with heliostats, in order to provide him with better means of communication along the Tugela. The plan of working is very simple. The mirror of the heliostat is placed so as to reflect the sun's image to a distant station, and when the instrument has once been set, the clockwork arrangement suffices to maintain the mirror in its proper position. In this way the distant station in question always sees the dazzling ray reflected from the mirror, except when the latter is purposely obscured. The appearance and disappearance of the bright spot or flash constitute the signals. There is no need for any superintendence when once the apparatus has been put in working order, and a trained signalman suffices for the duty. The ordinary Morse alphabet supplies an intelligible code, and no one out of the line of signals can read or understand the message. As a substitute for the dot and dash, which go to make up the ordinary written Morse code, the light is shown for short and long intervals; thus the light shown for a short period followed by a long period signifies A, while B is represented by a long period followed by three short ones; in the case of C, long, short, long, short signals are made in turn, and to form E (the letter most frequently used), the light is permitted to shine for one single short period only. The intensity of these sunshine signals can scarcely be imagined by any one who has not seen the heliostat in working order, and the distance to which they might be made to travel, could suitable stations be provided, is practically unlimited. The appearance or non-appearance of the light can be noticed at ten or twenty miles distance without the aid of telescope or field glass.

Postal Zoological Garden.

German post offices are zoological gardens on a small scale. According to the *Tribune*, in the course of a year as many as 40,000 live animals are sent by post, and if crabs, frogs, bees, and small insects are counted, the total will be among the millions. The post office authorities have the privilege of excluding such animals as may be deemed either dangerous or disagreeable; but within the last six months, only 39 packages of living animals were refused, among which were an alligator, done up in a box considered as too fragile; a lot of dogs, whose persistent barking could not be quieted; and a number of pigeons loosely tied up in a sack. On the other hand, during the same period, a crocodile, scores of birds of prey, monkeys, serpents, a leopard, and four living bear cubs were transmitted by post.

PROFESSOR PANCOAST has been exhibiting and explaining the Carolina twins to the students of the Jefferson Medical College, Philadelphia. They are the pair who have been widely shown as a two-headed girl. The professor considers them far more wonderful than the Siamese twins, who were two distinct persons, while these negro sisters have a single back bone below the shoulder blades, at which point the spinal column branches like the arms of a letter Y. They were back to back at birth, but in learning to walk they twisted themselves to facilitate locomotion, and now stand nearly side by side. Experiments showed that when either was touched below the point of union both felt it, but above that point there was a separate sensitiveness. Dr. Pancoast thinks they will die simultaneously.

THE WINDOW GARDEN.

Nothing adds more to the cheerful appearance of the interior of a house than an array of choice plants, but too frequently it happens that the hideous red pots containing them are permitted to stand out in bold relief, entirely neutralizing the pleasurable effect of the plants. Our engraving shows a beautiful plant stand, or window garden, which may receive the earth in which the plants are rooted, or the pots may be placed in it and hidden by it. The fish in the globe at the top give it life, and the whole forms a beautiful ornament for the window.

THE WINDOW GARDEN.

THE YAK.

The yak, or grunting ox, derives its name from its very peculiar voice, which sounds much like the grunt of a pig. It is a native of the mountains of Thibet, and according to Hodson, it inhabits all the loftiest plateaus of High Asia, between the Altai and the Hamalayas.

It is capable of domestication, and is liable to extensive permanent varieties, which have probably been occasioned by the climate in which it lives and the work to which it has been put. The noble yak, for example, is a large, handsome animal, holding its head proudly erect, having a large hump, extremely long hair, and a very bushy tail. It is a shy and withal capricious animal, too much disposed to kick with the hind feet and to make threatening demonstrations with the horns, as if it intended to impale the rider. The heavy fringes of hair that decorate the sides of the yak do not make their appearance until the animal has attained three months of age, the calves being covered with rough curling hair, not unlike that of a black Newfoundland dog. The beautiful white bushy tail of the yak is in great request for various ornamental purposes, and forms quite an important article of commerce. Dyed red, it is formed into those curious tufts that decorate the caps of the Chinese, and when properly mounted in a silver handle, it is used as a fly flapper in India under the name of a chowrie. These tails are carried before certain officers of state, their number indicating his rank.

The plow yak is altogether a more plebeian-looking animal, humble of deportment, carrying its head low, and almost devoid of the magnificent tufts of long silken hairs that fringe the sides of its more aristocratic relation. Their legs are very short in proportion to their bodies, and they are generally tailless, that member having been cut off and sold by their avaricious owner. There is also another variety which is termed the Ghainorik. The color of this animal is black, the back and tail being often white. The natives of the country where the yak lives are in the habit of crossing it with the common domestic cattle and obtaining a mixed breed. When overloaded, the yak is accustomed to vent its displeasure by its loud, monotonic, melancholy grunting, which has been known to affect the nerves of unpracticed riders to such an extent that they dismounted, after suffering half an hour's infliction of this most lugubrious chant, and performed the remainder of their journey on foot.

William Kingdon Clifford.

The scientific world has recently sustained another heavy loss in the death of Prof. William K. Clifford, which occurred at Madeira on the 4th of March. Prof. Clifford, one of the deepest thinkers and most brilliant writers of the present century, was the eldest son of the late Mr. William Clifford, an Alderman of Exeter, England, and was born on the 4th of May, 1845.

He received his earlier education at the school of Mr. Templeton in his native city, and from thence proceeded to King's College, London. Here he gave evidence of his great intellectual powers by shortly obtaining high honors, taking in his first year, 1861, the Junior Mathematical and Junior Classical Scholarships and the Divinity Prize. In the two succeedings years he gained the Classical and Mathematical

THE YAK.