

(c) Explosive forming.

Small explosive forming device.

✓ H. Lloyd  
R.H. Hall

(c)

Research into crystal lattice dynamics with particular relevance to polymorphic transitions in alkali halides using the technique of thermal neutron inelastic scattering.

Samples consist of single crystals of about 25 cm<sup>3</sup> contained in thin walled vessels to minimise neutron attenuation. Existing equipment provides up to 3 kb hydrostatic pressure at room temperature.

D.H. Saunderson.

U3.(a) ✓ United Kingdom Atomic Energy Authority,

A.W.R.E.,  
Aldermaston, Berks.  
Tel. Reading 55811.

Transient behaviour of materials at very high pressures.

✓ I.C. Skidmore  
J.W.S. Allan

Explosively generated shock waves.

	Pressure range.	Temp. range.
Solids and Liquids.	10 kb - 10 Mb	300 - 3000°K
Gases	1 kb - 100 kb	300 - 20000°K

(b)

Ceramic fabrication, powder metallurgy.

W.M. Long  
P. Snowden

Conventional hydraulic presses, capacities up to 2000 tons.  
Isostatic cold-pressing, 3.5 kb room temperature. Vessel bore 6 in, working height 12 in.  
Isostatic hot-pressing, 1 kb, temperature to 1500°C or above. Working space : diameter 3 - 14 ins. depending on temperature used, working height 2 - 4 ft.

(c)

Powder compaction.  
metal forming.

W.J. Metcalfe  
B.W. Rolfe

Isostatic presses :

24 in. dia. x 24 in. deep.	20 - 100°C.	1.4 kb
18 in. dia. x 24 in. deep.	"	"
6 in. dia. x 12 in. deep.	"	2 kb.

(d)

(a) Theoretical and experimental research and development on design parameters for very high pressure vessels, such as the application of photo-elastic techniques to the analysis of stress distribution in complex forms.

(b) Research into properties of materials in relation to pressure cycling, e.g. high strain fatigue problems in the design of isostatic presses.

E.J. Larbey  
W.G. Warnke

<u>Organisation.</u>	<u>Field(s)</u>	<u>Equipment</u>
<p>U4. ✓ United Kingdom Atomic Energy Authority, The Reactor Group, Springfields Works, Salwick, Preston, Lancs. Tel. Preston 29351.</p>	<p>The cold forming of metal by liquid pressure. Principally hydrostatic extrusion and variations on the basic principle. The application of the technique to both nuclear and non-nuclear forming problems. Also supporting work on the fatigue of pressure vessels.</p>	<p>Various pressure assemblies fed by high pressure pump up to 7 kb. Press operated assemblies up to 12 kb. "Cascade" assemblies up to 30 kb. All at room temperature. A Fielding and Platt "Hydrostat" extrusion machine operating at 7 kb, temperatures up to 200°C. From October 1966, a 1600 tons power, production-scale, extrusion machine operating at primary pressures of 12 kb and secondary pressures of 30 kb capable of extruding 45 billets per hour.</p>
<p>V1. Vickers Ltd., Engineering Group, Research and Development Division, Vickers-Armstrongs North East Works, Newcastle upon Tyne 4. Tel. Newcastle 3-8888 ext. 2458.</p>	<p>✓ J. Harper (a) Hydrostatic extrusion. Vickers have designed an advanced development/production machine in collaboration with the National Engineering Laboratory and are active with other designs. (b) Hydrostatic compaction. (c) High pressure hydraulic intensifiers. (d) General development work on associated problems. J. Crawley A. Saunders J.A. Pennell</p>	<p>At present Vickers offer :- (a) A custom-designed hydrostatic compaction equipment. (b) A standard hydraulic intensifier working at 7kb and delivering 630 cu. in. of fluid. (c) Various high pressure vessels.</p>
<p>W1. Wallace and Tiernan Ltd., Priory Works, Tudeley Lane, Tonbridge, Kent. Tel. Tonbridge 4481.</p>	<p>Design and manufacture of high pressure metering pumps for manual or automatic control (pneumatic or electric). H.A. Barratt G.F. Alexander</p>	<p>Chemical Metering Pumps - standard designs up to 345 bars. Specials designs up to 2.7 kb. Maximum quantity depends upon pressure, but would not normally exceed a total power requirement of 25 h.p. Temperatures up to 100°C although much higher temperatures are possible in favourable circumstances. Viscous materials and slurries may also be handled.</p>
<p>Y1. Yorkshire Imperial Metals Ltd., P.O. Box 166, Leeds, Yorkshire. Tel. Leeds 72222.</p>	<p>Cold forming of copper and copper alloys. We are also manufacturers of copper and copper alloy tubes and fittings which are used in a wide variety of high pressure applications. J.H. Cairns. R. Lee.</p>	<p>Extrusion press of 750 tons capacity designed for cold operation with effective working stroke of 10", and tooling for specific working pressures up to 18.8 kb.</p>