OBJECTIVE:

To examine the deformation of a metal specimen when a hardened steel ball is pressed on to it under different normal loads and to determine how such indentations should be used to give an indication of the properties of the specimen.

INTRODUCTION:

<u>Theory.</u>

Hardness refers to the resistance of a metal to the penetration of another harder body. It involves measuring the resistance to plastic deformation of metal surfaces.

A hardness test usually involves loading a pointer brannond or hardened steel ball and pressing it on the surface of the matural being coamined. The tip will fast overcome the resistance to electic deformation, then plastic deformation. True hardness can there be defined as load divided by the projected area of the indent. Methods of testing for hardness include; Brinell's hardness testing, Rockwell's hardness testing, Vicker's hardness testing.

A relation between hardness and tensile strength can be established but is not sufficiently reliable. The measurement of hardness has found a wide variety of applications in quality control of metals and their products. This is due to its simplicity and the non-destructive nature of the hardness indenter as it is so small that it scarcely damages the material.

The Brinell's hardness test involves pressing a hardened steel ball under a predetermined constant load, P, on the flat surface of a test specimen. The steel ball is pressed for a predetermined time-period and then removed. Upon removal of the load an indentation remains on the test metal piece. The diameter of the left indentation is measured and used to determine the Brinell hardness number.