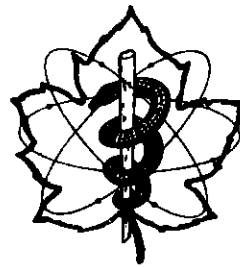


**ENGINEERING FOR HEALTH
L'INGÉNIERIE AU SERVICE DE LA SANTÉ**

**7TH CANADIAN MEDICAL
AND BIOLOGICAL ENGINEERING
CONFERENCE**

**7^{ième} CONGRÈS CANADIENNE
DE GÉNIE BIOMÉDICAL**



**DIGEST OF PAPERS
CONDENSE DES MEMOIRES**

13 - 16 AUGUST / AOÛT 1978

VANCOUVER, B.C., CANADA

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Monday, August 14th

0900 OPENING SESSION

Keynote Address: Dr. J.H. Milsum

"The Many Faces of Biomedical Engineering"

BREAK

SESSION 1A - CLINICAL USES
OF COMPUTERS

(Chairman: Dr. G. Anderson)

- | | <u>Page</u> |
|--|-------------|
| 1040 A Mini-Computer System for the Collection and Analysis of Biomedical Data from Groups of Remotely Located Scintillation Detectors.
G.E. Blinston, P.A. Barrow, L.W. Friedenberg and T.R. Overton | 1 |
| 1100 Applications of an Interactive Data Analysis System in Clinical and Experimental Research.
R.E. Kearney, W.R. Funnell and A.J. Hosios | 3 |
| 1120 A Comparative Study of the Electroencephalogram in Normal, Schizophrenic and Depressed Subjects.
Z.J. Koles and P. Flor-Henry | 5 |
| 1140 Computer Assisted Data Acquisition and Processing of FMF (Flow Microfluorometric) Data.
G.A. Gudauskas, D. Hartley, S. Dedhar and J.H. Goldie | 7 |

SESSION 1B - BIOMATERIALS

(Chairman: Dr. C. Small)

- | | <u>Page</u> |
|---|-------------|
| 1040 Metallurgical Failures of Orthopaedic Implants.
M.M. Kostic and K.N. Street | 25 |
| 1100 In Vitro Modelling of the Soft Tissue Response to Biomaterial Implants.
J.J. Rosen, B.D. Ratner, T.A. Horbett, M.B. Schway and A.S. Hoffman | 27 |
| 1120 Platelet Adhesion in Disturbed Flows.
G.A. Adams and I.A. Feuerstein | 29 |
| 1140 A Flow Cell for Platelet Adhesion Studies.
A.B. Strong, O.S. Hum and W. Zingg | 31 |

1200

LUNCH AND WORKSHOP

"Standards and Regulations on Medical Technology:

Speakers: Prof. R.N. Scott, CMBES

Mr. A.M. Dolan, Canadian Standards Association

Dr. A.K. DasGupta, Bureau of Medical Devices

SESSION 2A - ELECTROCARDIOGRAPHY

(Chairman:- Dr. A.R. LeBlanc)

- | | <u>Page</u> |
|--|-------------|
| 1340 Time-Selective Filtering for Computerized Electrocardiography.
R.G. Dower and G.E. Dower | 9 |
| 1400 A Multichannel ECG Recording System.
P. Mendler, E. Downar and I. Parson | 11 |
| 1420 Computer Processing of Intracardiac Electrograms.
A.R. LeBlanc, L. Senecal, C. Guimond and R.A. Nadeau | 13 |
| 1440 An Arrhythmia Detector/Logger Based on Microcomputers.
K. Takaya | 15 |

SESSION 2B - HEALTH CARE SYSTEMS

(Chairman: Dr. J.H. Milsum)

- | | <u>Page</u> |
|--|-------------|
| 1340 The Need for Technology Assessment in the Canadian Health Care System.
C.A. Laszlo and J.H. Milsum | 33 |
| 1400 A Cost-Effectiveness Analysis of Hemocult Testing in Colorectal Cancer Screening.
J. Tydeman | 35 |
| 1420 A Telemedicine System in Cardiology.
P.A. Mathieu, G. Page, A. Proulx and F.A. Roberge | 37 |
| 1440 The Transportation of Handicapped Citizens.
P. Creelman, N. Eley, B. Hughes and F. Navin | 39 |

