, NH, March 1982

"Total extracorporeal CO₂ removal in a pumpless artery-to-vein shunt" Annual Meeting, American Society for Artificial Internal Organs, Chicago, April 1982

"Turnover of adherent platelets: some effects of shear rate, ASA and reduced anticoagulation" Annual Meeting, American Society for Artificial Internal Organs, Chicago, April 1982

"Wound drainage improved by pulsation" Poster presentation at 35th Am. Conf. on Engng. in Med. and Biology, Philadelphia, September 1982

"Properties of blood and thrombosis: haemodynamic aspects"
Atherosclerosis Discussion Group Meeting, Oxford, England, March 1983

"PVF2 sensors for monitoring pulse and turbulence in prosthetic vascular grafts" International Symposium on Piezoelectricity in Biomaterials, Pisa, Italy, June 1983

"PVF2 sensors for monitoring pulse and turbulence in prosthetic vascular grafts", ASAIO meeting, Washington, DC, May 1984.

"Mechanical Properties of Carotid Artery Walls," 11th NE Bioengineering Conf., Worcester, 14-15 March 1985.

"Flow in a Tube with a Side Branch," 11th NE Bioengineering Conference, Worcester, 14-15 March 1985.

"Rheological Analysis of Bleeding Time," Symposium on Rheology, Tenth International Congress on Thrombosis and Haemostasis, San Diego, July 1985.

"Fluid Dynamics of Arterial Branches: New Evidence and Interpretation," British Atherosclerosis Discussion Group Meeting, Cambridge (England), September 1985.

"Tissue Characterization by Micromechanical Testing of Growths Around Bioresorbable Implants," 5th World Congress International Soc. Artificial Organs, Chicago, October 1985.

"Tissue developed around bioresorbable implants: load-bearing versus histology," ASAIO Meeting, Anaheim, CA, May 1986.

"Blood oxygenators made of tube in Chinese Button knots," Ann. Conf. Engrg. Med. Biol., Baltimore, MD, September 1986.

"Mechanical properties of human atherosclerotic lesions," Amer. Heart Assoc. Workshop on the Evolution of the Human Atherosclerotic Plaque, Rockville, MD., September 1986.

"Bioresorbable Grafts," New York Academy of Medicine, New York, NY, October 1986.

"A theory for the in vitro bleeding time," 13th Annual NE Bioengineering Conference, Philadelphia, 12 March 1987.

"Stress analysis of atherosclerotic arteries," IEEE 9th Annual Conference of the Engineering in Medicine and Biology Society, Boston, 15 November 1987.

"Anisotropy of human coronary artery intima," 15th Annual Northeast Bioengineering Conference, Boston, March, 1989.

"Flow separation opposite a side branch," 2nd International Symposium on Biofluid Mechanics and Biorheology, Munich, West Germany, 25-28 June 1989.

(not yet updated after 1989 - skipped to 2001)

"Intravascular ultrasound of coronary arteries can be analyzed for phasic dilatation" (by Guo D, Richardson PD), 3rd European Meeting on Pulse Wave Analysis, Royal Society of Medicine, London, 26 Feb 2001

"The Cardiovascular Laboratory: Immersive 3D Unsteady Flow Visualization" presented at 20th World Congress of the International Union of Angiology, Plenary Session VIII - Patients with peripheral arterial disease and changes in the upper limb vessels, in last-minute substitution for the paper of Mariella Catalano (prevented from attending because of pneumonia) New York, 8 April, 2002

"Arterial Motions Seen in Virtual Reality" (PowerPoint with embedded videos), World Congress on Medical Physics and Biomedical Engineering, Paper 656.00, Session 12.05B: Physiome Modelling, Simulation and Visualization, Sydney, Australia, 29 August 2003. International Federation for Medical and Biological Engineering, vol 4, Proceedings 2003 World Congress on Medical Physics and Biomedical Engineering : ISBN 1-877040-14-2

