

Biological Engineering Society

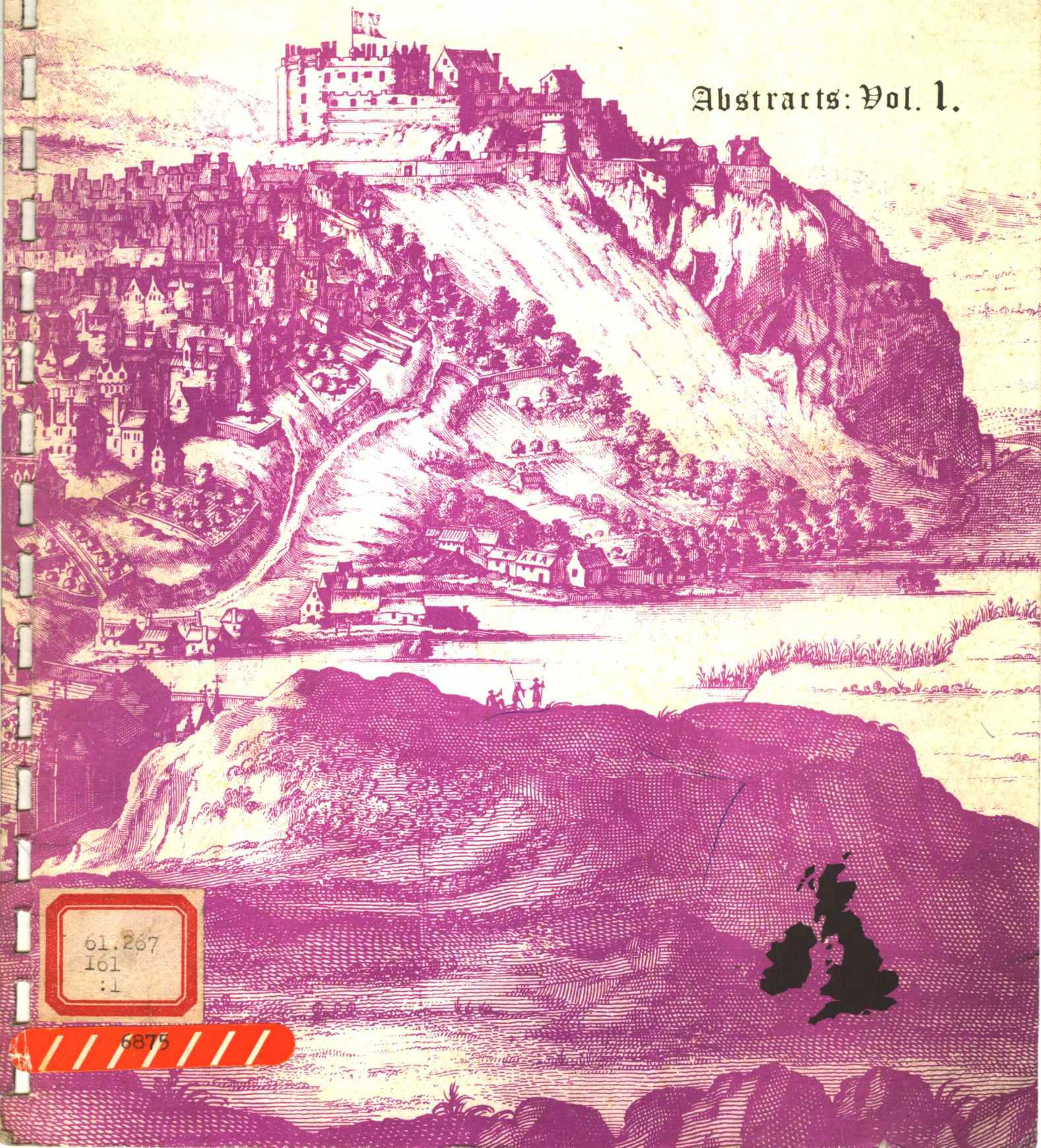
15th. Anniversary

International Conference

Edinburgh.