1500

BREAK

Monday, August 14th

<u>SESSION 3A - SENSORY AIDS</u>		<u>Page</u>	<u>SESSION 3B - HEALTH CARE SYSTEMS</u>		<u>Page</u>
(Chairman: Dr. M.P. Beddoes)			(Chairman: Dr. J.H. Milsum)		
1520	A Speech Analysis System for Clinical Applications. J.W. Arenson and H. Kunov	17	1520	Modelling Information Flow for Patient Care in Family Practice. W.A. Falk	41
1540	Digital Read-Out Systems for the Blind. J.C. Swail	19	1540	The Problem-Oriented System in Psychiatry: Moving Toward Computerization. B. Cox	43
1600	Towards Systematic Evaluation of Reading Aids for the Blind. I.R. Greenshields	21	1600	Methodology for the Evaluation of the Economic and Qualitative Impact of an Automated Ambulatory Medical Information System (AAMIS) in a Private Group Practice. D.R. Studney	45
1620	Urine Glucose Measurement for Blind Diabetics. N.D. Durie and J.C. Swail	23	1620	Some Current Trends in Modeling of Biomedical Systems. T. Prasad and D.C. Beatty	47

Tuesday, August 15th

<u>SESSION 4A - CARDIOVASCULAR STUDIES</u>			<u>SESSION 4B - CLINICAL ENGINEERING</u>		
(Chairman: Mr. O. Roy)			(Chairman: Ms. M. Aubry-Frize)		
0900	Changes in the Contractile Properties of Cardiac Muscle Due to Ultrasound. A.J. Mortimer, O.Z. Roy, G.C. Taichman and B.J. Trollope	49	0840	Fetalink: An Inter-Centre Fetal Data Communications System. M.R. Smith, P.T. Mohide	77
0920	Application of a Parameter Estimation Method to the Quantitative Analysis of Cardiovascular Variables. C. Dargis, F. Peronnet, R.A. Nadeau and P.S. Thiry	51	0900	Five Years Clinical Experience with PU ²³⁸ Powered Pacemakers. L.J. Rzeznik and S.A. Kolenik	79
0940	A Semi-Automated Ultrasound Array for Pre-Ejection Period Measurement. A.J. Cousin and I. Rapoport	53	0920	The Effect of Ball Tip and 2mm Surface Are Electrode on Demand Pacing. J.R. Cameron	81
1000	Experimental Strain Analysis of Myocardial Contraction. T.R. Fenton, G.A. Klassen and J. Cherry	55	0940	Control of the Rate of Flow for the Intravenous Administration of Fluids. T.W. Walker and P.S. Burke	83
			1000	Economics of Radiology Equipment Maintenance. M. Cheng, J. John, J. Harrison	85
			1020	Assessment of Skin Temperature Elevations Due to Electrosurgical Currents. M. Aubry-Frize, A. Leduc, R. Marsolais and R. Carrier	87
1100				BREAK	