"The Artificial Lung Facility at Brown: More than a Dozen Years with Pierre Galletti" (PowerPoint), American Society for Artificial Internal Organs, 50th Anniversary Conference, Washington DC, delivered in Session Bioengineering B, Friday 18 June 2004; Abstract in ASAIO J1, vol. 50, p.157, March-April 2004

"Blood flow velocity effects and role of platelet activation delay time on thrombus growth rates" (PowerPoint) with I. Pivkin and G.E. Karniadakis, Biomedical Engineering Society Fall Meeting, Philadelphia, 15-16 October 2004.

Guo D, Richardson P. "Using video sequence analysis to detect heartbeats automatically from intravascular ultrasound recorded in vivo: Applications to time-variant 3D shape reconstruction and measurement." Scientific Presentation, Monday November 29th, 2004, Annual Meeting of the Radiology Society of North America (Abstract p. 355)

Richardson PD, Guo D. (PowerPoint) "Phasic dilatation of pig LAD coronary artery found in vivo by IVUS at four mean arterial pressures" Biomedical Engineering Society Fall Meeting, Baltimore, Session on Cardiovascular Engineering: Cardiac Biomechanics and Mechanobiology I, Friday 30 September 2005 (Abstract on meeting CD)

Richardson PD (Ppt) Pivkin IV, Karniadakis GE, Laidlaw DH. Blood flow at arterial branches: complexities to resolve for the angioplasty suite. International Conference on Computer Science 2006, Univ Reading UK; paper presented 30 May 2006

Richardson PD, Tsuyuki GT. Approximate analysis for conjugate heat transfer in solids under steady convection. 13th International Heat Transfer Conference, Sydney, Australia; presented 17 August 2006.

Richardson PD. (Ppt) Malaria in the Microcirculation: Mechanics from Histology. 34th North East Bioengineering Conference, Brown Univ, Providence; presented 6 April 2008.

Richardson PD (Ppt), Pivkin IV, Karniadakis GE. Red cells in shear flow: Dissipative Particle Dynamics modeling. Internat Conference on Biorheology and Clinical Hemorheology, Penn State Univ: presented Session 30, 13 July 2008

6.i.e. MEETINGS ORGANIZED

British Atherosclerosis Discussion Group meeting organizer (with G. V. R. Born) on the Acute Mechanisms of Acute Clinical Events Attributable to Atherosclerosis, 5-6th September 1985, University of Cambridge, England.

Organized invitational meeting to celebrate 25th anniversary of platelet aggregometry, held at Brown University, April 1987.

Planning Committee, First Stein Conference (imaging in medicine and biology), Philadelphia, held September 1989.

18th New England Workshop on Complex Fluids, co-organizer, held at Brown Univ on March 19th, 2004

7. RESEARCH IN PROGRESS

Biomechanics of coronary arteries assessed in vivo during interventional angiography - the goal is to establish a means of assessing the risk of atherosclerotic plaque rupture (which typically leads to the acute phase of the disease, the heart attack) to permit better anticipatory treatment, e.g. angioplasty based on quantified risk, plaque by plaque NHBLI Grant HL48427 (an SBIR - with me as the University "consultant") - had generated data for coronary angiograms of a series of pigs, for use in connection with the above study. Processing the images at a level which can be completed automatically has taken much effort on the computer-graphics side. We expect to develop new proposals to fund work with data from humans, and collaborating with the cardiology group at a Providence hospital - we have already worked together enough to form a functioning personal joint effort, and have implemented a method for capturing the ECG concurrently to digital IVUS recording. Dr D. Guo of Oracle Inc NH is a collaborator. We are also collaborating with other physicians at RI Hospital on other tissue/blood flow related topics.

