

The movement and mechanism cause a curious creaking sound which is well known along the banks of the Nile, and day and night the movement must be kept up in order that the crops shall not suffer. Various efforts have been made to introduce engineering skill into the construction of these "Sakkias" by building them with steel shafts, iron gears and chain of buckets constructed on what one might think to be a more durable plan. As a rule these efforts have resulted in failures as the natives do not understand machinery, and have no means of repairing it when the parts become broken or worn out. The writer has seen a modern steel "Sakkia," designed by an engineer and built in a machine shop, lying rusty and worthless upon the bank, while near by was the old wooden device tied together with thongs of rawhide still doing business, and built much the same as in the days of the Pharaohs.

The other device, called the "Shaduf," is of much cheaper construction and is worked by hand. It consists of a simple lever mounted on a post, to one end of which is attached a long slender rod holding a bucket, and to the other end is attached a counter weight—an arrangement similar to the device used by the inhabitants of the Province of Quebec to raise water from the wells. One of these machines will raise from 10 to 12 buckets of water per minute through a height of 8 to 10 ft., and the natives will keep at this work hour after hour. As a rule, it requires 2 or 3 of these "Shadufs" in successive stages to make the lift required. It is stated that there are about 100,000 of these water-lifting appliances worked by the natives along the banks of the Nile.

*Regulating Works on Lower River.*—For the distribution of the water over the land there is an extensive system of canals, some dating back to a remote period. The construction and operation of these canals are under the control of the Irrigation Department, administered in a very satisfactory and efficient manner by British officials, under whom are a large number of natives. As a rule, the supply of water is not sufficient to permit the native agriculturist to draw upon the canals continuously or to use all the water he would like. The use, therefore, is carefully restricted and conserved, and a system of rotation is adopted by which the consumer is allowed to have water only a certain number of days per month. This arrangement does not necessarily work to the injury of the farmer, as he would frequently flood his land with too much water if permitted to do so, and other individuals would not get enough. It will be seen that the irrigation official holds a position of much responsibility, and one in which tact is needed in dealing with the natives.

*The Cairo Barrage.*—At three points in the river barrages have been built with the object of controlling the level of the river, so that it will flow into the canals at the required rate. These