

- M1. ✓ Charles S. Mañan and Co. Ltd.,
Vortex Works,
Atlantic Street,
Broadheath,
Altrincham, Cheshire.
Tel. ALTrincham 2702.
- Equipment design and manufacture
for isostatic pressing for powder
metallurgy and ceramics.
J.T. Shepherd
R.L. Alexander
- Pressures up to 7kb. Ambient temperature.
Equipment has been designed and manufactured
for maximum vessel operating temperature
of 150°C and pressures of 1.7 kb. Working
volumes range from 50 cu. ins to 8,000 cu. ins.
- M2. Geology Dept.,
Manchester University,
Manchester 13.
Tel. ARD 3333
- (a) Hydrothermal synthesis.
(b) Phase equilibrium studies in
silicate systems, particularly those
containing alkalis, alumina and lime.
W.S. Mackenzie (Prof.)
W.S. Fyfe (Prof.)
D.L. Hamilton
R.N. Thompson
C.L.E. Henderson
A.C. Dunham
- Externally heated vessels 1000°C, 2 kb.
12" long, 1½" O.D., ¼" I.D.
Internally heated vessels 1300°C, 7 kb.
2" I.D. vessel 11" O.D.
9/16" I.D. furnace 2" O.D. - 12" long.
Vessels for 15 kb under construction.
- M3. Mitchell Craig Pumps Ltd.,
Glenburn Road,
College Hilton,
East Kilbride,
Glasgow.
Tel. East Kilbride 25461
- Design and production of high pressure
pumping equipment.
M.D. Craig
J. Winstanley
A. Wallace
- Sealed glandless (canned) pumps for system
pressures to 350 b and temperatures to 555°C.
Metering pumps to discharge against pressures
to 525 b.
- M4. Molins Machine Co. Ltd.,
2 Evelyn Street,
Deptford,
London, S.E.8.
Tel. BErmondsey 4581.
- Design and manufacture of medium and
high pressure fluid machinery.
G. Orloff
- Continuous rotary intensifiers, pressures to 1 kb.
temperatures to 200°C, system flows up to 0.5 in³/sec.
- M5. Research Dept.,
Monsanto Chemicals Ltd.,
Hythe,
Southampton, Hants.
Tel. Blackfield 3221.
- Chemical and physical aspects of
polymerisation of ethylene and other
monomers.
- Reactors for temperature range - 50 to + 400°C,
pressures to 4 kb.

<u>Organisation</u>	<u>Field(s)</u>	<u>Equipment</u>																									
N1. (a) National Engineering Laboratory, Fluids Division, East Kilbride, Glasgow. Tel. East Kilbride (OEK 52) 20222.	Measurement of the velocity of sound in hydraulic fluids and other liquids. Viscosity of lubricants and other liquids. Measurement of the compressibility of liquids.	Pressures to 2 kb and temperature 200°C. Interferometer. Pressure of 12 kb and 100°C. (1) Falling cylinder viscometer. (2) Thin film, high rate of shear apparatus (feasibility study in progress.) Water and other liquids to 4 kb at 100°C and it is hoped to reach 6 kb and 200°C. Mercury and water to 12 kb and 100°C. Piston-and-cylinder (hydraulic fluids.) Piezometer (mercury and water).																									
	✓ A.T.J. Hayward																										
(b)	Measurement of viscosities of gases and gas mixtures. J.R. Sutton	Pressures up to 500 b and temperatures up to 300°C. (It is hoped to push both these limits higher in due course). Oscillating disc viscometer.																									
(c)	Measurement of thermal conduct- ivities of gases and gas mixtures. J.T.R. Watson	Pressures up to 1 kb and temperatures up to 600°C. Concentric cylinder apparatus.																									
(d) National Engineering Laboratory, Plasticity Division.	Cold forming by liquid pressure (mainly extrusion). Tension, torsion and compression testing under pressure, associated equipment design and manufacture. M.T. Watkins A.H. Low E.F. Chandler	<table border="1"> <thead> <tr> <th></th> <th><u>Pressure</u></th> <th><u>Temperature</u></th> <th><u>Working Volume.</u></th> <th><u>Other</u></th> </tr> </thead> <tbody> <tr> <td>1. <u>Extrusion</u></td> <td>14 kb</td> <td>Atmospheric</td> <td>25 in³</td> <td>12 kb back pressure</td> </tr> <tr> <td>2. <u>Extrusion</u></td> <td>28 kb</td> <td>Atmospheric</td> <td>0.5 in³</td> <td>"</td> </tr> <tr> <td>3. <u>Extrusion</u></td> <td>14 kb</td> <td>0-200°C.</td> <td>0.5 in³</td> <td>"</td> </tr> <tr> <td>4. <u>Tension torsion and compression tests.</u></td> <td>14 kb</td> <td>-12°C to +80°C.</td> <td>11 in³</td> <td>Cross bore container</td> </tr> </tbody> </table>		<u>Pressure</u>	<u>Temperature</u>	<u>Working Volume.</u>	<u>Other</u>	1. <u>Extrusion</u>	14 kb	Atmospheric	25 in ³	12 kb back pressure	2. <u>Extrusion</u>	28 kb	Atmospheric	0.5 in ³	"	3. <u>Extrusion</u>	14 kb	0-200°C.	0.5 in ³	"	4. <u>Tension torsion and compression tests.</u>	14 kb	-12°C to +80°C.	11 in ³	Cross bore container
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N2. (a) Advanced Instrumentation Unit, National Physical Laboratory, Teddington, Middx. Tel. TEDdington Lock 3222	Near and far infra-red absorption measurements to 50 kb (spectral ranges 1 - 10μ and 50 → 1000μ) on semiconductors and polar liquids and solids. C.C. Bradley	Multianvil devices; tetrahedron 0 - 80 kb 2000°C. Cube 0 - 60 kb 1000°C. Hydrostatic optical cell 10 kb. Opposed diamond anvil X-ray device 350 kb. Piston and cylinder devices. Carbide 50 kb 1000°C. Sapphire } 10 kb - 196°C → 200°C. Al-Zn alloys } Low temperature clamp device (30 kb).																									