



Agriculture



1. Why is the inner bark of a wheel wider than the outer one?

2. At what season of the year are plants in a dead or sleeping state?

3. Why are old cast wheels less used than when new?

4. What weight will draw a wheel 4 ft diam. over an obstacle on a given wt. will just draw a wheel 2 feet diam. over it?

5. What quality fit for vegetation does <sup>the stem</sup> some require by being buried?

6. Is it proper that the Civil Magistrate should interfere in regulating the price of grain?

7. For a cart or Car where the wheels turn with the wheel the horse will be less shaken than where the

wheels turn on a fixed axle when one wheel is stopped, the other also

8. Fixed axle turns more easily when not fixed the one wheel crags in turning

9. When horses are yoked together in Carts or Waggons if one is spoiled and the ~~other~~ rest lazy the one is soon done out.

10. If a hole is bored with a gimlet in the branch of a fruit tree and a small quantity of Mercury poured into it, it will kill all the insects in the tree in the space of 5 or 10 hours  
Stat. 236

11. The spokes of a wheel sunk deep into the Stock with one, is not the best objection to shoving with a circular tyre

eye. The felloes in common  
wheels are left a little apart  
in two opposite points of the rim  
to allow for the sinking of the spokes.

12. Some affirm that Bullacks drive  
best by the horn and that they  
are worked by the horns about  
a Shop.

13. Whether should the driver sit  
on the Coach box or the back  
of one of the horses?

14. Theory says that the power re-  
quisite to draw a wheel is in the  
point ratio of the axle to the wheel,  
can this be proved by experiment?

15. Dishing of a wheel serves to throw  
off the dirt from the Carriage and  
horns.

16. The Dutch method of adjusting  
the <sup>position of the</sup> beams of a plough.

17. In the Rotterdam plough the  
position of the share and coulter  
is awkward.

18. Dishing of a wheel decreases  
with wear, this corrected, it serves  
to keep the rim more light  
on the spokes. - Why does the  
Dishing decrease?

19. The French make their  
spokes sometimes rounded in  
the middle, by this means the  
wheel is more easily drawn out  
of a rut.

20. Best made of setting the  
axle.



21. The contraction of the Tyer  
is about 2 Inches in a Wheel  
of 5 feet. —

22. Present Size of Carriage  
wheels four from  
to and from  
to

23. Machine for bending the  
rim

24. Machine for Shoving

25. Machine for boring the  
nail holes

26. Suppose a Wagon with  
equal wheels whether will  
it be drawn with more ease  
when the weight is laid on  
the fore or hind wheels

27. It has been objected to the  
hoop shoving that unless  
the precise Degree of heat could  
be ascertained the wheels  
may gain too much or too  
little, and consequently contract  
the rim either too much or  
too little. —

28. What is the best quantity  
of the Crust and the best pre-  
fect rule of setting in the  
cask?

29. What is the Curve described  
by a chalk on the Rim  
of a wheel? on the Carriage  
frame it is a Cycloid —

30. It is in favour of small wheels  
that altering the line of draught  
does not produce so great an

equal as in large wheels

31. To remove the inconvenience arising from the jerk down down hill, the fore horses have benches — How are they got?

32. One advantage of a long shaft is that the wheel has less play, the jolting is less

33. The Saw seen between the fellies before pulling on the traps leaves sufficient room for the traps to contract —

34. The length of the Bench, or bow of draught is said to facilitate the draught — Error

35. If the Car wheels are made to move separately would

there be any advantage? They may be placed like two wheel barrows without any axle

36. When one wheel of a Cart is suddenly stopped whether with the other move backward or forward, which side of the horse will be struck with the shaft?

37. When the Eye is put on it sometimes bends the aperture

38. The Collar of a Draught horse makes an angle with the horizontal plane, the line of draught should be at right angles to the collar —



39. When any thing goes wrong about a waggon the whole waggon must stop but a car and its load can be divided among the rest.

40. The Decker's Decreaser this is caused by the spokes only dipping into the hind part of the mortise which is narrower than the fore part.

41. The manner of hooking the chains in an iron car is extremely proper.

42. The wedge form of the tenon is an excellent contrivance

43. What is the Difference between passing over an obstacle on a horizontal and inclined plane, the incline given?

44. The ~~same~~ traces should be hooked to the bottom of the shaft - The only inconvenience is in turning

45. Small wheels have less friction in the trace than great wheels -

46. Small wheels fall more easily into and are drawn with more difficulty out of ruts and cavities -

47. Nails <sup>heads</sup> should be flat.

48. The only difference between  
the draught of great and small  
wheels up hill is their weight.

49. Every horse draws better  
with a certain weight on  
his back.

50. Small wheels injure the  
roads more than great ones.

51. To ascertain the quantity  
of friction in a carriage  
raise the plane until the  
carriage begins to move  
down. The friction bears the  
same proportion to the weight  
of the carriage and load as the  
angle of the plane: Radius

52. The Power of the horse  
is to the weight of the Carriage  
as the angle of the plane  
to the Radius.

53. The principles of a  
wheel best explained  
by means of a roller.

54. Friction greatest on a  
horizontal plane.

55. On even roads the length  
of the nave or stock of little  
consequence. On the uneven  
roads short stocks give an  
unsteady motion to the wheel,  
which the axle moves thro'  
increases in proportion to the



length of the spoke. None a  
disadvantage in high wheels  
None also high wheels should  
have longer stocks than low  
wheels -

