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THE

ILLUSTRATED ANNUAL REGISTER OF RURAL AFFAIRS

AND

CULTIVATOR ALMANAC,

FOR

1857.

EMBELLISHED WITH ONE HUNDRED AND THIRTY ENGRAVINGS.

NUMBER THREE.

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THE

ILLUSTRATED ANNUAL

REGISTER OF RURAL AFFAIRS

AND

CULTIVATOR ALMANAC,

FOR THE YEAR 1857,

CONTAINING PRACTICAL

SUGGESTIONS FOR THE FARMER AND HORTICULTURIST,

EMBELLISHED WITH ONE HUNDRED AND FIFTY ENGRAVINGS,
INCLUDING HOUSES, FARM BUILDINGS, IMPLEMENTS,
DOMESTIC ANIMALS, FRUIT, FLOWERS, &c.

BY J. J. THOMAS,
AUTHOR OF THE "AMERICAN FRUIT CULTURIST," AND "FARM IMPLEMENTS,"
ASSOCIATE EDITOR OF "THE COUNTRY GENTLEMAN" AND "CULTIVATOR."

ALBANY, N. Y.:
LUTHER TUCKER & SON, 397 BROADWAY.
NEW YORK: C. M. SAXTON & CO., 140 FULTON ST.
1857.

PREFACE.

The publishers of the ANNUAL REGISTER OF RURAL AFFAIRS, in presenting the number for 1857, are led to express the belief that its contents will be found not less useful and entertaining than those of its predecessors. The subjects discussed are either new or treated in continuation of chapters given heretofore. The illustrations are, many of them, more costly, and especially prepared for the REGISTER. Every effort has been made to secure neatness and taste in typographical execution.

For the benefit of those who have not seen our former issues, we adjoin, on the following pages, a brief abstract of the Contents of Numbers for 1855 and 1856, and will briefly repeat the purpose in view, in the publication of the series. It is intended to offer in a plain, simple, and intelligible form, (rendered more so by ample illustrations,) the best information in relation to all the principal details of Modern Improved Farming, according to the most approved and established practice of the day, and to afford such hints on Rural Economy generally, as may enable *every farmer*, in some particulars at least, to effect important improvements. The construction of farm buildings generally, the breeding and management of domestic animals, the manufacture of manure, the cultivation of crops; the planting, training and culture of fruit trees; laying out door-yard grounds and ornamental planting, kitchen gardening, the construction and use of improved farm implements and machines; and, in short, every department of practical knowledge immediately connected with modern agriculture, will be presented in a condensed form, and in a practical manner, to the reader. It will be continued annually, with such improvements as experience shall suggest in each successive year, so that it may constitute an authentic ANNUAL REGISTER of the true progress of Rural Improvement.

NOTE TO EDITORS.—This work is not a compilation. Most of it is original matter prepared expressly for this purpose; and the remainder, with the exception of scarcely a page or two, is from previous publications of the author. Many of the engravings, including nearly all on rustic structures, all the dwellings, &c., are also original.

The preceding numbers have been very favorably noticed by the press, but have been erroneously represented as compilations, and, as a consequence, the contents, and especially the shorter articles, have been profusely copied into hundreds of papers all through the country, WITHOUT CREDIT. Editors who may in future desire to transfer any of the contents to their pages, they will please give credit to "Tucker's Rural Register."

PUBLISHERS' ADVERTISEMENT.

The following summary of the contents of the numbers of the REGISTER so far issued, will justify us we think in saying that they afford more valuable information on the several subjects treated, accompanied by a greater number and variety of engravings than have ever before been compressed within so small a compass and offered at so trifling a cost. "It contains," says *The Horticulturist*, "a vast amount of matter, prepared with good judgment and arranged and illustrated with excellent taste."—"The neatest and by far the most useful almanac we have seen."—*Spirit of the Times.*—"A perfect Miniature Encyclopedia of Rural affairs."—*Ballow's Pictorial.*

CONTENTS OF NO. 1, FOR 1855.

