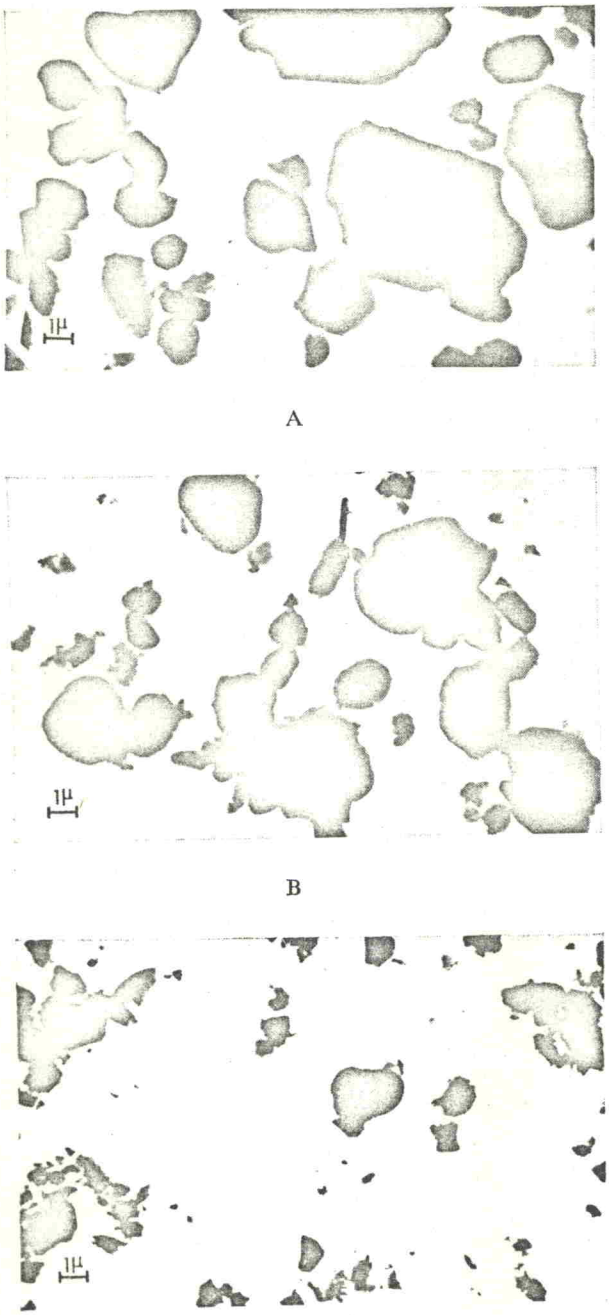
Evidence of shattering of the particles by shock is given in the electron micrographs in Figure 3.

3.2 Sintering Behaviour

After sintering, as described in Section 2.3, the specimens were examined under a low-powered stereoscopic microscope.

The explosively shocked specimen (2) was found to be crossed with numerous cracks which were not observed in the other specimens. As all the specimens had been fixed on a support which permitted free shrinkage, it is thought that these flaws had been retained from the pressing stage and had not been introduced during the firing, particularly as the cracks ran perpendicular to the axis of the cylinder.



A

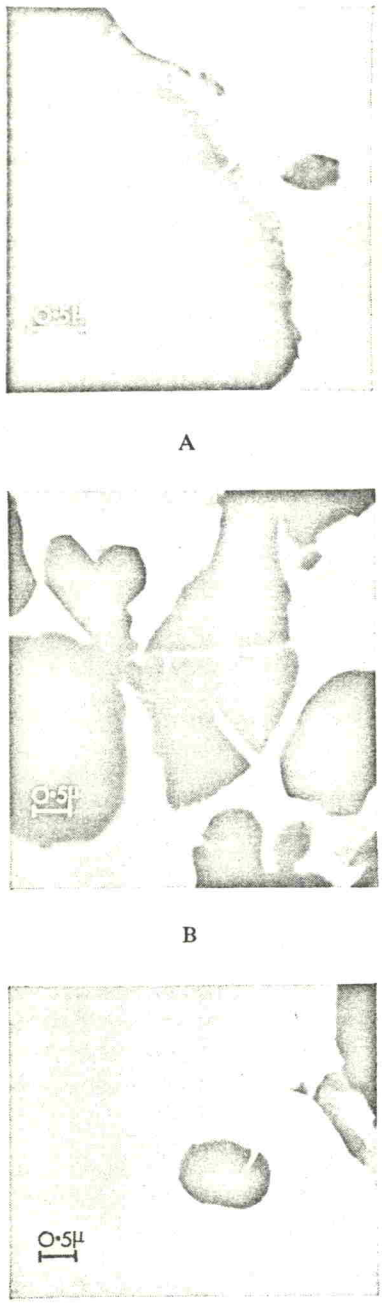
B

C

FIGURE 2

Electron micrographs of alumina powder.

A. "As received"
B. Explosively shocked
C. Glen-Creston-milled for 8 h.



A

B

C

FIGURE 3

A–C. Explosively shocked alumina powder showing cracking of the particles.

The average densities, obtained from Clerici solutions as described in Section 2.4, were as follows:

	Density g ml^{-1}
(1) Hopkins and Williams AnalaR "as received".	3·64
(2) Hopkins and Williams AnalaR explosively shocked.	3·80
(3) Hopkins and Williams AnalaR Glen-Creston milled.	3·87

The repeatability of the method was checked by measuring each specimen three times and was in all cases better than ±0·1%.