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“Transport of Live-Stock on Railways.”

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IN this Paper is given an account of the methods employed in working cattle traffic on the railways of the Uruguayan Republic. It is a matter of frequent occurrence in the saladero season for a train of between four and five hundred head of wild cattle to be loaded at one of the up-country railway stations, within the space of between thirty minutes and forty-five minutes; this expeditious work being effected by three or four mounted cowboys, and as many railway peons. The display of horsemanship and general smartness of the men on these occasions render the sight of loading the train a very interesting one, apart from the economic lesson in railway working that it teaches.

The wagons or vans are of the ordinary American type, so far as the bedframe is concerned. They are about 30 feet in length and are carried on two bogie-trucks. The superstructure is, however, novel in its design, and consists of two sides and a skeleton roof, with no ends; the sides being constructed and braced in such a manner as to dispense with the additional stiffness or strength imparted by the ends in a wagon of ordinary construction. The open ends of each wagon are closed, to within a distance of about 2 feet from the floor, by vertical sliding portcullis doors, which are raised by a small and simple spur-gearred winch and chain attached to a cross-bar at the end of the wagon. The lowering of these doors is governed by a strap-brake with a ratchet and pawl. The lower portion of the end openings is closed by a hinged horizontal transverse flap-door, which is kept in position by catches on the lower edge of the vertical portcullis door. When the latter is raised the flap-door falls down over the buffers. The flap-doors of adjoining wagons overlap one another, and thus form a continuous floor between them. The wagons are fitted with European side buffers, or with the ordinary American centre buffer; in the latter case the flap-door is stiffened with angle-

bars. Side doors are provided for closing the spaces between the wagons, and these hinge back and are secured against the side when travelling. For the accommodation of the attendants a foot-board is fitted on each side along the whole length of each wagon and at a distance of about 2 feet from the top, or well above the horns of the cattle. These arrangements permit of each wagon being used as an independent cattle pen, of capacity to carry between twenty and twenty-five head of stock, according to the weight and size of the beasts; or of any number of wagons being formed into one continuous open pen of the required size, which can again be subdivided into separate wagons in a few minutes. The interior side-walls of the wagons are perfectly smooth, all projections being avoided in order to prevent bruising the cattle; and the floors are fitted with slats to give the animals firm foothold.

The loading-pens or corrals usually consist of two enclosures at all stations where wild cattle have to be dealt with, otherwise one corral is sufficient. The outer enclosure is made of substantial post-and-rail or wire fencing. Slip rails or gates may or may not be used at the main entrance, but guiding wing-fences are run out for some distance to direct the herd of cattle into the enclosure. A mounted cowboy at the entrance will usually suffice for keeping the cattle quiet. The inner corral communicates with the outer one by means of a slip rail, or a closed gate entrance, preferably the latter, and is of smaller dimensions than the outer one. It is constructed in a curved pear-shaped form to facilitate working the cattle round to the loading passage. The corral walls are of rubble masonry, brickwork, or close-lumber fencing, in order to prevent the animals from seeing their surroundings. Communication with the railway wagons is established by means of a gangway passage of about the same width as the wagons and rising from the level of the corral ground to that of the wagon floor and terminating in a ramp and buffer-stops at the end of the siding in which the train of wagons stands. When preparing to load the train, the cattle are driven from the outer into the inner enclosure by three or four mounted cowboys, who remain with the stock. Two peons take up their position on the top footboards of the wagons, one on each side, and two other peons stand below them on the line, one on each side of the wagons. The latter secure the side-doors of the wagon which abuts on the ramp to the corresponding latches on the end uprights of the gangway passage fence, thus making the wagon a continuation of the gangway. One of the footboard men raises the first portcullis door by the small winch gear, while the man on the

