

PARSEVAL'S KITE BALLOON.

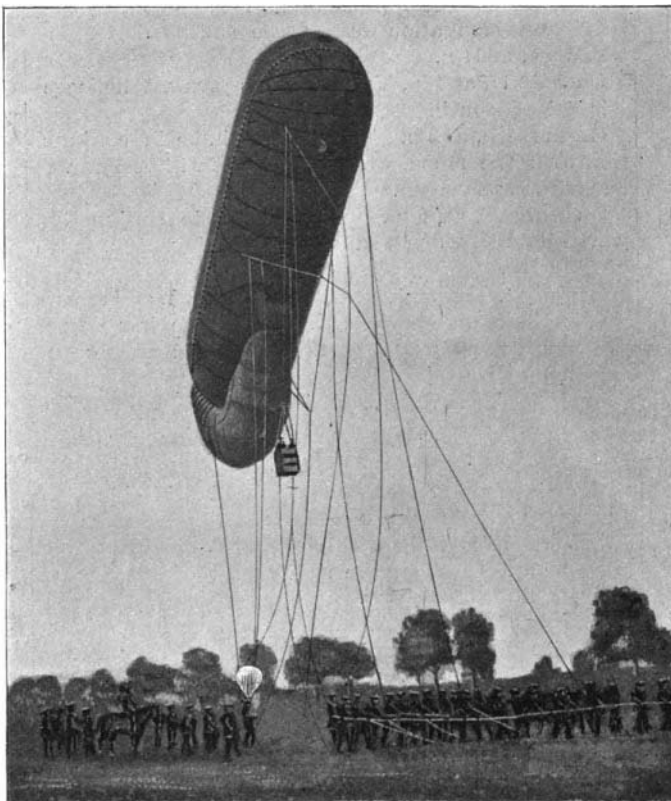
The usual form of balloon adopted by all the leading armies of to-day is the pear-shaped, captive balloon, connected to earth by means of a steel rope. Now, while this shape is suitable enough for a freely traveling balloon, there are great drawbacks in its use for military purposes. In such cases what is required is steadiness in spite of the fixing rope and of the ordinary power of wind. It is found that a wind of ten meters per second is sufficient to make the ordinary pear-shaped balloon absolutely useless as a captive balloon. Now such a wind blows about one day out of three, so that the practical value of the aeronautic department of the army is greatly diminished. Still, so much importance remains attached to it, on account of its invaluable aid under favorable circumstances, that, in spite of all difficulties, balloons are always carried into maneuvers and into war.

As alluded to before, the great difficulty hitherto was that the balloon is pressed down to earth by the wind, the rope assuming a position inclined at an angle to the ground, and permitting such extravagant motions and lurches as to make all observation impossible.

A new form of gas reservoir has, however, been devised by the German Captain Parseval, which overcomes the difficulties explained above, while it enables its occupants to use to a full extent and under all circumstances the excellent opportunities that an ordinary balloon offers only in a dead calm. The principle on which the new balloon is built is the well-known action of a kite. Its shape is that of a cylinder with hemispherical ends. The volume of the reservoir is about 600 cubic meters. The car is attached to the back, and the rope to the front end. When the balloon is filled the front end rises under the upthrust exerted by the atmosphere, and the whole assumes such a position that its axis is inclined about 50 deg. to the horizontal, and is in a plane parallel to the direction of the wind. Consequently the wind strikes the lower surface and acts as it does on an ordinary kite. But, as simple as the principle of the thing looks, in practice the inventor found many difficulties of important and by no means trifling character which could not have been foreseen, and which experiment alone revealed. It was, for instance, found on trial that the wind crushed the balloon, curving its back into an undesirable shape, so that the tension there was considerably greater than below. To avoid this distortion an ingenious contrivance was added to the main body of the reservoir. On the lower surface the constructor attached another reservoir with funnel-shaped mouth; this catches the wind, and the air collected keeps the shape of the balloon constant by its counterpressure.