17-22 August 1975.

Abstracts: Vol. 1.



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COMMERCIAL EXHIBITION

COMMERCIAL EXHIBITORS AS AT 7.7.75

	<u>Stand No.</u>	<u>Location</u>
Auriema Ltd	5	(Main concourse)
Baron Yemm	22	(" ")
Beckmann-Riic Instruments Ltd	27	(" ")
Becton Dickinson (UK) Ltd	17 & 18	(" ")
Cambridge Medical Instruments	13	(" ")
Cardiac Recorders Ltd	2	(" ")
Data Laboratories	26	(" ")
Devices Ltd	10	(" ")
Digitimer Ltd	20	(" ")
Edwards High Vacuum Ltd	9	(" ")
ELA London and Cambridge Ltd	B1-5	(Level 2)
Gaeltec Ltd	A9	(" ")
GEC Medical Equipment Ltd	23	(Main Concourse)
George Washington	A8	(Level 2)
Hewlett-Packard Ltd	7	(Main Concourse)
Howorth Air Conditioning Ltd	16	(" ")
Intertechnique	31 & 32	(" ")
Medelec Ltd	19	(" ")
Mercury Electronics (Scotland) Ltd	29	(" ")
M-G Electronics		
National Research Development Corporation	30	(Main Concourse)
Organon Teknika	21	(" ")
Oxford Electronic Instruments	8	(" ")
Packard Instruments Ltd	28	(" ")
Philips Medical Systems Ltd	14	(" ")
Reynolds Medical	15	(" ")
Scientific Instrument Centre		
SE Laboratories (EMI) Ltd	1	(Main Concourse)
Sierex Ltd	6	(" ")
Simonsen and Weel Ltd	3	(" ")
Specialised Laboratory Equipment	26 & 25	(" ")
Stag Instruments Ltd	4	(" ")
Twentieth Century Electronics	A2	(Level 2)
United Trade Press		
Watco Services	A1	(Level 2)
Watkins and Watson Ltd	11 & 12	(Main Concourse)

BIOLOGICAL ENGINEERING SOCIETY

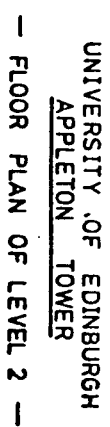
15th ANNIVERSARY INTERNATIONAL CONFERENCE

