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spread has been the interest in the trial, and how important will the decisions be considered. There probably has never been called together a Jury on Agricultural Implements so influential, so competent, and so impartial as the one at this Fair. The Superintendent, Joseph E. Holmes, of Ohio, was Superintendent of Machinery at the Crystal Palace, New York.

The competitors felt some dissatisfaction that they and their teams should be kept sweltering under the rays of a July sun, while the Jury were quietly going on with their tests with the Dynamometer (or *Davology* as one of them expressed to me). Some of them thought *draft* was not of much account, and could not be persuaded to cast a mental balance between so many pounds of draft and so many bushels of oats; but for all that Liebig, and Bence Jones, and Johnson, and every other person acquainted with the laws of animal life, maintain that all animal exertion produces waste of substance, and consequently the more strain is put upon the muscles in a day's work the more rapidiy will a horse or an ox become attenuated and need new supplies of food. To show the agricultural public which of two or more reapers and mowers will cause the greatest loss in this way, and consequent drain upon the farmer's pocket, the Jury at this trial have quietly continued on the even tenor of their way and now at the end of their weeks work can show the records of a more perfect investigation into the construction and properties. of reaping and mowing machines than was ever before made public.

The new Dynamometer (power-measurer) invented by W. B. Leonard, Esq., Secretary of the American Institute, is constructed as follows: A square box of cast iron, to the front and back plates of which are attached links for the appliance of the machine and the power used, contains at the bottom a piece of ordinary clock-work, the object of which is to give a constant revolving motion, to a circular table covered with leather.— Near the top of the box, on either side of this revolving table, are stiff spiral springs, which are fastened to the front and rear plates of the box. Directly over the revolving table is a spindle, the two parts of which slide upon each other, like a telescope, as the power applied draws out the spiral springs; and in the centre of this spindle is a brass wheel which revolves at right angles with the circular travel of the table. At the extremity of this spindle is a disk on which revolving hands mar by proper figures the total amount of strain made by the team. Now attach the team to the front link and the machine to the rear one of the box. The parts are drawn asunder, thus straightening out the spiral springs, pulling the sliding portion of the spindle and causing the upper brass wheel to pass off the centre of the revolving table, where of course, it previously was at rest, and to revolve itself by the forward travel of the table which it touches.— As this wheel goes round, it turns a pinion wheel at the other end of the spindle, and by an arrangement of one or two cog-wheels the hands go round the disk, faster or slower as more or less power is applied, and a perfectly accurate registry is made of the draft of the machine attached. This machine is most wonderful in its adaptation of mechanical principles, and after careful testing by watch and weights, has proved itself accu-The machine sent to be used by the United States Society on this ocrate and reliable. casion should have been made entirely of wrought iron, instead of which the box and slides raised were nothing but brass and composition, and of course gave way before the rough usage to which they were subjected. If Mr. Leonard will make the box more durable, he will be able to give the public a splendid instrument, and one that is necessarily destined to come into general use. When the Leonard Dynamometer box broke, the Su-perintendent was fortunately enabled to borrow from Messrs. Emery Brothers, of Albany, an oil dynamometer which they had upon the ground. This instrument is a strong cy-linder of iron, in which, as in a steam engine, there is a piston rod, in which is fitted a puppet valve and there is made a small orifice. The cylinder is filled with pure-strained oil, the piston introduced and the cap hermetically closed. At the end of the piston is one link, and at the other extremity of the cylinder another, to which are respectively attached the team and machine. As the power is applied the piston-rod is slowly drawn out at such a rate per minute per rod as more or less force is exerted, controlled by the oil being forced through the tiny orifice in the piston. When the machine has run a certain distance, by reference to the length of rod drawn out and time consumed, the actual draft is got at by the single rule of three. This, as well as the Leonard instrument, worked admirably, and lent much to the examination. The yoke for testing side-draft, which was invested for the trial by Mr. Holmes, the Superintendent, I have desscribed in a former letter. It will suffice to say that it was shown to be correct and a valuable assistant.