11.301

Agricultural Engineering Farm Equipment Development
in the past 100 years and Important Advances
in other fields effecting Agriculture
during same period.

Date	Farm Equipment Progress	Other Agricultural Progress
1831	Plowing with wooden plows; maybe a man could do two acres a day. A bonus given by some towns to any man who would keep a plow and use it among the neighbors. Heads wagged over the new cast-iron plows; they poisoned the land. Harrows often made of brush but in the woods. Grain harvested with the cradle; a stout fellow sweated to cover two and a half acres in a day. The village blacksmith was the implement manufacturer. Hauling by oxen. McCormick's reaper	One railroad with steam engine in the United States - Carbondale to Honesdale, Pennsylvania, twenty odd miles. Faraday's dynamo, momentous seed of the electric age.
1833	John Lane's steel moldboard plow, made with the blades of crosscut saws.	Royal William, transoceanic voyage with steam power
1836		Morse, electric telegraph Screw propeller for steamship replacing clumsy paddle wheels.
1837	John Deere's plow works, replacing old saw blades with steel made especially for plows	
1839		Daguerre, photography, France.
1840	Manufacture of grain drills begun in the United States	Iron hull replacing wood in steamships. Fish and fruit preserved by heat.

1842	Parlin, pioneering work with steel plows.	
1846	Hoe, rotary printing press, United States.	
1849	First portable steam engine for farm use, 4, 10, and 30 horse power, $625 to $2300. Also before 1850, grain strippers and headers.	
1850	Generally regarded as the end of the hand-farming era in this country; animal power getting near universal acceptance. Value of machines and implements onAmerican farms at this date $151,587,638.	
1853	Brown, check-row corn planter necessary to cultivate corn both ways so hand hoeing could be eliminated.	
1854	Johnson, disks in gangs for harrowing.	Marquette iron mines discovered, Michigan
1855		Grimwade, dried milk, England
1856		Borden, condensed milk.
1857	Robbins, automatic check-row corn planter	
1858	Marsh harvester. Solved the problem of delivering grain for binding	
1859		First oil well in the UnitedStates Oil Creek, Pa. 1000 gallons a day.

1850-1860 Also developed in this decade: Forced feed devices for grain drills, stalk cutters, baling presses, disk harrows, feed grinders, straddle-row cultivators; improvements in mowers, threshers, reapers.

1860 Considered the beginning of the Industrial Revolution in America (long after England) Invention of roller process for flour manufacture. Carre, France, first practical ammonia-absorption refrigerating ma chine.

1862 Nobel, dynamite, Sweden

1864 Siemens-Martin open-hearth furnace. Bessemer process, invented in 1856 now in commercial use

1868 John Lane, Jr., soft-center steel for plows

1869 Garver, spring-tooth harrow

1870 Wide use of two-wheel sulky and gang plows. Locke automatic bundling, compressing and tying twine binder.

1871 In this year there were thirteen patents in the United States for steam plows.

1872 Hay forks, sling, carriers, developed

1875 Combines used on large wheat farms in California, 12, to 30 horses, 16 foot to 24 foot swath.

1876	Otto "silent" gasoline engine Manure spreaders of the wagon type, ensilage cutters, disk plows.	Bell telephone
1878		Benz developed a motorcycle. Daimler in 1886 a motorcycle and in 1887 an automobile
1878	Appleby knotter, the principle now used on all twine binders	Edison, incandescent electric lamp
1884	Three wheel sulky and gang plows. In this year several firms were trying to popularize steam plowing.	Parsons, steam turbine, England Mergenthaler, Linotype, United States
1885	Corn husker-shreader	
1887	Sled corn harvester. Corn binders. Side-delivery hay rakes, which facilitated automatic loading	Malted milk produced. Westinghouse air brake applied to freight trains.
1888		Burroughs, recording adding machine.
1890	Babcock device for testing butter fat content of milk. Cream separator developed/ About 26,000 steam threshers and 3000 steam tractors manufactured. Two-row cultivators.	Helvetia Milk Company, first commercial evaporated milk.
1892	A thresherman named Froelich used a gasoline engine to thresh wheat in Iowa.	
1893	First gasoline tractor advertised Hansen tested gasoline tractor and thresher	Edison, motion pictures. Hoffman, by-product coke oven, austria.

1895		Niagra harnessed. First automobile race, Chicago, 54 miles, 6 1/2 miles per hour. Diesel engine developed. Prescott, Massachusetts Institute of Technology, and Russell, Wisconsin University, applied pasteur's discoveries in canning.
1896		Marconi, wireless telegraph
1901	First Hart-Parr tractor	Taylor and White, high-speed steel
1902	Big multiple-bottom gang plows developed	
1910	Corn pickers	
1912	Production of big tractors at peak	
1913		Coolidge, tungsten filament lamp a major step in making electric lighting efficient and economical
1915	Development of light tractors, small grain threshers, and so on.	
1925	General-purpose tractor.	