Flow of biological fluids in microchannels - there is a major effort going on in many places to develop tiny devices for analysis of biological fluids, but effective design and measurement will require accurate knowledge of rheological characteristics of such fluids in the extremely small channels typically used, where many of the assumptions that work with larger-scale devices are likely to be invalid. We have begun computing motions of cells in channels and blood vessels where the adhesion characteristics change, as in thrombus formation above a wall injury. This has led, for example, to a paper in PNAS. We are extending this to include representation of red cells, which are compliant, change their shapes under various conditions, and can also reversibly aggregate into rouleau.

Blood flows in cerebral arteries in the region of the Circle of Willis, with changes induced in blood flow into and out of aneurisms, especially with regard to flow instabilities. Independent studies show pulsations detected in outer ear in same frequency range.

Studies relating to application of concepts from visual arts (esp painting) and cognitive sciences to new methods of visualization for sciences - a group of 10 faculty in total, 7 being at Brown (and of which I am one), have been funded through an NSF ITR, with David Laidlaw of the Computer Science Dept being overall PI. We have reviewed art, especially Impressionist and later, for techniques used to imply aspects of scenes, with discussions and art museum visits with David Kremers, the CalTech Distinguished Conceptual Artist in Biology, and reviewed some viewers' eye-tracking experiments in viewing 2-D images (relates to issues of cognitive activity), with a view to developing 2-D and 3-D representations of e.g. pulsatile blood flow fields in deformable arteries (3-D being done immersively in the Cave). This is now leading to presentations and publication, and new added collaboration with faculty from RISD. I wish to enhance aspects of this to make a tool for research in flow visualization, as well as for teaching cardiology, and participated in preparation of a proposal for a new Cave with colleagues in CS.

Studies relating to thrombosis and hemostasis - I have some sets of results from earlier projects that were ambiguous at the time but for which newer methods and models are likely to permit interpretation, and I seek to reinterpret these so that they can be added to the literature. With G. Karniadakis and M. Maxey, now funded through NSF.

Studies relating to flow in branched tubes - while my interests and methods developed for problems involving branched blood vessels, the basic concepts are being carried over to more general fluid mechanics applications in branched-tube flows.

Energy balance and in-house efficiency of oil burners for domestic space heating. New data being obtained.

Historical aspects of science and engineering - artificial organs, blood platelet phenomena, soft tissue mechanics

8. SERVICE

8.a. TO THE UNIVERSITY

Consistent records have not been accumulated for the period 1958-1978. However, service during this time included:

University Library Committee
University Committee on Prizes and Premiums
Executive Committee, Division of Engineering, 1968-70
Freshman Advisor; Concentration Advisor
various Division of Engineering Committees e.g. Teaching of Design,
Executive Committee, Center for Biomedical Engineering

1978 Biomedical Engineering Concentration Advisor
Engineering Undergraduate Concentration Committee
Executive Committee, Center for Biomedical Engineering
Search Committee, Thermal Sciences position in Engineering

