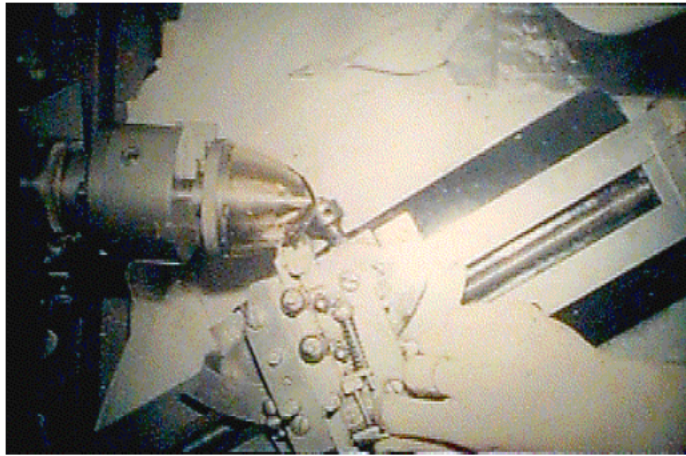


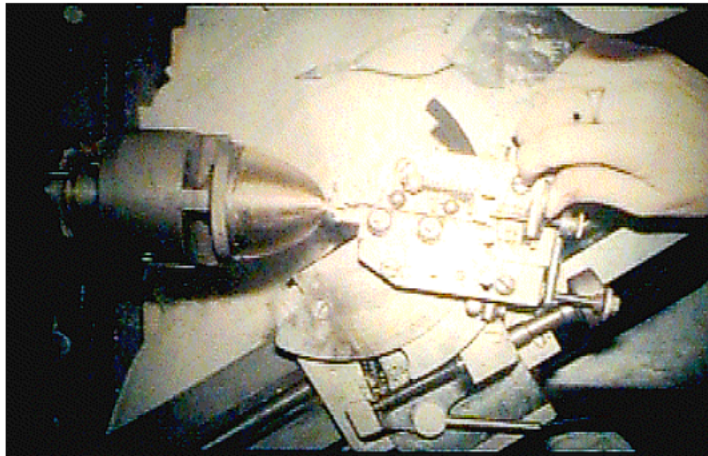
6. *Three Dimensional Circular Work*

Spherical Objects and dome shapes

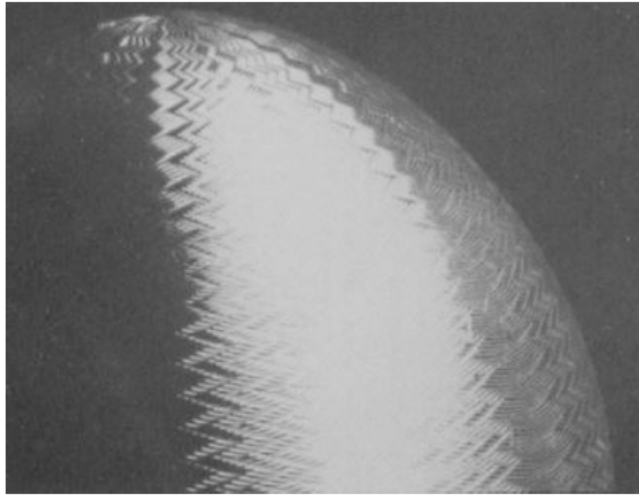
The arc slide on the sliderest allows us to rotate the tool to keep it pointing perpendicularly to the work as we move along a 3D shape such as half an egg. This best seen vertically down from above.



Cutting around a sphere or an egg is geometrically rather like cutting a curved cone. As the work progresses the arc is moved to maintain perpendicularity with the surface.



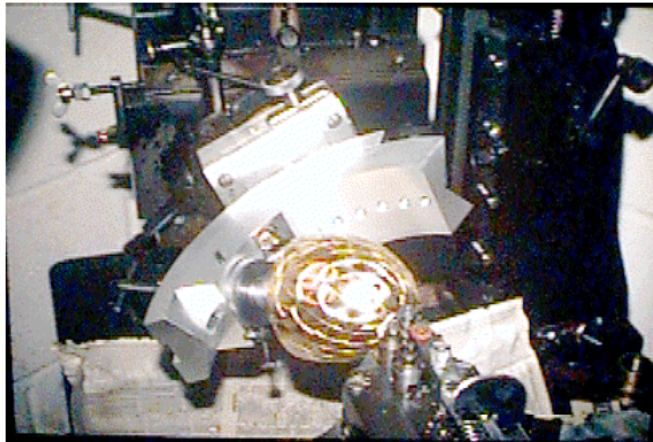
It is essential that the tool remains perpendicular to the work surface. The movement of the arc to achieve this is judged by eye. Considerable skill is required to keep the pattern even especially in a big egg as it is not uncommon to have to reset the sliderest halfway through the job. Here, the final cuts are being made.



A 100mm diameter hemisphere with a circular zig zag pattern. The need to keep the tool as near to properly centred as possible means that the sliderest often needs moving and resetting during the processing of objects like this. This example would need at least one movement of the sliderest to keep the tool centred accurately. The limit for cutting in one go is usually a little bigger than a chicken's egg. If this resetting is not done, the spacing of the cuts would noticeably change, at first close, then further apart, the closer again at the end. A truly spherical sliderest could resolve this issue, but engine turners usually rely on the method above because spherical sliderests were not generally available.

Non circular work on spherical objects

Some quite spectacular work on eggs was actually done entirely on a Straight Line machine! Here a **spherical Chuck** is used to position the work and rotate it between cuts.



In the process of being cut on a purpose designed Spherical Chuck, an exact replica of the 150mm high 18ct Fabergé Coronation Egg. This design consisted of a spiral lattice giving over 100 lozenge shapes each of which has a sunray pattern of radiating lines from its centre. There were over 14,000 cuts in the sunrays. This project took many days to complete. Perhaps surprisingly, this egg only was mounted to a circular machine while the two halves were being centred on the wax.



The Great Kutchinsky Egg This piece, set with thousands of diamonds stood over two feet high and is believed to be the largest gold egg ever made Much of the engine turning can only be seen on the inside All the work was straight line