Edinburgh August 17th-22nd, 1975

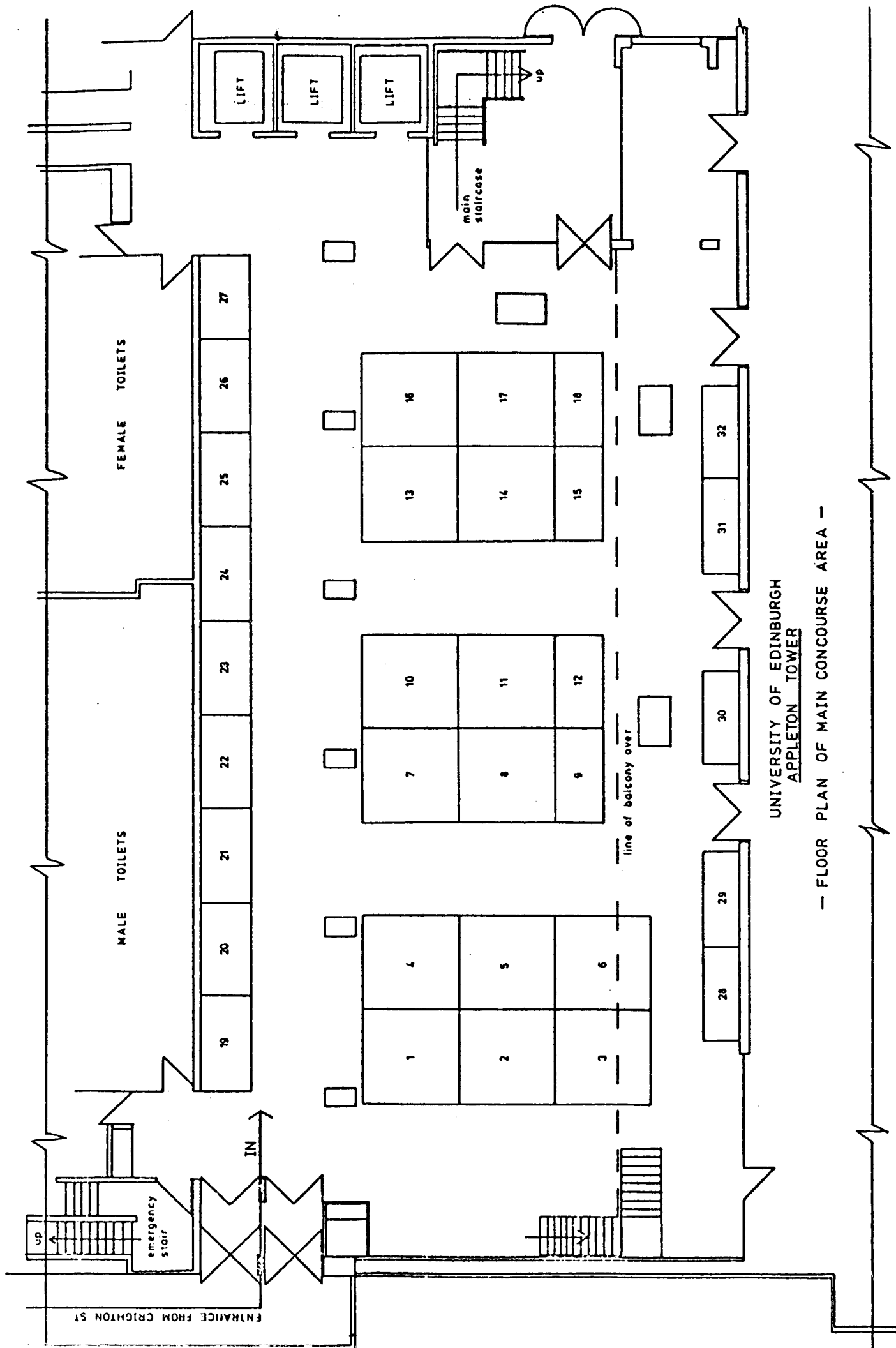
Sunday 17th Aug	09.00-18.00	Registration (Appleton Tower)		Installation of Exhibits			
	17.30-18.30	Sherry Reception at Pollock Halls					
Monday 18th Aug	09.00-10.30	Registration		Appleton Tower			
		COFFEE					
	11.00-11.30	Opening Session		George Square Lecture Theatre			
	11.45-12.30	Opening of Exhibition		Appleton Tower			
		LUNCH		and EXHIBITIONS			
	14.00-15.30	Introductory Lectures		George Square Lecture Theatre			
		TEA		and EXHIBITIONS			
	16.00-17.30	Session No. 6	HALL 1 Respiratory Physiology S CM	Session No. 25	HALL 2 Education S	Session No. 27	HALL 3 Biomedical Engineering -1 P
Tuesday 19th Aug		By Invitation Reception in Edinburgh Castle by H. M. Government, or Reception in Upper Library by the University of Edinburgh					
		City Tour for Accompanying Persons					
	09.00-10.30	2	Transcutaneous U/S Measurement S CM	8	Assessment of Function P RE	14	Signal Analysis, Neurology P BMC
		COFFEE		and EXHIBITIONS			
	11.00-12.30	2	Transcutaneous U/S Measurement S CM	8	Problems of Assessment S CM	15	Signal Analysis Clinical S BMC
		LUNCH		and EXHIBITIONS			
	14.00-15.30	5	Respiratory Function P CM	9	Treatment S RE	16	Clinical Decision Making P BMC
		TEA		and EXHIBITIONS			
	16.00-17.30	5	Respiratory Function S CM	9	Route to Independence S RE	16	Clinical Decision Making S BMC
		By Invitation Reception by the City of Edinburgh					
	09.00-10.30	4	Cardiovascular System P CM	11	External Prostheses P RE	27	Biomedical Engineering - 2 P
		COFFEE		and EXHIBITIONS			