1979 Biomedical Engineering Concentration Advisor

- Engineering Undergraduate Concentration Committee
 Executive Committee, Center for Biomedical Engineering
 Search Committee, Engineering - Thermal Science
 Representative, Science Library Advisory Committee
 Faculty Committee on Awards and Benefits
- 1980 Biomedical Engineering Concentration Advisor
 Engineering Undergraduate Concentration Committee
 Executive Committee, Center for Biomedical Engineering
 Representative, Science Library Advisory Committee
 Faculty Committee on Awards and Benefits
- 1981 Biomedical Engineering Concentration Advisor
 Engineering Undergraduate Concentration Committee
 Representative, Science Library Advisory Committee (to June 1981)
 Faculty Committee on Awards and Benefits; Acting Chairman, Spring 1981;
 Chairman, July, 1981
- 1982 Biomedical Engineering Concentration Advisor
 Engineering Undergraduate Concentration Committee
 Academic Advisor for Liberal Education (Freshmen) Fall 1982
 Faculty Committee on Awards and Benefits: Chairman through June 1982
 Search Committee, Hematology, Memorial Hospital
- 1983 Biomedical Engineering Concentration Advisor
 Engineering Undergraduate Concentration Committee
 Chairman, Tenure Review Committee for J. D. Daniels
 Tenure Review Committee for H. Aref
 Advisor, Brown University Biomedical Engineering Society
 Fluid Mechanics, Thermodynamics and Chemical Processes Group
 Graduate Studies Review Committee
- 1984 Concentration adviser, Biomedical Engineering
 Engineering Concentration Committee
 Freshman advisor, AY 84-85
 University Library Committee
- 1985 Concentration adviser, Biomedical Engineering
 Engineering Concentration Committee
 Chairman, Faculty Committee Awards & Benefits
 University Committee on Benefits
- 1986 Chairman, Faculty Committee on Awards & Benefits (to March)
 Vice Chair, Faculty Executive Committee (from March)
 University Committee on Benefits
 Concentration adviser, Biomedical Engineering
 Engineering Concentration Committee
 Search Committee, Positions 220 & 292, Engineering
 University Committee on Benefits
 Advisory Committee, Office of International Programs and Exchanges
- 1987 Vice Chair, Faculty and Faculty Executive Committee (Jan-June)
 Chair of Faculty and Faculty Executive Committee (July, 1987-June, 1988)
 University Committee on Benefits
 Concentration Advisor, Biomedical Engineering
 Engineering Concentration Committee
 Advisory Committee, Office of International Programs and Exchanges

- Faculty Search Committee (2 vacancies), Engineering
- 1988 Chair of the Faculty & Faculty Executive Committee, through June 1988
 Past-Chair of the Faculty & Faculty Executive Committee, July 1, 1988 -
 30 June, 1989)
 University Advisory Committee on Benefits
 Faculty Advisory Committee, Office of International Programs and
 Exchanges
 Biomedical Engineering Concentration Advisor
 Freshman Advisor
 Chair, Search Committee for Assistant Professor in Biomedical Engineering
- 1989 Past-Chair of the Faculty & Faculty Executive Committee, through June 1989
 Parliamentarian, University Faculty Meetings, (from July 1989)
 University Benefits Committee
 Faculty Advisory Committee, Office of International Programs and Exchanges
 Biomedical Engineering Concentration Advisor
 Freshman Advisor
 Vice-President, Faculty Club (from June, 1989)
- 1990 Parliamentarian, University Faculty Meetings
 University Benefits Committee
 Faculty Advisory Committee, Office of International Programs and Exchanges
 (to June 1990)
 Biomedical Engineering Concentration Advisor
 Vice-President, Faculty Club (to May 1990); President (from May 1990)
- 1991 Parliamentarian, University Faculty Meetings
 University Benefits Committee
 Faculty Committee on Consultation with the Board of Fellows for Honorary
 Degrees
 Biomedical Engineering Society Student Members Advisor
 Biomedical Engineering Concentration Advisor
 President, Faculty Club (to May 1991)
- 1992 Member, University Benefits Committee
 Member, University BioSafety Committee
 Member, Faculty Advisory Committee on Honorary Degrees (part year)
 Parliamentarian (Faculty Officer)
 Adviser, Sophomores
- 1993 Member, University Benefits Committee
 Member, University BioSafety Committee
 Parliamentarian (Faculty Officer)
 Adviser, Freshmen
- 1994 Member, University Benefits Committee
 Member, University BioSafety Committee
 Parliamentarian (Faculty Officer)
 Adviser, Freshmen / Sophomores
 "Points on the Compass" freshmen presentation (with B. Kimia, J. Ladd)
 - Recycling the Human Machine
 ad hoc Committee to organize the Joseph Kestin Memorial Lecture, held
 15 November 1994
 Tenure Review Committee re Sumit Ghosh (Engineering)
 Fluid Mechanics, Thermodynamics and Chemical Processes Search Committee
 [resulting in appointment of R. Hurt]

