



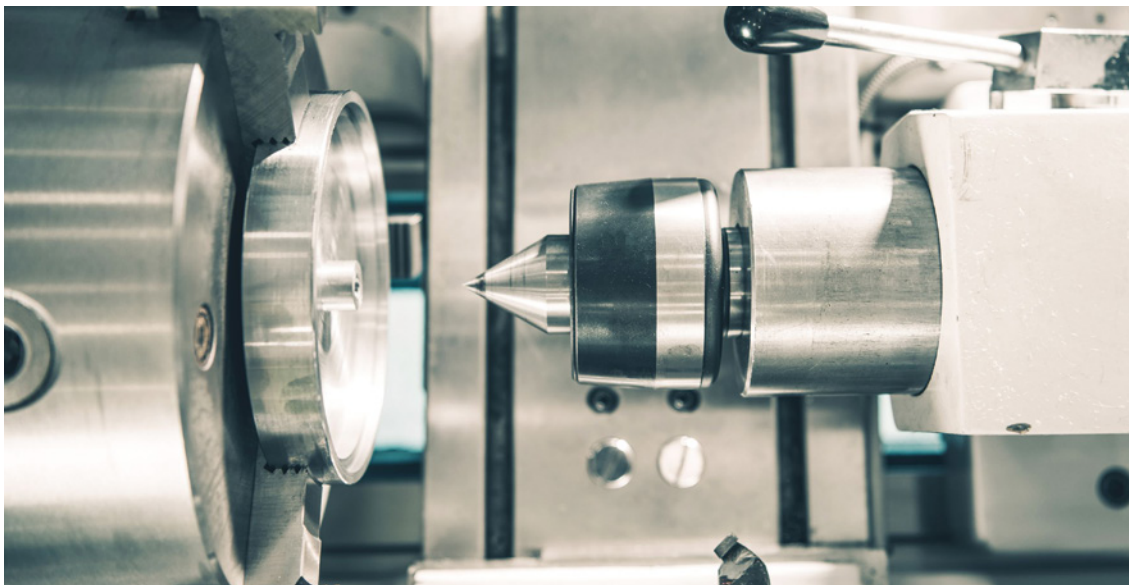
The development of machine tools

In 1774 John Wilkinson developed the first usable machine for enlarging cannon bores and steam cylinders. At the same time, drills were produced in which the drill bit pushed downwards as they turned.

From 1824 to 1850 James Whitworth, August Hamann and Johann Mannhardt built column boring machines and radial boring machines. In the second half of the 19th century the turret drilling machines and the multispindle drilling machines were introduced onto the market for series production.

The first electric hand drill was not released until 1895. It was invented by Wilhelm Fein and marked the advent of the 'motorization' of the hand.

By 1930, most types of machine tools had already been developed. New advances and innovations, however, were made after 1945. The machines produced after the war were characterized by a more rigid, vibration-free construction, high dimensional stability, and greater driving power.



ACTIVITIES

1 Complete the table with information from the text.

When	What
18 th century	
1824-1850	
Second half of the 19 th century	
1895	
First half of the 20 th century	
Second half of the 20 th century	