Wednesday	11.00-12.30	4	Cardiovascular System	S CM	12	Internal Prostheses	P RE	28	Clinical Technology	C
			LUNCH			and			EXHIBITIONS	
	20th Aug		Excursion to Falkland Palace							
Thursday	09.00-10.30	3	Monitoring and Measurement	P CM	24	Preventive Medicine	P	31	Industry	C BMC
			COFFEE			and			EXHIBITIONS	
	11.30-12.30	3	Oxygen Monitoring	S CM	24	Preventive Medicine	S	10	Voluntary Organisations	S RE
			LUNCH			and			EXHIBITIONS	
			Excursion to Traquair for Accompanying Persons							
	14.00-15.30	13	General Papers	P RE	29	Ethics of Life Support	C	18	Image Analysis	P BMC
			TEA			and			EXHIBITIONS	
	16.00-17.30	26	Health Care Systems	S	22	Organ and Function Replacement - 1	P	18	Image Analysis	S BMC
Friday	19.00		Conference Dinner and Anniversary Banquet (by ticket) at 19.00 for 19.30							
	09.00-10.30	30	Health Screening	C	23	Organ and Function Replacement - 2	P	17	Modelling	P BMC
			COFFEE			and			EXHIBITIONS	
	11.00-12.30	27	Biomedical Engineering - 3	S BMC	23	Organ and Function Replacement - 3	S	17	Modelling	S
			LUNCH			and			EXHIBITIONS	
	14.00-15.30	7	Patient Safety, Biocompatibility	S CM	20	Motor Control	P CSE	19	Clinical Monitoring	P BMC
			TEA			and			EXHIBITIONS	
	16.00-17.30	7	Patient Safety, Electrical	S CM	21	Biological Control Systems	S CSE	19	Clinical Monitoring	P BMC
		END			of			CONFERENCE		
<div><div>BMC - Biomedical Computing CM - Clinical Measurement CSE - Control Systems Engineering RE - Rehabilitation Engineering</div><div>C - Controversy Session P - Paper S - Seminar</div></div>										

Additional rooms may be booked for informal discussions during the conference.



— FLOOR PLAN OF LEVEL 2 —



UNIVERSITY OF EDINBURGH
APPLETON TOWER

— FLOOR PLAN OF MAIN CONCOURSE AREA —

STAND No.5

Two new instruments will be on show for the first time in the United Kingdom.

Automatic Pulmonary R.E. Meter

The Auprem is a completely automatic electronic computer manufactured in Belgium by Van der Heyden for continuous, on line measurement, breath by breath of the bronchial tree resistance R cm $H_2O/L/Sec$ and the pulmonary elastance E cm H_2O/L .

The system used for measuring the air flow at the inlet to the broncho-pulmonary system includes a calibrated resistor and a differential pressure transducer. Endothoracic pressure variations are recorded by the use of either an oesophageal balloon or a central venous catheter. This latter signal includes the slow respiratory component and the fast circulatory component linked to cardiac contractions, but this is reduced by the instrument to allow the R and E parameters to be computed and displayed digitally.

Three analogue meters display the pressure flow and volume. These five parameters together with instantaneous values are available as recorder outputs. The unit has its own internal simulator which provides reference signals for recorder calibration and checking the complete electronic system.

Oxygen Analyser

A new breath by breath oxygen analyser for monitoring with a time response of less than 0.1 second with recorder output and selling for less than £1,000 including V.A.T.

Other instruments include a selection from the following overseas companies.