1995 Member, University Benefits Committee
 Member, University BioSafety Committee
 Parliamentarian (Faculty Officer)
 Adviser, Freshmen / Sophomores
 "Points on the Compass" freshmen presentation (with B. Kimia)
 - Recycling the Human Machine

1996 Member, University Benefits Committee
 Member, University BioSafety Committee
 Parliamentarian (Faculty Officer)
 Adviser, Sophomores
 "Points on the Compass" freshmen presentation
 - Recycling the Human Machine

1997 Member, University Benefits Committee
 Member, University BioSafety Committee
 Parliamentarian (Faculty Officer)

1998 Member, University Benefits Committee
 Member, University BioSafety Committee
 Parliamentarian (Faculty Officer)
 Freshmen Advisor

1999 Member, University Benefits Committee
 Member, University BioSafety Committee
 Parliamentarian (Faculty Officer)
 Freshmen Advisor

2000 Member, University BioSafety Committee
 Parliamentarian (Faculty Officer)
 Freshmen Advisor
 Sophomore Advisor

2001 Member, University BioSafety Committee
 Parliamentarian (Faculty Officer)
 Sophomore Advisor
 Co-Editor, Faculty Bulletin

2002 Member, University BioSafety Committee
 Parliamentarian (Faculty Officer)
 Sophomore Advisor
 Co-Editor, Faculty Bulletin (continuing)

2003 Member, University BioSafety Committee
 Parliamentarian (Faculty Officer)
 Member, Committee on Medical Faculty Appointments
 Faculty Member, Human Resources Advisory Board
 Sophomore Advisor
 Co-Editor, Faculty Bulletin (continuing)

2004 Member, University BioSafety Committee
 Parliamentarian (Faculty Officer)
 Member, Committee on Medical Faculty Appointments
 Faculty Member, Human Resources Advisory Board
 Co-Editor, Faculty Bulletin (continuing)

2005 Member, University BioSafety Committee
 Parliamentarian (Faculty Officer)
 Member, Committee on Medical Faculty Appointments
 Faculty Member, Human Resources Advisory Board
 Co-Editor, Faculty Bulletin (continuing)

2006 Member, University BioSafety Committee
 Parliamentarian (Faculty Officer)
 Faculty Member, Human Resources Advisory Board
 Co-Editor, Faculty Bulletin (continuing)

2007 Member, University BioSafety Committee
 Parliamentarian (Faculty Officer)
 Faculty Member, Human Resources Advisory Board (to mid-year)
 Co-editor, Faculty Bulletin (continuing)

2008 Member, University BioSafety Committee
 Parliamentarian (Faculty Officer)
 Co-Editor, Faculty Bulletin (continuing)
 Reshman Advising

2009 Member, University BioSafety Committee
 Parliamentarian (Faculty Officer)
 Co-editor, Faculty Bulletin (continuing)
 Freshman, Sophomore Advising
 U'grad study-abroad Advising

8.b. TO THE PROFESSION

No systematic records have been kept prior to 1978. However, the records do show the following items.

- (i) Member of Committee K-8, Theory and Fundamental Research in Heat Transfer, American Society of Mechanical Engineers, 1960-1970.
- (ii) Member of the Young Engineering Teachers group, Northeastern Region of American Society for Engineering Education, and Chairman 1965-67.
- (iii) Consultant to National Institutes of Health.
- (iv) Member of NIH-appointed Task Force on Test and Evaluation of Intra-Aortic Balloon.
- (v) Member of NIH-appointed Task Force on Test and Evaluation of Capillary Membrane Blood Oxygenator.
- (vi) Member, Editorial Advisory Board, International Journal of Heat and Mass Transfer, 1965-75.
- (vii) Member, Editorial Advisory Board, Letters in Heat and Mass Transfer, 1975-80.
- (viii) Member, Standards Sub-committee on Blood Oxygenators, American Society for Artificial Internal Organs.
- (ix) Member, Membership Committee, American Society for Artificial Internal Organs, 1975-78.

