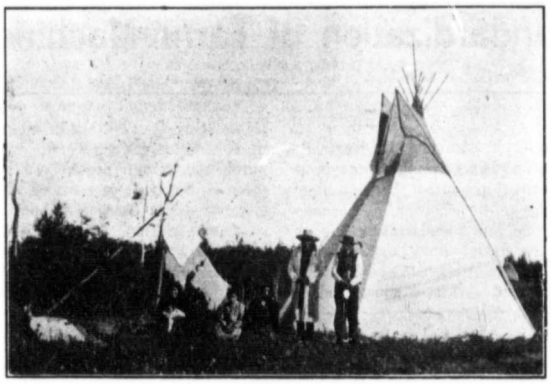
ous manufacturers, or the manufacturers' associations, accomplish finally an agreement as to satisfactory form for these various sales, contract forms, guarantees, tests, replacements, etc.

With a view of accomplishing these things I suggest for a beginning that there be inaugurated at the various agricultural experiment stations a system of design studies and tests of various machines and parts to be determined upon and to enable these determinations to be more easily made I recommend that a committee be appointed, composed in part of members of this Association and in part of Engineers to be appointed either by the Federal Department of Agriculture or by the various experiment stations. This committee to determine upon certain kinds of agricultural implements and parts which shall seem most in need of immediate attention and to prescribe as nearly as may be some plan for studying the designs and for testing certain parts under such rules as this Association shall determine; that the methods of testing be first standardized so far as possible and that the tests themselves be made more with a view of standardizing materials and parts and practises rather than for the purpose of determining that any one particular make of machine is better than another.

I would recommend beginning with the parts which can be more readily standardized, such as bolts for different uses, boxes and bearings, axles, gears, pulleys, fly-wheels, knives of feed cutters, metal wheels, wooden wheels, etc., and that you may clearly understand me in respect to this I will state more particularly what I think could be done with some of these, for instance:

BOXES AND BEARINGS.

These could readily be standardized as to the composition of bearings and their bearing surfaces with respect to certain classes of load. It is a well known fact that in babbited bearings and in copperbronze and brass bearings the use of lead is in common practise and reduces the cost of manufacturing and makes the part much easier to machine, in consequence of which manufacturers are sometimes apt to use too much lead in their bearings, making them too soft and greatly shortening their life. The ingredients of these various kinds of bearings should be specified and made absolutely standard for different kinds of use. Roller bearings and ball bearings should also be considered. The question of compression grease cups versus plain oil holes should also be considered, as likewise the means of draining certain kinds of bearings from below in order that they may be occasionally cleaned from grit and dirt.



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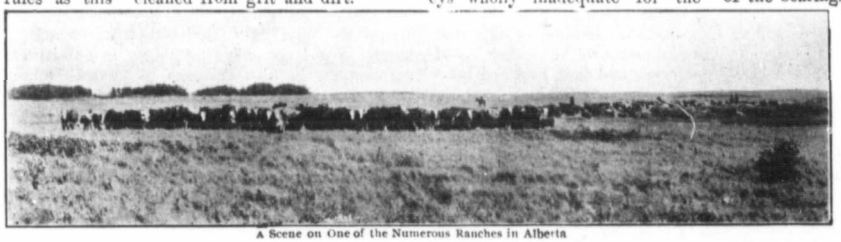

A Scene on One of the Numerous Ranches in Alberta

GEARS.

Materials of gears should be carefully studied, even to their chemical analysis; break-down tests should be made, also their dimensions and style of construction should be considered. Specications should be standardized showing particularly where cast gears would be permitted and where cut gears would be required, not only in respect to durability but in respect to efficiency, and elimination of friction loads.

PULLEYS.

The general rules of mechanical engineers in respect to the adoption of certain kinds of pulleys to certain uses and loads are so well understood that there should be no excuse on the part of the manufacturer for using an improper size or kind. Yet we all know from practical experience on the farm how often machines are equipped with pulleys wholly inadequate for the work involved. Pulleys can easily be standardized and the lists so arranged that any farmer can readily determine the kind and size best adapted to his needs. Such information could then be publish in bulletins devoted to machinery.

FLY-WHEELS.

Many accidents occur through the use of fly-wheels totally inadequate to their purposes. Fly-wheel tests should be made to determine the sizes of hubs, spokes and rims adapted to certain weights, loads and speeds and specifications should also show the kind of service which requires webbs instead of spokes and giving some idea of the thickness of webb required to make it sufficiently strong. The laws of some of our states now regulate some of these points to some extent but it is clearly within the province of this Association to standardize fly-wheels with a view to strength and safety and in respect to the bearings which are to carry fly-wheels at maximum speed and such information should then be published in bulletins.

A Good Case of Mixed Farming Near Edmonton

BOLTS.

The uses of bolts should be standardized showing where bolts of the character of carriage bolts would be required and specifying the class of uses in which the cheaper and commoner variety of bolts would be admissible.

WHEELS.

I would recommend the testing and standardizing of both metal and wood wheels for all farm implements, giving particular attention to sizes of hubs and spokes, the proper dimensions of the bearings in the hub to sustain certain loads, the preferable dimensions of rims for certain kinds of work and loads, giving particular attention to the question of design of the bearings, cups, would be recomended and where ordinery oil holes would be tolerated and possibly going somewhere into the question of roller bearings and ball bearings in their application to various kinds of wheels.

FEED CUTTERS.

I would recommend tests of these with a view of determing the horse power required for certain tonnage output per hour with a view of determining the most efficient and most durable designs, the factors of safety in each and the safety appliances in use or recommended, the determination of such questions as to whether a curved knife requires greater or less power than a straight knife in a given amount of work, which is the easiest to sharpen and maintain, the safest method of attachment of the knife for practical use, etc.

GASOLINE ENGINES.

I recommend tests of these to determine efficiency as to power development for a given amount of fuel consumption, also as to speed regulation, and then as to ruggedness and durability. Oftentimes with the purchaser speed regulation is more essential than efficiency, and again in some cases durability is the great consideration even though efficiency and speed regulation may be low.

Continued on page 30b