

ART. VII.—REMARKS ON THE JAPANESE MAGIC MIRROR IN
THE PROVINCIAL MUSEUM.—BY HARRY PIERS.

Read May 14th. 1888.

Our mirror is circular, measuring 23 cm. (9.05 ins.) in diameter. The face is slightly convex, the centre being 2.5 mm. (0.1 in.) higher than the rim, which latter is nearly 4 mm. deep. When struck the metal gives out a clear note, corresponding to middle C sharp. Distant images appear decreased in size and slightly distorted, although this distortion is least observable when the mirror is held close to the eye. The back is ornamented in relief by characteristic Japanese inscriptions, and designs representing foaming waves and birds conventionally treated.

Having made a full-sized drawing of the figures on the back of the mirror, and having marked the face with two non-reflecting spots to correspond with two other spots on the drawing, I proceeded to reflect the sun's rays from the polished surface on to the drawing, which served for the purpose of a screen. The spots being made to coincide, I at once observed that one of the largest and most prominent designs on the paper was illumined more highly than the surrounding portion, and this difference was so decided and it corresponded so exactly with the drawing, that it left no doubt but that our mirror possessed the curious properties said to belong to it, and which have been referred to by Mr. F. E. Ives in a late number of the *Journal of the Franklin Institute*.

Although this part appeared so decided and sharp, yet there were other portions which should have been clearly reflected on the drawing which were either entirely wanting or so obscured and confused as to be, to all purposes, absent. On pressure being applied to the face the images dissolved, the illumined disc became smaller and finally appeared to correspond with the reflection of a common plane mirror.

The same results were obtained by lamp-light but in this case

the screen had to be placed much nearer the mirror in order to obtain a distinct image.

I have heard an explanation given for this phenomena which appears to be very rational. It is said that the face of the mirror, previous to being polished, is scraped by an instrument which quickly reduces the rigid portions caused by the raised designs on the back, while the thinner and more elastic portions give under the tool and thus retain their convexity.