56. Iron hoops best put on  
the ends of stocks -

57. Spokes obliquely an inju-  
rious contrivance -

58. Pistons should have no  
bottom - wedge form - use

59. Rims composed either of  
of several or of one piece -

60. Bent rims composed of  
one or sometimes two pie-

is simpler, lighter, stronger  
and nearer than the common  
pair of the wood preserved  
as early repaired -

61. When the rim of a wheel  
is to be repaired a jelly  
or piece of the bent rim is  
cut out, a new spoke  
is to be put in and a piece  
out of the back of the nave

62. When the next heads are  
not flat they injure both the  
wheel and the pavement -

63. Contrails in iron wheels  
just appear red hot in day  
light is from 50 to 100 part

That is near two inches in a  
wheel of fifteen feet in circum-  
ference

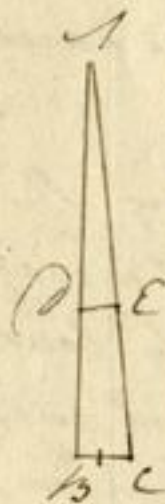
64. Conical form of the axle  
makes it fit better —

65. Same axle will not answer  
for setting the axle on a hor-  
izontal and Striking Plane

66. Needs for a horizontal p.  
but the wheel on its edge  
and the axle laid horizon-  
tally is fitted the wheel in  
the position —

67. That the fore and hind  
wheels of a carriage may  
run in the same track it is

necessary that the fore wheel  
should have a greater Dushy  
or wheel is the best way that  
the fore axle should be longer  
This is determined in the follow-  
ing manner



$AC = \text{Rad.}$  larger wheel.  $AD$  lesser  
 $BC$ . (Dushy) larger  $DE$ . Dushy  
lesser wheel. Thus to make the  
wheels move in the same rut  
the fore axle should exceed the



hind one by half %c. —

68. The creep should be some-  
what less than the rule art.  
66 gives it. —

69. Broad wheels injures  
the roads less than narrow  
wheels, more easily drawn  
on sandy or soft —

70. By sloping the outside  
of the rim of a waggons wheel  
the <sup>inner</sup> edge only touches the  
road hence it injures the  
road much more than the  
narrowest wheels in use.

71. The Irish Car is a cheap  
and simple instrument

carriage loaded — easily repaired

72. Single cars or Cars do  
more work than Double Ge.  
A pair ~~pull~~ to load yobly  
— for horse of no use under  
trot — Staff horse both  
draws and carries, for only  
draws — Many horses move  
irregularly — Some move  
faster than the rest —

But for transporting heavy  
goods and particularly lumber  
goods waggons are preferred  
particularly if the roads are  
good —

73. On level ground the best  
wheels are about the Wt.  
of the horse - up and down  
hill something less - none  
should be more than 5:6  
nor less than 3 -  
Much depends on the  
materials - Strength of tim-  
ber - well seasoned - and work-  
manship -

74. All the Experiments  
hitherto made on this subject  
- conclusions drawn from models  
often inaccurate -  
1. A Model shows the manner  
not the quantity of action of  
a machine -  
- 2. To carry weights models  
stronger than the machine  
- 2. The exact proportion of  
the friction in the Model  
to that in the machine  
has not been ascertained  
- 3. Percent of a weight over  
a pulley very different from  
the exertion of a horse



75 To remove the inconveniences  
mentioned in the last art.  
Experiments should be made  
on Carriages at large -

76. Spring Machine  
will ascertain the quantity  
of draft in all cases both  
in ploughs and carts  
- In a plough one mark  
hooked to the beam  
- In a cart two hooked  
to the draft chain -  
The following exp<sup>s</sup> may be  
performed

1 High and low wheels re-  
sulting compared - on level  
up and down hill - and the long

2. Quantity of friction - long  
and short nails - Different soils.
3. Best mode of loading -

77. Why are we so little  
used for draft now? In an-  
cient times the ox performed  
almost all the labour of the  
farmer he ploughed the field  
he traded out the corn, he  
drew the waggons &c.

Lord Haimes calculates that

every ox would save to the  
farmer about £20 per An.

- Ox eats no oats - requires little  
attention - will draw as  
much as a horse - more

sluggish - moves sufficiently fast  
- should draw from the shoulders  
not from the tip or root of  
the horn

- Sold to Mr. Bullock -

78. The quantity of oats consumed  
by draft horses alone in  
Scotland is calculated by  
Lord Haimes to amount to  
no less than 300,000 L  
per An.

79. Mr. B coach M.

Long Acre has got a patent  
for a new manner of ploughing  
the spokes in the stock,

They are placed alternately  
more forward and farther  
back by one half their

depth this gives them a broad  
or base on the earth, and con-  
sequently says Mr. B reduces

the wheel strain - gives  
over a what we call a flat stock?



00. Low fore wheels  
are advantageous  
in turning but dis-  
advantageous in de-  
pressing too much the  
line of draught —

# Ploughs

1. Office of plough turned  
to cut a portion of land  
perpendicular to a certain  
depth -
2. Horizontally at that depth
3. Turn the furrow slice  
over —





From 75.4 long chain  
 Apr. 5 - 1840. measured & drawn into  
 five equal parts, the 1st of them belonging to  
 Mr. Johnson & R. Johnson, the 2nd, 3rd, 4th & 5th to



$\frac{75.4}{100}$

724  
 616  
 312