	<u>SESSION 5A - CARDIOVASCULAR STUDIES</u>		Page	<u>SESSION 5B - CLINICAL ENGINEERING</u>		Page
	(Chairman: Dr. M. Toll)			(Chairman: Dr. R. Fenton)		
41	1100	133 Xenon for Fick Cardiac Output (CO) Estimation: Validation of Technique and Clinical Comparison with Current Methods.	57	1100	The Need for Canadian Centres to Develop Medical Technology.	89
		T. Frauenfelder, G. Sharma and B. Trenholm			J.A. McEwen	
43	1120	A Method for On-Line Measurement of Red Cell Velocity in Capillaries Using Image Analysis.	59	1120	Development of a Machine for Safe Automated Cleaning of Dialysers for Re-Use.	91
		K. Tyml and M.H. Sherebrin			W. Gentles, L. Braganza, M. Manuel and C. Saiphoo	
45	1140	Computer Analysis of Regional and Global Left Ventricular Mechanical Function in Experimental Ischemia.	61	1140	A Problem Solving Framework for Rehabilitation Engineering.	93
		P.S. Thiry, C. Dargis, L.C. Pelletier and R.A. Nadeau			J. Foort, R. Hannah and S. Cousins	
47	1200	A Model Demonstrating the Importance of Intra-Operative Auscultation of Blood Vessels.	63	1200	Real-Time Monitoring of Anesthesia Level by Computer-Based EEG Analysis.	95
		J.R. Heyworth, J.G. Sladen and T. Osborne			G.B. Anderson, R.H. England, P. George, E.A. Gofton, L.C. Jenkins, I. Ladd and M.D. Low	
	1220	Lunch/Workshop	1240	1220	Development of Electronic Aids for the Disabled.	97
					T.W. McBride, R.M. Lukas and P.D. Lawrence	
77	<u>SESSION 6A - EMG</u>			<u>SESSION 6B - CLINICAL ENGINEERING</u>		
	(Chairman: Dr. C.J. De Luca)			(Chairman: Dr. P. Graystone and Dr. M. Matayoshi)		
79	1340	Concentration-Dependent Effect of Diazepam on the Conduction Velocity of Muscle Fibers.	65	1340	Biomedical Engineering in the Services of the Public Health Care System.	99
		C.J. De Luca, W. Berenberg and F.B. Stulen			V. Pollak	
81	1400	Dynamic EMG - Biomechanical Relationships for Clinical Use.	67	1400	Education of Biomedical/Clinical Engineers in a Hospital Setting.	101
		A.O. Quanbury, T.G. Steinke and C.D. Foley			R.A. Peura, D.M. Dickey, J.R. Mortarelli, J.R. Boyd and E.F. Bergengren	
83	1420	Averaging of Electromyographic Action Potentials.	69	1420	Proposal for a Clinical Engineering Program at U.B.C.	103
		R.D. Mackinnon, P.J. Bratty and P.D. Lawrence			A. Meisen	
85	1440	The Relation Between Myoelectric Signal and Power: A.V. Hill Revisited.	71	1440	Electrical Safety Made Simple for Users.	105
		A.E. Patla, P.A. Parker and R.N. Scott			M.B. Raber and B.A. Pask	
87	1500	EMG, Tension and Functional Organization of Muscle.	73	1500	Electrical Safety of Electro-Medical Equipments and Installations - Appraisal of the Evaluating Method and its Application.	107
		V. Pollak			M. Matayoshi and M. Saito	
	1520	A Computer Model of Smooth Muscle Electrical Activity.	75	1520	Problems and Other Observations with Waste Anaesthetic Gases in Hospitals.	109
		S.K. Sarna and D.C. Beatty			P.E. Paasche, P.A. Harding and R.N. Scott	