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INDEX OF NO. 3, FOR 1857.

ENGRAVINGS.

THE

CULTIVATOR ALMANAC,

1857.

ASTRONOMICAL CALCULATIONS IN EQUAL OR CLOCK TIME.

CUSTOMARY NOTES.

VENUS will be evening star until May 10th, then morning star the rest of the year. MARS will be evening star until June 7th, then morning star the balance of the year. JUPITER will be evening star until April 11th, then morning star until Nov. 3d. SATURN will be evening star until July 10th, then morning star the rest of the year.

The SUN will be north of the equator this tropical year, dating from the solstice of December, 1856, 186 days, 10 hours, 48 minutes; and south of it 178 days, 18 hours, 50 minutes; showing a difference of 7 days 15 hours, 58 minutes, which is caused by the slower motion of the Earth in the summer season, when it is in that part of its orbit furthest from the Sun.

Distance of the EARTH from the Sun January 1st and December 31st, 93,505,607 miles; July 1st, 96,695,200 miles; and April 2d and October 2d, 95,103,000 miles, the latter being the mean distance.

Mercury will be in a position favorable for visibility about January 12th, May 5th, September 1st, and December 26th; at which time the planet will be in the western sky soon after sunset; also about February 28th, June 29th, and October 19th, when it will be in the east just before sunrise.

Venus will be brightest on the 4th of April and the 15th of June, being in the west in the former case at sunset, and in the east in the latter at sunrise.

Saturn's rings will be visible the whole of 1857, with a glass of moderate power.

GOOD FRIDAY occurs April 10. EASTER SUNDAY, April 12. PENTICOST, May 31.

Venus will retrograde from April 19 to May 30. Mars moves direct all of the year. Jupiter retrogrades from September 5 to January 1, 1858. Saturn will retrograde until March 8, and from November 8 to the end of the year.

The MOON will run highest this year September 11th, to a declination of 28° 44′ 1.3″ north; and its right ascension at the same time is 5 hours 57 min. It will run lowest September 25th, to declination 28° 44′ 11.5″ south, with a right ascension of 17 hours 58 min 33.22 sec. This is as large a declination as the Moon can attain, the Moon's nodes this year (July 23) being at the equinoxes. Apparent obliquity of the ecliptic July 2d, at 23° 27′ 37.14.″

ECLIPSES FOR 1857.

There will be two Eclipses this year, both being upon the Sun.

I. A Total Eclipse of the Sun, March 25th, at the time of New Moon. It will be invisible *east* of Washington, and *partial* and visible *west* of that city, or its meridian. The Eclipse begins at or just before sunset, from Washington west to the Mississippi River, and the Sun will set with its disc partly eclipsed in all the United States, where it is visible, except in California.

II. An Annular Eclipse of the Sun, Sept. 17th. Invisible in America, the time being about midnight.

TIDE TABLE.

The Calendar pages of this Almanac exhibit the time of high-water at New-York and Boston. To find the time of high-water at any of the following places, *add* to, or *subtract* from, the time of high-water at New-York, as below. (There is a great deal of uncertainty about the tides, in consequence of the direction and *strength* of the winds)

		H.	M.			H.	M			H.	M
Albany, ...	add	6	34	Hellgate, ...	add	1	41	Portland, ...	add	3	12
Annapolis, Md., ...	add	8	25	Marblehead, ...	add	1	49	Portsmouth, ...	add	3	10
Annapolis, N. S., .	add	1	49	Machias, ...	add	1	54	Providence, ...	sub.	0	41
Amboy, ...	sub.	0	39	Mobile Point, ...	add	1	54	Quebec, Canada, .	add	8	49
Baltimore, ...	add	10	20	New-Bedford, ...	sub.	0	16	Richmond, ...	add	8	15
Bridgeport, ...	add	3	58	New-Haven, ...	add	3	3	Salem, ...	add	3	00
Cape Split, ...	add	2	0	New-London, ...	add	1	15	Sandy Hook, N. J.	sub	0	44
Eastport, ...	add	2	9	Newport, ...	sub.	0	28	St. John's, N. B., .	add	2	49
Halifax, N. S, ...	sub.	2	15	Norfolk, ...	sub.	0	41	Sunbury, ...	add	0	19
Holmes's Hole, ...	add	3	30	Plymouth, ...	add	2	19	Windsor, ...	add	2	49

