oil has also been struck, as reported, at a depth of 1,600 metres, closely corresponding to this horizon.

Inasmuch as the Lunej structure has now proved oil, it will be advantageous to extend the seismic investigations to the neighbouring areas to the north and west of Cambay where additional gravity and magnetic anomalies have been noted.

Thanks are due to all the colleagues of the author who participated in these surveys and to Shri M. B. Ramachandra Rao for valuable suggestions.

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TESTING AND STANDARDISATION OF FOUNDRY MATERIALS*

CONSISTENCY in the quality of castings produced by a foundry depends greatly upon the control of the quality of a number of complex raw materials—sands, binding materials like bentonite, core oils and resins, fuel, air, metals, master alloys, fluxes, pattern materials, etc., used under severe conditions of temperature and erosion. An evaluation of their actual performance in relation to their fundamental properties will be of immense use to the foundry engineers.

According to Dr. Zang, three important criteria could be used to test bentonites for steel foundry use. To indicate that the sample has sodium as the main exchangeable ion, which gives high green strength to moulding sands, the pH should not be less than 8·2 and the calcium oxide content should not be more than 0·70%. Being a layer type of mineral, bentonite progressively increases in plasticity with increase in water content, till at a certain proportion of water to dry clay substance—known as the liquid limit—there is an abrupt increase in plasticity. The liquid limit for bentonites for steel foundry use should not be less than 525.

The mechanism of heat transfer in sand moulds is discussed. By a proper choice of materials and of disposition of mould masses, the rate of heat dissipation from the liquid metal can be so regulated as to obtain higher and more uniform mechanical properties of the resultant casting. This paper also discusses the use of metal moulds and points out the advantage of anodized aluminium as metal mould because of its heat transfer characteristics. Zircon sands also offer interesting possibilities.

Radiographs of sand compacted into a standard V-notch show that the mobility of sand grains adjacent to the pattern surface is governed by friction and by pattern contour. Higher packing density is obtained when such friction is reduced either by using a dry lubricant like talc or by vibration.

Magnesium contents of less than 0·1% in iron of suitable chemical composition bring about spherodization of graphite with revolutionary changes in its properties, particularly in ductility. Phosphorus is the principal element that precludes the suitability of Indian pig iron for the manufacture of spherodized graphite iron. Under Indian conditions, S. G. iron can be manufactured only by the use of a charge mostly of steel scrap and S. G. Foundry returns in electric melting furnaces.

* A scientific account of the Symposium on "Testing and Standardisation of Foundry Materials" held under the auspices of the Bangalore Chapter of the Indian Institute of Metals, at the Indian Institute of Science, Bangalore, on 9th and 10th October 1958.

OBITUARY—DR. K. C. PANDYA

WE regret to announce the death of Dr. K. C. Pandya, Retired Professor of Chemistry, Agra University, and a member of the Current Science Association. A Fellow of the Indian Academy of Sciences, he and his students contributed many papers to the *Proceedings of the Academy*. Dr. Pandya was mainly responsible for collecting and publishing in book form a series of radio talks on scientific subjects by Sir C. V. Raman. This book was later republished by the Philosophical Library of New York, and also by a publisher in Japan where it is used as a text for science students learning English.