Bailey Instruments

A battery operated analogue thermometer with a selection of biological probes including, skin surface, rectal, tissue implant, hypodermic, etc.

Lexington Instrument Corp.

A restyled LEX- O_2 -CON for the measurement of total O_2 content in volume % of blood air samples.

A Thermal Dilution Bridge which will convert a standard Lexington Dye Dilution Cardiac Output Computer into a combination Thermal/Dye System. This will be shown fitted to a standard unit.

Mijnhardt

Infra-red CO_2 analyser for breath by breath measurement with a linear range from 0-10 vol % and a response time of less than 0.1 sec. Ambient temperature and barometric compensation. Insensitive to N_2O - O_2 -Fluothane.

Nihon Kohden

Single channel portable rechargeable/mains operation and mains only three channel Electrocardiographs. Both units meet the recommendation of the American Heart Association with a leakage current of less than 10 μA s, have three sensitivity positions, two speeds input and output including Frank Vector facilities on the three channels.

Cardiac Bedside Monitor with Digital Display Heart Rate Meter and auto start recorder. Floating input for patient safety, 5.5 inch square-flat long persistent screen, lead selection and audible alarm are just some of its features.

Further information can be obtained from the stand or by contacting:
Medical & Laboratory Division, AURIEMA LIMITED, 442 Bath Road, Slough, SL1 6BB.
Telephone: Burnham (06286) 61931

BIOLOGICAL ENGINEERING SOCIETY
INTERNATIONAL CONFERENCE
Edinburgh 17 - 22nd August '75

Commercial Exhibition

Baron Yemm Developments Ltd - Stand 22

Baron Yemm Developments of Watford are displaying the now well known and established BYO 800 Mk.11 peristaltic pump. This product is of the most up to date design, incorporating solid state control circuitry and high class precision engineering, and has been approved by the Department of Health as conforming to the requirements of Hospital Technical Memorandum No. 8. The BYO 800 Mk 11 is used in hospitals in haemodialysis applications where repeatability and accuracy of flow with minimum haemolysis is of the utmost priority. The pump is also widely used in laboratories for all manner of applications where precise dosing and metering are requirements.

The BYO 800 Mk. 11 has a unique pumping action and can be used at any point in a fluid transfer since the tube is simply fed in and out of a $3\frac{1}{2}$ in (8.89cm) diameter alloy ring in the form of an unbroken loop. The tube is progressively occluded and released against the inner wall of the ring by the action of an orbiting cam driven eccentrically within the ring. The resultant fluid flow is by positive displacement of the most delicate kind with the advantage of a relatively high flow rate for a low r.p.m., of the cam. This means a quiet running action coupled with minimum stress on moving parts. The cam is in contact with the tube at all times and therefore in the event of a mains failure for example, the pump will stop with the tube held closed i.e. the BYO 800 Mk.11 is fail-safe.

The BYO Mk.11 was designed for use with $\frac{5}{16}$ in and $\frac{1}{4}$ in outside diameter tubing, normally silicone in medical applications, but will accept any elastomer e.g. natural rubber, butyl, nitrile, p.v.c. By using simple liners in the securing clamps tubing down to 1.5mm o.d. can be used. Flow rate are from 10 - 800 ml/min for the standard size 0.3 ml/min can be achieved.

The BYO 800 Mk.11 is available with a manual pumping facility as an optional extra.

Beckman®

BECKMAN-RIIC LIMITED

Eastfield Industrial Estate · Glenrothes · Fife KY7 4NG · Scotland

Telephone: Glenrothes (0592) 771234 Telex: 72532

BECKMAN CARDIOPULMONARY PRODUCTS

The exceptional breath-by-breath analysis team -- the LB-2 and the OM-11 now offers a peak/valley hold feature that locks on maximum readings of alveolar gas values in every breath cycle.

Guesswork, and approximating are eliminated. The mode is selected, inspired, expired, or both. The precise digital readout is held steady until the next breath changes the figure.