TABLE OF THE PRINCIPAL BODIES IN THE SOLAR SYSTEM.

NAMES.	Mean Diameter.	Mean distance from the Sun.	Revolution aro'd the Sun.		Revolution on axis.			Velocity per min. in orbit.	Size—the Earth being 1.	Dens.: Earth being one	Light: Earth being one.
	Miles.	Miles.	yrs.	days	d.	h	m.	Miles.			
The Sun,	883,246	......	....		25	9	59	....	1,412,921.100	0.252	infin.
Mercury, .	3,224	36,814,000	...	88	1	0	5	1,827	0.053	1.120	6.680
Venus, ...	7,687	68,787,000	...	224	..	23	21	1,338	0.909	0.923	1.911
The Earth	7,912	95,103,000	1	...	..	23	56	1,138	1.000	1.000	1.000
The Moon,	2,180	95,103,000	1	...	27	7	43	38	0.020	0.615	1.000
Mars, ...	4,189	144,908,000	1	321	1	0	37	921	0.125	0.948	0.431
Jupiter, ..	89,170	494,797,000	11	215	..	9	56	496	1,456.000	0.238	0.037
Saturn, ..	79,042	907,162,000	29	167	..	10	29	368	771.000	0.138	0.011
Uranus, ..	35,112	1,824,290,000	84	6	1	13	33	259	80.000	0.242	0.003
Neptune, .	41,500	2,854,000,000	164	226	..	..	..	208	143.000	0.140	0.001

Note.—There are now *thirty-five* small planets, called Asteroids, between the orbits of Mars and Jupiter, the names of which are as follow: Flora, Clio, Vesta, Iris, Metis, Eunomia, Hebe, Psyche, Thetis, Melpomene, Massilia, Fortuna, Lutetia, Calliope, Thalia, Parthenope, Irene, Egeria, Astræa, Juno, Ceres, Pallas, Phocœa, Proserpine, Euterpe, Bellona, Amphitrite, Urania, Euphrosyne, Pomona, Polymnia, Leucothea, Hygeia, Themis, and one not named yet. Eight of these were discovered in 1852.

MOON'S PHASES.	D	Boston.	N. York.	Baltimore.	Pittsburgh.	Cincinnati.
		H M	H M	H M	H M	H M
First Quarter, ...	3	7 30 m	7 18 m	7 8 m	6 55 m	6 36 m
Full Moon, ...	10	4 24 m	4 12 m	4 2 m	3 48 m	3 30 m
Last Quarter, (*18th.)	17	*0 6 m	11 54 e	11 44 e	11 31 e	11 12 e
New Moon, ...	25	6 42 e	6 30 e	6 20 e	6 7 e	5 48 e