The mixing of the air thus admitted with the gas is avoided by placing a loose partition of plaited fabric between the two. The pressure required to keep the balloon in shape is thus automatically provided; for

the stronger the wind, the greater the tendency to curve, but the greater also the pressure in the wind reservoir. Moreover, another danger seemed imminent. In strong wind the balloon tossed a great deal, and there was even some fear of its capsizing. The solution of this difficulty was not an easy matter. It was found in the form of an air cushion, a sort of bag, attached to the back end of the lower surface, and serving as a rudder. The part of this turned to the wind has a similar



TESTS OF THE PARSEVAL BALLOON.

air pocket arrangement to that of the main part of the balloon for keeping its shape. Although this addition effected a mitigation of the evil, it was found necessary to take some further precautions, and the end was finally attained by attaching to the back, where the oscillations are greatest, an auxiliary balloon. This is ring shaped, the diameter of the inner circular opening being ten centimeters, and is connected to the main balloon by a rope 50 meters long. The external diameter of the ring is ten-sevenths of the diameter of the main balloon. Below this ring there is yet an attachment corresponding to the tail of a kite. The lower surface of the annular balloon, i. e., the one exposed to the wind, is perfectly smooth. This auxiliary balloon appears near the ground in one of the cuts.

These two steering contrivances produce a perfectly satisfactory stability, such as is enjoyed only in an absolute calm when using the ordinary balloon. The

kite balloon may be used in any wind, so long as the filling and the ascent are possible.

At Berlin the inhabitants often had opportunity to see the kite balloon ascend side by side with the spherical (pear-shaped) balloon, at the practicing grounds of the aeronautic division. It could clearly be seen that the kite balloon was still when its spherical companion was subject to considerable rolling. We are indebted to Prometheus for the above particulars.

The engravings were prepared from illustrations sent us by a correspondent in Germany.

An Egyptian Crocodile Mummy.

