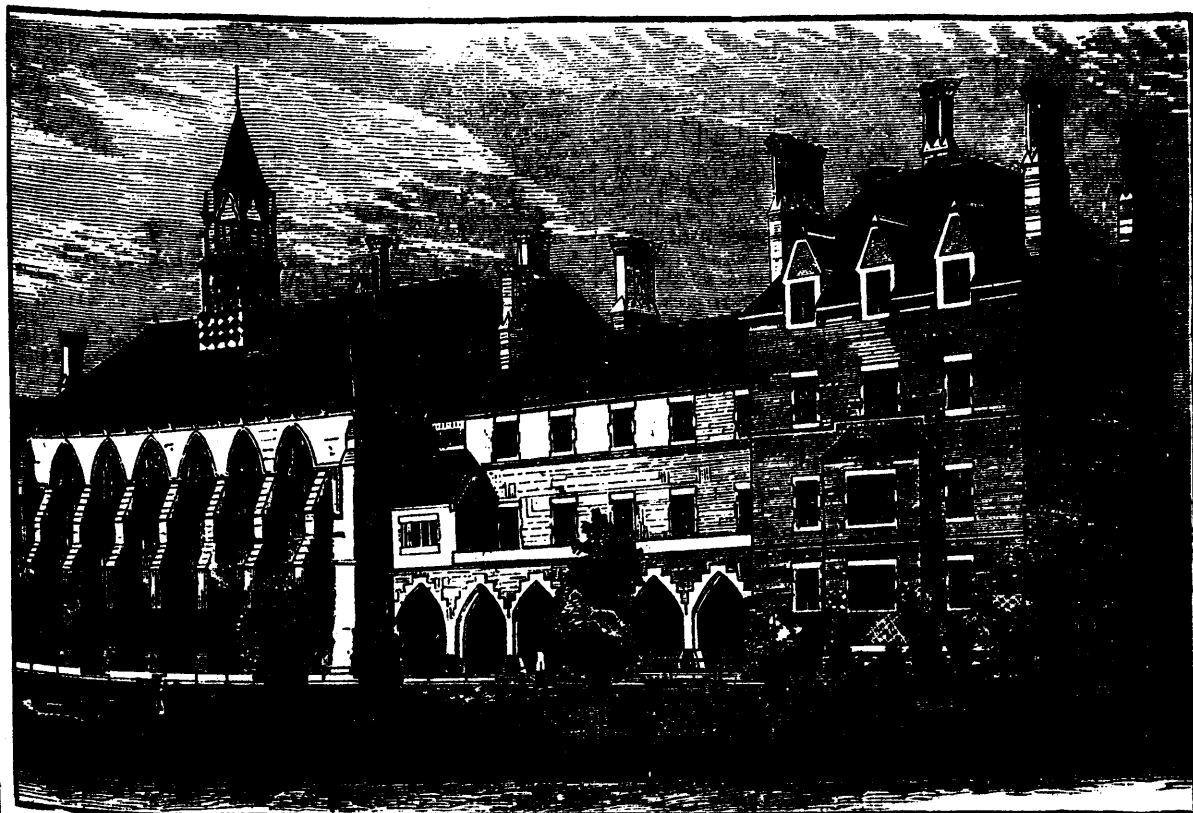




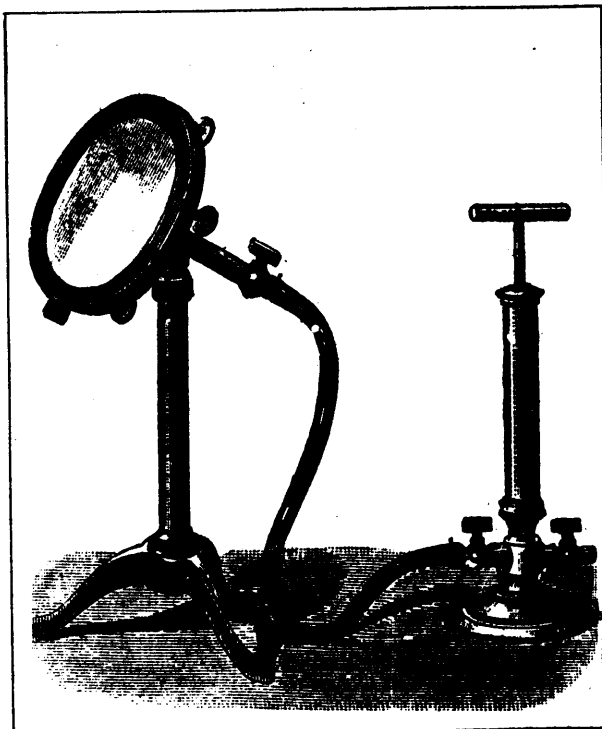
THE COMMERCIAL TRAVELLERS' SCHOOLS AT PINNER.—MAIN BUILDING.

## ON MAGIC MIRRORS.

BY MM. BERTIN AND DUBOSQ.

The people of the far East, the Chinese and the Japanese, in bygone times were only acquainted with metallic mirrors; and even to-day they make only these. They are made of speculum metal, of various forms and sizes, but always portable. One of the faces is polished and always slightly convex, so that its reflection gives images which are reduced in size; the other face is plane or slightly concave, and always has cast on it ornaments which are in relief. Among the many mirrors thus constructed there are a few which possess a wonderful property: when a beam of the sun's light falls upon the polished surface and is reflected on to a white screen, we see in the disk of light thus formed the image of the ornamentation which is on the back of the mirror. The Chinese have long known of these mirrors and value them highly; they call them by a name which signifies *mirrors which are permeable to the light*. We, of the West, call them *magic mirrors*.

Magic mirrors are exceedingly rare. We only find mention of them four times in *Comptes Rendus* of the French Academy of Sciences. The first was presented to the Academy by Arago, in 1844; the second and the third were brought to the notice of the Academy in 1847 by Stanislas Julien and by Person, and the fourth was exhibited before that society in 1853 by Maillard. It is true that even so far back as 1832 Brewster gave a theory of the phenomena of magic mirrors; but his explanation was made on the basis of the description of one of these mirrors which came from Calcutta, but which Brewster had never seen. Finally, in 1864 and 1865, M. Govi read before the Academy of Turin two papers on very beautiful experiments which he had made with three magic mirrors; this brings to seven only the number of which, up to that date, had been seen in Europe since men have begun to observe facts in a scientific manner. Therefore very few persons had seen magic mirrors till the month of last April, when an English physicist, Mr. Ayrton, Professor at the Polytechnic School at Yeddo, exhibited several of these mirrors, which he had brought with him from Japan. He experimented with them, and very successfully, before a small audience in the laboratory of M. Carpentier. He then left for London, and it will probably be a long time before we again have the privilege of seeing these marvelous mirrors.



THE MAGIC MIRROR.