Day of Month.	Day of Week.	Shadow at the noon mark.	CALENDAR For Boston, N. England, New-York State, Michigan, Wiscon., Iowa, and Oregon.				CALENDAR For N. York City, Philadelphia, Conn., New-Jersey, Penn'ia, Ohio, Indiana, and Illinois.				CALENDAR For Washington, Mayl'd, Virg'a, Ken'y, Missouri, and California		
		Afternoon	SUN rises.	SUN sets.	MOON sets.	H. W. Bost.	SUN rises	SUN sets	MOON sets	H. W. N. Y.	SUN rises.	SUN sets	MOON sets.
		H M S	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M
1	T	12 4 4	7 30	4 38	10 45	2 16	7 25	4 43	10 45	morn	7 19	4 49	10 46
2	F	12 4 32	7 30	4 39	11 56	2 59	7 25	4 44	11 55	0 39	7 19	4 50	11 55
3	S	12 5 0	7 30	4 40	morn	3 45	7 25	4 45	morn	1 25	7 19	4 51	morn
4	S	12 5 27	7 30	4 41	1 10	4 35	7 25	4 46	1 8	2 15	7 19	4 52	1 5
5	M	12 5 54	7 30	4 41	2 28	5 31	7 25	4 46	2 24	3 11	7 19	4 52	2 20
6	T	12 6 20	7 30	4 42	3 45	6 38	7 25	4 47	3 40	4 18	7 19	4 53	3 35
7	W	12 6 46	7 30	4 43	5 2	7 47	7 25	4 48	4 56	5 27	7 19	4 54	4 49
8	T	12 7 11	7 30	4 44	6 15	9 2	7 25	4 49	6 8	6 42	7 19	4 55	6 0
9	F	12 7 36	7 30	4 45	7 18	10 8	7 25	4 50	7 11	7 48	7 19	4 56	7 3
10	S	12 8 0	7 29	4 46	rises	11 6	7 24	4 51	rises	8 46	7 19	4 57	rises
11	S	12 8 24	7 29	4 47	6 15	11 55	7 24	4 52	6 19	9 35	7 18	4 58	6 24
12	M	12 8 47	7 29	4 48	7 24	ev. 39	7 24	4 53	7 28	10 19	7 18	4 59	7 31
13	T	12 9 9	7 28	4 49	8 31	1 21	7 23	4 54	8 33	11 1	7 18	5 0	8 35
14	W	12 9 31	7 28	4 50	9 35	2 0	7 23	4 55	9 36	11 40	7 17	5 1	9 37
15	T	12 9 52	7 27	4 52	10 37	2 37	7 22	4 57	10 36	ev. 17	7 17	5 2	10 37
16	F	12 10 13	7 27	4 53	11 38	3 13	7 22	4 58	11 36	0 53	7 16	5 3	11 35
17	S	12 10 32	7 26	4 54	morn	3 48	7 21	4 59	morn	1 28	7 16	5 4	morn
18	S	12 10 51	7 25	4 56	0 40	4 24	7 20	5 1	0 38	2 4	7 16	5 6	0 35
19	M	12 11 10	7 25	4 57	1 41	5 7	7 20	5 2	1 38	2 47	7 15	5 7	1 33
20	T	12 11 27	7 24	4 58	2 46	6 3	7 19	5 3	2 41	3 43	7 14	5 8	2 36
21	W	12 11 44	7 23	4 59	3 52	7 15	7 18	5 4	3 46	4 55	7 14	5 9	3 40
22	T	12 12 0	7 22	5 1	4 56	8 30	7 18	5 5	4 48	6 10	7 13	5 10	4 42
23	F	12 12 16	7 22	5 2	5 56	9 41	7 17	5 6	5 49	7 21	7 12	5 11	5 41
24	S	12 12 30	7 21	5 3	6 47	10 34	7 16	5 7	6 41	8 14	7 12	5 12	6 33
25	S	12 12 44	7 20	5 4	sets.	11 22	7 16	5 8	sets	9 2	7 11	5 13	sets
26	M	12 12 57	7 19	5 5	6 1	morn	7 15	5 9	6 5	9 44	7 10	5 14	6 9
27	T	12 13 9	7 19	5 7	7 18	0 4	7 14	5 11	7 20	10 22	7 9	5 15	7 23
28	W	12 13 20	7 18	5 8	8 33	0 44	7 13	5 12	8 34	11 3	7 9	5 16	8 35
29	T	12 13 31	7 17	5 9	9 47	1 23	7 13	5 13	9 47	11 42	7 8	5 17	9 47
30	F	12 13 40	7 16	5 11	11 1	2 2	7 12	5 15	10 59	morn	7 7	5 19	10 58
31	S	12 13 40	7 15	5 12	morn	2 42	7 11	5 16	morn	0 22	7 7	5 20	morn