- 1978 Chairman, Membership Committee, American Society for Artificial Internal Organs
 Member, Committee on Standards for Blood Oxygenators, American Society for Artificial Internal Organs
 Editorial Board, Letters in Heat and Mass Transfer (Pergamon)
 appointed Associate Editor, asaio Journal
 Scientific Exhibits Committee, American Society for Artificial Internal Organs
 Member of Task Force on Blood-Material Interactions, National Heart, Lung and Blood Institute
- 1979 Appointed Member, NIH Task Force on Blood-Material Interactions
 Member, Committee on Standards for Blood-Gas Exchangers, ASAIO
 Member, Committee on Scientific Exhibits, ASAIO
 Associate Editor (and Acting Editor), asaio Journal
 Member of Editorial Advisory Board, Journal of Physicochemical Hydrodynamics (new Pergamon journal)
- 1980 Member, Committee on Standards for Blood-Gas Exchangers, ASAIO
 Member, Blood/Gas Exchange Committee, Association for the Advancement of Medical Instrumentation
 Associate Editor, asaio Journal
 Member of Editorial Advisory Board, Journal of Physicochemical Hydrodynamics
- 1981 Ad Hoc member, NIH Study Section Surgery B
 Member, Committee on Standards for Blood-Gas Exchangers, ASAIO
 Member, Committee on Standards for Blood-Gas Exchange Devices
 Assoc. Advancement Medical Inst. (AAMI)
 Associate Editor, asaio Journal
 Member of Editorial Advisory Board, Journal of Physicochemical Hydrodynamics
 Member of Editorial Advisory Board, Journal of European Society for Artificial Organs
- 1982 Ad hoc member, NIH Study Section Surgery B (function: peer review of research proposals)
 Ad hoc member NIH Oral Biology Site Visit Team Member
 Committee on Standards for Blood-Gas Exchangers, ASAIO
 Member, Committee on Standards for Blood-Gas Exchange Devices, AAMI (Assoc. Adv. Medical Instrum.)
 Associate Editor, asaio Journal
 Member of Editorial Advisory Board, Journal of Physicochemical Hydrodynamics
 Member of Editorial Advisory Board, Life Support Systems (Journal of European Society for Artificial Organs)
- 1983 Organizing Committee, International Symposium on Piezoelectricity in Biomaterials, Pisa, Italy, June 1983 (also session Chairman)
 Appointed member, NIH Study Section Surgery B
 Member, Committee on Standards for Blood-Gas Exchange Devices, AAMI
 Associate Editor, asaio Journal
 Member of Editorial Advisory Board, Journal of Physicochemical Hydrodynamics
 Member of Editorial Advisory Board, Life Support Systems (Journal of European Society for Artificial Organs)