other side stands by to assist if required. The men on the line see that the flap-door falls on the ramp, in order to form a continuous floor between the wagon and the gangway. The four men then proceed to raise and close the doors between the different cars, thus converting them into one long open pen. The doors at the end of the wagon next to the locomotive naturally remain closed. All being ready for loading, a drop-door between the corral and the loading gangway is raised. It is generally found more convenient to load the stock in sections of one wagon-load, rather than to drive the whole herd in at one time, as the latter method causes overcrowding in one part and underloading in another, thus occasioning loss of time in afterwards subdividing the animals. The cowboys therefore proceed to separate a batch of between twenty and twenty-five beasts from the herd. These animals are driven up to the gangway, and, seeing the light and open pen before them, they generally gallop through to the end wagon nearest the locomotive. When the cattle show any signs of hanging back, the top footboard peon on the offside jumps down behind them and drives them into position by shaking a rattle and shouting as he runs, and as the animals are not accustomed to seeing men on foot, this generally suffices to bring them into good behaviour. On the rare occasions when very wild or frightened cattle charge back, this man clambers up the side of the wagon to a place of safety, and it is found better to allow the animals to return and mix with the herd again in the corral, rather than lose time in forcing them to turn round. The twenty or twenty-five animals having arrived at the end wagon, the offside top attendant keeps them in position by using a short ox-goad when necessary, while the man on the other side lowers the portcullis door in a few seconds by means of the strap-brake. The men on the line place the flap-door in position, where it is secured by the catches on the falling portcullis door. The side doors are then folded back and secured in their travelling position, and the adjoining portcullis door is lowered and the flap-door raised, in preparation for the next batch of animals. The work is carried on with marvellous rapidity, and with practised hands five hundred head of stock can be loaded within half an hour. The unloading process need hardly be described, as the attendants simply place the various doors in the position for loading, when the cattle walk out of their own accord into the corral.

The system is equally applicable for tame cattle, or for horses and mules, etc., as well as for a large or small number of animals. One farmer will forward a single wagon of tame fat beasts for

the butcher, while another will load twenty wagons of wild stock for saladero purposes. When the wagons are required for the transport of sheep or hogs, a movable centre-floor is sometimes used, which doubles the carrying capacity of the wagon, by converting it into a two-decked vehicle. In addition to the manifest economy in labour and time, the animals suffer less damage under this system than with the old plan of loading, because they are not handled, and are therefore not frightened or driven into a state of fever. It has also been observed that they are less liable to become bruised from one another's horns.

The new system has hitherto worked under the most disadvantageous conditions, in transporting the perfectly wild native cattle of the River Plate, which will not allow a man to approach them on foot. These animals are proverbial for carrying the heaviest and widest horns of any stock in the world, and are correspondingly savage; but it has not been found necessary to adopt any process of dehorning or otherwise protecting the beasts from bruising one another. With tame, or semi-tame stock, or with short-horned beasts, the advantages offered by the end-loading wagons would naturally be greater. The wagons and corrals are inexpensive in construction and compare favourably in cost with the ordinary pens and side-loading wagons. Moreover, these cattle-wagons are found very useful for the transport of lumber and general cargo, and can thus be utilized on the return journey instead of running back empty. It has been proved that an animal carried for 100 miles by rail yields more tallow and a greater weight of meat than when driven overland for the same distance, and even the hide of the train-carried beast is said to weigh between 1 lb. and 2 lbs. more. This fact, together with the absence of all loss from stampedes, drowning when crossing rivers, death from want of water or grass, accidents on the road, etc., have now convinced the breeders of the advantages offered by rail transport over the old system of driving the cattle for hundreds of miles across country. Moreover, at present, with the certainty of being able to deliver his stock at a given time, the owner is able to take advantage of the fluctuations in market prices, instead of finding himself at the mercy of the cattle dealers' ring, as he was formerly under the old system.

Although, as already pointed out, the wagons are run singly and in mixed trains, the greatest advantages are to be obtained when the cattle traffic is heavy enough to justify the running of special cattle-trains. With only a few wagons attached to a mixed train, which calls at roadside stations, the wild cattle

are often rendered nervous, irritable and restless by the presence of passengers on the adjoining station platform, which are disadvantages avoided by a special train. The simplicity and speed of the loading and unloading process is so great that the animals can be easily fed and watered when the distance to be travelled necessitates compliance with the law governing this point.

The Paper is accompanied by eleven photographs, illustrating the system described.