Directions for finding the True Time.—The Sun is on the meridian at 12 o'clock on four days only in the year. It is sometimes as much as 16¼ minutes before or after 12 when its shadow strikes the noon-mark on the sun-dial. On each calendar page of this Almanac is shown the exact time when the Sun reaches the meridian, or the shadow the noon mark: and in order to set a clock or watch correctly, it must, when it is noon by the sun-dial or noon-mark, be set at the time indicated in the Almanac. Thus, on the 25th of January, when the Sun is on the noon-mark, the watch must be set 12 minutes and 44 seconds past twelve, which will be the true time.

MOON'S PHASES.	D	Boston.	N. York.	Baltimore.	Pittsburgh	Cincinnati.
		H M	H M	H M	H M	H M
FIRST QUARTER,........	1	3 36 e	3 24 e	3 14 e	3 1 e	2 42 e
FULL MOON,...........	8	7 9 e	6 57 e	6 47 e	6 34 e	6 15 e
LAST QUARTER,.........	16	9 36 e	9 24 e	9 14 e	9 1 e	8 42 e
NEW MOON,...........	24	7 14 m	7 2 m	6 52 m	6 39 m	6 20 m

DAY OF MONTH.	DAY OF WEEK.	Shadow at the noon mark.	CALENDAR For Boston, N. England, New-York State, Michigan, Wiscon., Iowa and Oregon.				CALENDAR For N. York City, Philadelphia, Conn., New-Jersey, Penn'a, Ohio, Indiana, and Illinois.				CALENDAR For Washington, Maryl'd, Virg'a, Ken'y, Missouri and California.		
		Afternoon	SUN rises	SUN sets.	MOON sets.	H. W Bost.	SUN rises	SUN sets	MOON sets	H. W, N Y	SUN rises	SUN sets	MOON sets
		H M S	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M
1	S	12 13 57	7 14	5 14	0 16	3 23	7 10	5 18	0 13	1 3	7 6	5 22	0 9
2	M	12 14 4	7 12	5 15	1 24	4 7	7 9	5 19	1 19	1 47	7 5	5 23	1 14
3	T	12 14 10	7 11	5 17	2 50	4 54	7 8	5 20	2 44	2 34	7 4	5 24	2 38
4	W	12 14 16	7 10	5 18	4 3	5 56	7 7	5 21	3 57	3 36	7 3	5 25	3 49
5	T	12 14 20	7 9	5 19	5 7	7 17	7 6	5 22	5 0	4 57	7 2	5 26	4 52
6	F	12 14 24	7 8	5 21	6 1	8 51	7 5	5 24	5 54	6 31	7 1	5 27	5 47
7	S	12 14 27	7 7	5 22	6 43	10 7	7 4	5 25	6 37	7 47	7 0	5 28	6 31
8	S	12 14 29	7 6	5 24	rises	11 5	7 3	5 26	rises	8 45	6 59	5 29	rises
9	M	12 14 31	7 5	5 25	6 14	11 50	7 2	5 28	6 17	9 30	6 58	5 30	6 20
10	T	12 14 31	7 3	5 26	7 19	ev.30	7 0	5 29	7 21	10 10	6 57	5 31	7 22
11	W	12 14 31	7 2	5 27	8 23	1 5	6 59	5 30	8 23	10 45	6 56	5 32	8 23
12	T	12 14 30	7 1	5 29	9 24	1 36	6 58	5 32	9 23	11 16	6 55	5 34	9 22
13	F	12 14 28	7 0	5 30	10 25	2 7	6 56	5 33	10 23	11 47	6 54	5 35	10 21
14	S	12 14 26	6 58	5 31	11 29	2 37	6 55	5 34	11 25	ev.17	6 53	5 36	11 22
15	S	12 14 23	6 57	5 32	morn	3 8	6 54	5 35	morn	0 48	6 51	5 37	morn
16	M	12 14 19	6 55	5 33	0 32	3 37	6 53	5 36	0 28	1 17	6 50	5 38	0 23
17	T	12 14 14	6 54	5 34	1 36	4 14	6 51	5 37	1 31	1 54	6 49	5 39	1 25
18	W	12 14 9	6 52	5 36	2 40	4 57	6 50	5 38	2 33	2 37	6 48	5 40	2 26
19	T	12 14 3	6 51	5 37	3 42	6 8	6 49	5 39	3 35	3 48	6 47	5 41	3 27
20	F	12 13 57	6 49	5 39	4 37	7 37	6 47	5 41	4 30	5 17	6 45	5 42	4 22
21	S	12 13 50	6 48	5 40	5 23	9 7	6 46	5 42	5 17	6 47	6 44	5 43	5 10
22	S	12 13 42	6 47	5 41	6 2	10 15	6 44	5 43	5 57	7 55	6 43	5 44	5 51
23	M	12 13 33	6 45	5 43	6 33	11 2	6 43	5 45	6 29	8 42	6 42	5 46	6 25
24	T	12 13 24	6 43	5 44	sets	11 45	6 41	5 46	sets	9 25	6 40	5 47	sets
25	W	12 13 15	6 42	5 45	7 30	morn	6 39	5 47	7 30	10 5	6 39	5 48	7 30
26	T	12 13 4	6 41	5 46	8 45	0 25	6 38	5 48	8 43	10 41	6 38	5 49	8 42
27	F	12 12 54	6 39	5 47	10 4	1 1	6 37	5 49	10 1	11 20	6 36	5 50	9 58
28	S	12 12 42	6 37	5 48	11 22	1 40	6 36	5 49	11 18	11 59	6 34	5 51	11 13