- 1984 Referee for various journals
 Continuing Member, NIH Study Section Surgery B
 Session chairman, Circle D'Etude de la Circulation Extra-Corporelle,
 Annual Conference, June 1984, Paris France.
 Session chairman, APS Div. Fluid Dynamics Meeting, November 1984,
 Providence.
 Editorial Advisory Board, Life Support Systems (Journal of European
 Society for Artificial Organs).
- 1985 Referee for various journals
 Continuing Member, NIH Study Section Surgery B
 Session Chairman, Symposium on Rheology, 10th Int. Congress on Thrombosis
 and Hemostasis, San Diego, July, 1985.
 Editorial Advisory Board, Life Support Systems (Journal of European
 Society for Artificial Organs).
- 1986 Referee for various journals
 Continuing Member, NIH Study Section Surgery B
 Editorial Advisory Board, Life Support Systems (Journal of European
 Society for Artificial Organs)
 Program reviewer, Royal Society
- 1987 Referee for various journals
 Editorial Advisory Board, Life Support Systems (Journal of European
 Society for Artificial Organs)
 Program Committee, American Society for Artificial Internal Organs
- 1988 Referee for various journals
 Member, NIH Special Study Section on SBIR
 Member, Program Committee, American Society for Artificial Internal Organs
- 1989 Referee for various journals
 Reviewer for proposals, incl. British Heart Foundation, NSF, etc.
 Program Committee, American Society for Artificial Internal Organs
 Planning Committee, First Stein Conference, Philadelphia (Medical Imaging)
- 1990 <entry missing>
- 1991 Founding Member, Council on Biomedical Engineering (ABET-accredited
 programs)
 Reviewer of proposals for British Heart Foundation, Wellcome Foundation
 Referee for various journals
- 1992 Appointed to the Editorial Board of the Royal Society of London
 Transactions B (Philosophical Trans of The Royal Society, Biological
 Sciences).
 Referee for various journals
- 1993 continuing on Editorial Board of Philosophical Transactions of The Royal
 Society series B, Biological Sciences
 NIH Advisory Panel, intravascular oxygenator project (Hershey Medical)
 Referee for various journals
- 1994 continuing on Editorial Board of Philosophical Transactions of The Royal
 Society series B, Biological Sciences
 NIH Advisory Panel, intravascular oxygenator project (Hershey Medical)

Member, NIH Special Study Section ZRG3 ECS (Clinical Sciences Special Emphasis)
Referee for various journals

1995 continuing on Editorial Board of Philosophical Transactions of The Royal Society series B, Biological Sciences
Editorial Board, IEEE Press Book Series - Emerging Technologies in Biomedical Engineering
NIH Advisory Panel, intravascular oxygenator project (Hershey Medical)
Referee for various journals

1996 continuing on Editorial Board of Philosophical Transactions of The Royal Society series B, Biological Sciences
Editorial Board, IEEE Press Book Series - Emerging Technologies in Biomedical Engineering (continuing)
Referee for various journals

1997 Editorial Board, IEEE Press Book Series - Emerging Technologies in Biomedical Engineering (continuing)
Referee for various journals

1998 Editorial Board, IEEE Press Book Series - Emerging Technologies in Biomedical Engineering (continuing)
Referee for various journals

1999 Editorial Board, IEEE Press Book Series - Emerging Technologies in Biomedical Engineering (continuing)
Referee for various journals

2000 - 2007 Referee for various journals, etc

2008 Consultant on Fellowship candidacies, Royal Society
Referee for various journals

2009 Consultant on Fellowship candidacies, Royal Society
Referee for various journals

8.c. TO THE COMMUNITY

No systematic records kept prior to 1992 ... Have written newspaper articles outside professional field. TV appearances, US and Europe. Lectures at High Schools in Providence(Classical, LaSalle).

1992 Served as expert witness pro bono publico in the RI Energy Facility Siting Board review determining its jurisdiction on the basis of capacity of cogeneration power systems, re Newbay project

1997 Played a role (minor character) in a Hope Essential School version of Macbeth, a videotape version subsequently shown on a public access TV channel

2001 Responded to web-queries arising from UK Channel 4 "1940 House" series, the house used having been in my family for many decades

2005 For the Exhibit "The Children's War" at the Imperial War Museum, London, in which the largest exhibit is a full-scale reproduction of the house on my birth certificate as the family home, I provided

photographs, a kindergarten school report, and a drawing I had made of an aircraft which had crashed, which are mounted as part of the exhibit; and I attended Press Day for the opening of the Exhibit, providing interviews for the Press

- ALSO -

Participated in planning for and shooting of a movie film now available for streaming view on the Vega Science Trust website (<http://vega.org.uk>) in Interviews: Gustav Born - my participation includes in an operating room at the Heart Hospital during an open-heart procedure, and in conference-room discussion about mural thrombus growth

C Peter D. Richardson 2010