For oxygen, there is the OM-11, for carbon dioxide, the LB-2. Both are designed together, sharing the sampling and matching respiratory recorder. Response is fast -- under 100ms. And the OM-11 has recorder outputs for 0-25% and 0 to 100%.

Both instruments are linear, with $\pm 1\%$ accuracy and stability over full range. A complete line of options and accessories are available, including the peak/valley hold-and-read system. RR-2 respiratory recorder, heated sample inlet, mucus trap, and purge kit for LB-2.

THE BECKMAN MODEL R-511 DYNOGRAPH

The new Beckman Model R-511 Dynograph Recorder provides, 2, 3, or 4 channels, and offers measurement and coupler-compatible capabilities, of full size Dynograph recorders.

Model R-511 accepts three new Student Teaching Couplers: signal conditioning for transducers with minimum operator controls; low frequency filtering, polarity control for AC, DC biopotentials, general voltage measurements; input control from transducers and biopotentials via one plug-in module.

The R-511 also offers 8 chart speeds; ink write-out on 22-cm-wide chart; 1/2 uv/mm DC sensitivity; integral event marker. Standard International Ranging Instrument Group (IRIG) output, input allows driving slave recorder, peripheral equipment. Optional accessories include: expanded timer-remote event marker, rectilinear (instead of curvilinear) write-out, polarity reversal, Dynograph overhead projector.

THE BECKMAN BILATERAL IMPEDANCE RHEOGRAPH:

An extremely useful instrument which permits non-invasive, bedside screening for deep vein thrombosis in the legs is now available from Beckman-RIIC Lt. Called the 'BR-100 Bilateral Impedance Rheograph', it is believed to be the only equipment of its kind available in the UK.

The BR-100 is designed for quick, easy checking of intact veins for normality. It can be operated by non-medical personnel.

In operation, the BR-100 applies the principle of bio-impedance to measure and record blood volume changes in a patient's legs on a dual-channel chart. Easily-read data indicate venous impairment and the need for more extensive locating techniques, such as venography.

Because it is non-invasive and painless, testing with the BR-100 can be performed as often as required, both before and after surgery. Printed test records can be evaluated at a later date and become part of a patient's permanent file.

Fully self-contained, the BR-100 is mounted on a convenient roll-away cart for easy mobility. A simplified skin electrode system attaches easily to the patient. Gain and operating mode are push-button controlled. No operator adjustments are required.

For the first time Becton Dickinson U.K. Limited of Wembley are exhibiting at this International Conference.

Becton Dickinson have brought outer space technology into the hospital ward with a new generation of modular patient monitoring, with applications ranging from the theatre, through intensive care units, to the needs of ambulant patients.

This new modular concept monitors ECG, and BP pre-op, OR, and post-op. It has fail-safe systems. "Nurse call" allows the patient to signal nurse for assistance.

The brighter digital displays with characters over $\frac{1}{2}$ " high can be read more easily across the ward.

Another product is the Brattle Foetal Monitor, which separates the Foetal ECG from the maternal ECG and presents the 'beat to beat' foetal heart rate. The instrument also continues to discriminate between foetal and maternal QRS even when the two are merged. It can be used with a scalp electrode or with an optional ultra-sound amplifier. Labour is simultaneously recorded on the second channel.

The largest exhibit will be the Infant Care Centre which is established in this country for the care of neonates. It is made of stainless steel and consists of an overhead unit, using infra-red rays. It has visible and audio alarms and the sides of the bassinet are transparent so that the baby can be observed quite easily. Both sides and the end fold flat. The neonate controls it's own environment through skin or rectal probe. General nursing, surgery or transfusions can all be performed without the use of an incubator, and without blankets obscuring the patient.

Also featured is the Contactless Apnea Monitor which provides continuous monitoring of infants with alarms and/or indicators for apnea and excessive motion.

Lastly in the infant care area of the stand are the "Mini" battery operated continuous Oxygen Analyser, and the continuous Oxygen Controller.

Come and see all these new ideas at the B-D stand