Wednesday, August 16

<u>SESSION 7A - REHABILITATION ENGINEERING</u>		<u>SESSION 7B - INSTRUMENTATION</u>		<u>Page</u>
(Chairman: Mr. J. Foort)		(Chairman: Dr. R. Drolet)		
0900	Support Surface Compliance. C.F. Small	111	0840	Biofeedback Systems in Health Rehabilitation and Chronic Pain Management. J. Kryspin, J. Vasek and M. Morris
0920	Thermography in a Seating Programme R.C. Black	113	0900	Biofeedback in Paediatric Rehabilitation. G.H. Iles, R. Koheil and E. Sharp
0940	The Automation of Prosthetic Procedures. G.W. Vickers, J. Foort, S. Cousins, V. Lee and R. Hannah	115	0920	Assessment of Position Control Orthoses Using Functional Electrical Stimulation. S. Naumann and M. Milner
1000	Mechanized Shaping of Cosmetic Soft Foam Prosthetic Leg Covers. W.D. Brereton, I.W. Cochrane, J.B. Heath and K.C. Frayne	117	0940	A Microprocessor Based Clinical Instrument for Measuring Tremor. D. Durand, D.H. Zilm and H.L. Kaplan
			1000	A System for Precise Measurement of Critical Flicker Fusion. R.E. Gander and R.C. Frecker
			1020	An Infrared Optical System for Eye Movement Measurements. W. Greenberg and R.C. Frecker
1020	Break		1040	Break
<u>SESSION 8A - REHABILITATION ENGINEERING</u>		<u>SESSION 8B - TRANSDUCERS</u>		
(Chairman: Dr. M. Milner)		(Chairman: Dr. R. Cobbold)		
1100	A Microcomputer Communication Aid. R.C. Holte, P.A. Buhr, A.O. Quanbury and F.J. Burkowski	119	1100	A High-Resolution Trans-Rectal Ultrasound Image System. W.B. Taylor, J.W. Hunt and R. Blend
1120	A Digitally Activated Wheelchair and Remote TOSC Control System. M.O. Toll	121	1120	A Thermal Conductance Probe for Detecting the Presence of Hormonal Effects in the Uterus. H.J. Benoit, R. Borth and C.A. Woolever
1140	The UBC Mobility Power Unit for Wheelchairs. S. Cousins, M. Koombes, R. Hannah, D. Forsythe, T. Dean and J. Foort	123	1140	In-Vivo Dose-Rate Meter (Gynae Probe) Using a Silicon Diode as Radiation Detector. R.A. Reynolds and R.O. Kornelsen
1200	Development and Evaluation of a Patient Transfer Device. C.F. Small and J.A. McEwen	125	1200	Continuous Monitoring of Tissue PO ₂ with a Galvanic Oxygen Electrode. M.E. Towell, I. Lysak, D. Dayler, E.C. Layne and S.P. Bessman
			1220	Steady and Unsteady State Analysis of the Clark Polarographic Oxygen Electrode. C.G. Ellis, H.E. Gutherman and T.K. Goldstick
1220	Lunch/Workshop		1240	Lunch/Workshop

SESSION 9A - BIOMECHANICS

Page

SESSION 9B - BIOPHYSICS AND
MODELLING

Page

(Chairman: Dr. A. Chapman)

(Chairman: Dr. E. Ackerman)

1340 The Load Distribution Under the Foot in
the Assessment of Abnormalities of Foot
Function.

127 1400

Non-Invasive Measurement of Group 1
Induced Post Synaptic Potential
Characteristics in Man.

165

M.T. Manley and R. Boome

D. H. Zilm and P. Ashby

1400 The Fixation of a Medical Collateral
Substitute Ligament, a Progress Report.

129 1420

Reversal Potential can be Measured Using
Action Potential Parameters.

167

H.W. Wevers, G.J. Gouw and P.J. Lowe

H. Wodlinger, H. Kunov and H.L. Atwood

1420 Factors Affection Mediolateral Moment-
Rotation Characteristics of the Human
Knee in Vitro.

131 1440

Evaluation of Nonlinear Characteristics of
Nervous Systems Using Volterra Kernels
and Wiener Functionals.

169

T. Bryant, P.J. Lowe and H.W. Wevers

T. Prasad and K. Singh

1440 The CARS-UBC Electrogoniometer - A
Clinically Viable Tool.

133

R. Hannah, S. Cousins and J. Foort

1500

BREAK

SESSION 10A - BIOMECHANICS

SESSION 10B - BIOPHYSICS AND
MODELLING

(Chairman: Dr. A. Chapman)

(Chairman: Dr. E. Ackerman)

1520 Quantitative Goniometric Analysis of
Normal and Pathological Human Gaits.

135 1520

Examples of Non-Linearities in Models
of Endocrine Actions.

171

C. Hershler and M. Milner

E. Ackerman, J.W. Rosevear, C. Reynolds
and L.C. Gatewood

1540 Proper Sampling and Filtering Frequencies
in the Kinematics of Human Gait.

137

1540

The Occlusion of Flow-Carrying Tubes and
Its Relationship to Tooth Support.

173

D.A. Winter and R.P. Wells

T.W. Walker

1600 A System for Clinical Analysis of
Kinesiological Aspects of Gait.

139

1600

In Vitro Studies of Spermatozoa on the
Surface of Graded Field Electrets.

177

H. de Bruin, M. Milner and T. Wallace

P.K. Pillai, M. Goel, S. Mahajan and
S.K. Guha

1620 Development of a Clinical Multi-Channel
Telemetry Unit.

141

M. Koombes and T. Dean

Page

143

145

147

149

151

153

155

157

159

161

163