The pottery newly discovered in Shensi, and forming the subject of our investigation, is a distinct group, which, as maintained repeatedly, was not turned out under the Han, but long afterwards, at the end of the third century A.D. In its form and design it is a direct descendant of Han pottery, but its glaze, as proved by analysis, is porcelanous. For this reason it has been styled "Han porcelanous pottery."

Dr. Mellor mentions only the analysis of the green-glazed Han pottery, which has no connection whatever with the porcelanous material analysed. The body of this Han fragment is a coarse red earthenware, which can in no sense be considered porcelanous. Certainly the porcelanous body analysed does not appear porcelanous to casual inspection. The true character of the ware appears only when a slide is prepared and examined under a petrographic microscope, when the porcelanous character becomes so strongly evident that mistake is impossible. The frothiness of the body which masks its porcelanous features from macroscopic observation is also plainly visible in the slide.

We are not at all interested in the philological interpretations of the Chinese term *ts'e*. Our identification of this new pottery with the early *ts'e* of Chinese records rests solely on archæological arguments, not on any philological considerations.

B. LAUFER.
H. W. NICHOLS.

Field Museum, Chicago, November 8.

I AGREE with most of what I have read in Messrs. Laufer and Nichols's work which made any impression on my mind, and I also agree likewise with what is said in the above letter. I except the impression conveyed by the title, and in some parts of the text of the excellent brochure, as well as in the present letter, namely, that the Han pottery (body and glaze) referred to can be called porcelanous or the froth of porcelain. As they say, it is stoneware—and is not a particularly good variety at that. If Messrs. Laufer and Nichols will apply the petrological test to a good class of "acid brick," such as is used in the Glover's tower of a sulphuric acid works, they will find just as much, or even more, ground for stating that these bricks are porcelainic. I have compared the two bodies and would vote in favour of the bricks. Similar remarks would also apply to ancient and modern ware made from the so-called vitreous clays when fired, for they, too, have a similar character, and many have a similar chemical composition. Ware like the so-called Böttcher, or Böttger, "porcelain" should not be called porcelainic—excepting, perhaps, as a "registered trade mark" or in metaphor. Nor is it any real contribution to history to call it the precursor of porcelain in Europe when we recall that numerous analogous cases must have been in the alchemist's hands centuries before Böttger's time. The analogy is surely valid also in China.

In my comments I tried to convey the impression that Messrs. Laufer and Nichols's suggestion was not in accord with the technical concept of porcelain in our country, but I can quite understand that they may be working with another concept of porcelain which enables them to apply the term as an adjective to the pottery in question. It would be better if these points were threshed out before a technical society, since this is scarcely the place to make an attempt to develop a standard definition of porcelain uniformly acceptable. The main discussion would, I take it, work round the body—the glaze *per se* would give less trouble.

Nearly all beginnings are obscure, and Messrs. Laufer and Nichols have made a meritorious contribution to the subject which in the past few months I have strongly recommended to many students.

J. W. MELLOR.

Stoke-on-Trent, December 6.

MAGNETIC AND ELECTRICAL OBSERVATIONS AT SEA.[1]

THE handsome volume before us is principally concerned with the magnetic and electrical observations made at sea by the *Galilee* (1905–8) and the *Carnegie* (1909–16). It also includes some observations made on shore in connection with the cruises of the two vessels. Some of the contents appeal only to a narrow circle, but much is of general interest. Thus we have the "charter party" by which Mr. Matthew Turner, managing owner of the brigantine *Galilee*, of the net tonnage of 328, contracted to maintain the vessel tight, staunch, sound, strong, and seaworthy with a sailing master, two mates, six seamen, and two cooks. Then we have the instructions issued by the director of the Department of Terrestrial Magnetism to the master before each cruise, the report of the master, the daily log, and particulars of all the instruments on board. The parts of most general interest are the descriptions of the observational instruments copiously illustrated in the plates, the reduction formulæ, the tables of observational results, including the graphical illustration on pp. 424–29 of the errors in current magnetic charts, and the discussion of the electrical observations. A certain amount of the material has already appeared in a less complete form in earlier publications, but the present volume collects everything together and shows the gradual development of ideas.

The portions of the volume relating to the *Galilee* and the *Carnegie* magnetic observations are indexed separately, and there is a third index for the electrical observations, so that the volume is practically in three parts. The *Galilee* seems to have been an excellent sailing vessel, and as suitable a one for magnetic observations as could have been hired in 1905. But, like any ordinary vessel, she had a magnetic field of her own, the elimination of which required frequent "swingings" of the ship and all the elaborate procedure which renders magnetic work at sea so burdensome. With the experience they gradually acquired, Dr. Bauer and his coadjutors gradually saw their way to the construction of a ship practically free from iron. Plans were prepared in 1908 by Mr. Gielow, of New York. The keel was laid in February, 1909. In June, 1909, the *Carnegie* was duly launched and christened, and on August 21 of the same year she entered on her trial cruise. With equipment she cost about 115,000 dollars. She is primarily a sailing vessel, but with auxiliary propulsion. The motive power is derived from an internal-combustion engine of 150 horse-power, working with gas produced from anthracite coal. The engine itself is essentially bronze, but steel of a total weight under 600 lb. had to be used for certain parts. The *Carnegie* has been "swung" on various occasions, but, to all intents and pur-

[1] Researches of the Department of Terrestrial Magnetism. Vol. iii., "Ocean Magnetic Observations, 1905–16, and Reports on Special Researches." By L. A. Bauer, Director, with the collaboration of W. J. Peters, J. A. Fleming, J. P. Ault, and W. F. G. Swann. Pp. v+447, with 25 plates and 35 figures in the text. (Washington, D.C.: The Carnegie Institution of Washington, 1917.)