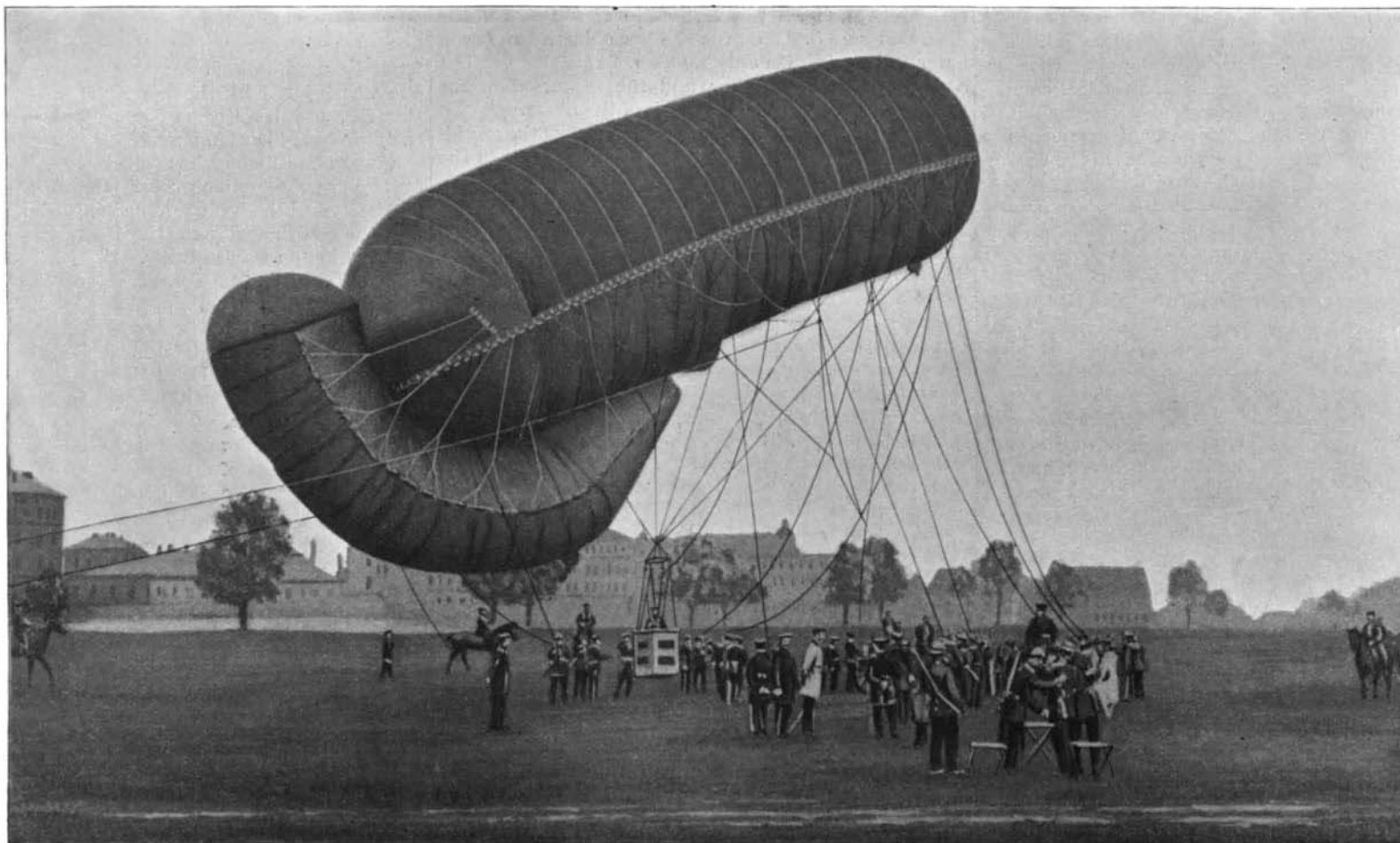
The varied and interesting collection of mummies, mummy cases and funereal furniture contained in the British Museum has recently been enriched by the acquisition of an enormous crocodile mummy, says Knowledge. This creature measures thirteen feet in length, and is well preserved, having a swarm of young crocodiles on its back. Dr. Pritchard, in his "Analysis of Egyptian Mythology," says: "The ancient Egyptians believed that the souls which emanated from the primitive source transmigrated through various bodies; nor was this change confined to emanations of a lower and secondary order. As the souls of men transmigrated through different shapes, so the higher order or spiritual agents could, as occasion required, assume any form they chose; and sometimes the gods appeared in the world under the disguise of bulls, lions, eagles or other creatures."

This accounts for the vast army of gods, representing so many species in the natural world, which abound in European museums. These were maintained in their day at great expense in sacred parks and lakes, and persons were appointed to nourish them with the greatest care; and when they died the same sacred rites were performed over their bodies and the same preparation was made for their interment as if they had been one of the highest functionaries of the state.

The famous fellow that has just been added to our national collection was discovered at Kom Ombos, in upper Egypt, a city where this creature was venerated as early as 2500 B. C., and where ruins still remain having paintings relating to the adoration of Sebek. At the south side of one temple the remains of a large pond have been found, which probably served to satisfy the amphibious instinct of this adorable monster. During the reign of Ptolemy Philadelphus, B. C. 330, the worship of the crocodile reached its highest point.

The method employed in making crocodile mummies seems to have varied with taste and means. While some are exquisitely bandaged, others (as in the case of our latest addition) were simply dipped in a solution of wax and pitch, which renders them perfectly hard, and by which the young progeny are securely fixed in the hollow parts of the back.

This is one of the finest specimens of a mummied crocodile that we have seen. It was presented to the British Museum by the Egyptian government.



THE PARSEVAL KITE BALLOON FOR USE IN THE GERMAN ARMY.