

ABSTRACT :

Transition Pressures of Bi 3 - 5, Sn and Fe. Mr CONTRE.

Making use of "X type anvil", the change in resistance of two reference metals in each run were simultaneously recorded in order to compare their transition pressures. A linear extrapolation through the well known points below 60 kbar showed inconsistencies in the most commonly used high pressure scales. The recording of the pistons displacements lead to an exponential extrapolation which gave transition pressures of 78 ± 2 kbar for Bi 3 - 5, of 102 ± 4 kbar for Sn and of 140 ± 15 kbar for Fe.

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I - INTRODUCTION

The exact measurement, or even the simple evaluation of the pressure which is built up inside a high pressure solid medium apparatus, has from the beginning always been a problem. It was only in piston-cylinder apparatus that a direct measurement of the pressure was possible. Thus it became feasible, making use of the phase transitions of a number of metals, to evaluate the pressure which was built up in more intricate apparatus like "belt" below 60 kbar.

Above 60 kbar there is much confusion taking into account the various datas that have been published to day (table 1). Lately, during the same year 1966, two teams, one from U. S. A. working with Professor HALL, (11) the other from Soviet Union working with Professor VERESCHAGIN (13) published in earnest that the high Bismuth transition occurred at 76.5 ± 2 kbar for the first one, at $89.3 \text{ kbar} \pm 1\%$ for the second one.

The research workers in the high pressure field cannot remain unconcerned by that state of the art, if they wish to make more precise measurements.

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