The practice of setting time-pieces by the rising or setting of the Sun or Moon is not strictly correct; as the unevenness of the Earth's surface and intervening objects, such as hills and forests, near the points of rising and sitting, occasion a deviation, in every place, from the time expressed in the Almanac, which time is adapted to a smooth, level horizon. The only means of keeping correct time is by the use of a noon-mark, or a meridian-line.

TO ASCERTAIN THE LENGTH OF THE DAY AND NIGHT.—At any time of the year, add 12 hours to the time of the Sun's setting, and from the sum subtract the time of rising, for the *length of the day.* Subtract the time of setting from 12 hours, and to the remainder add the time of rising next morning, for the *length of the night.* These rules are equally true for *apparent* time.

MOON'S PHASES.	D	Boston. H M	N. York. H M	Baltimore. H M	Pittsburgh H M	Cincinnati. H M
First Quarter,........	2	11 46 e	11 34 e	11 24 e	11 11 e	10 52 e
Full Moon,...........	10	11 33 m	11 21 m	11 11 m	10 58 m	10 39 m
Last Quarter,........	18	4 19 e	4 7 e	3 57 e	3 44 e	3 25 e
New Moon,............	25	5 44 e	5 32 e	5 20 e	5 7 e	4 50 e

Day of Month.	Day of Week.	Shadow at the noon mark.	Calendar For Boston, N. England, New-York State, Michigan, Wiscon., Iowa, and Oregon.				Calendar For N. York City, Phila., Conn't, New Jersey, Penn'ia, Ohio, Indiana, and Illinois				Calendar For Washington, Maryl'd, Virg'a, Ken'y, Miss'ri, and California.		
		Afternoon	Sun rises	Sun sets	Moon sets	H. W Bost	Sun rises	Sun sets	Moon sets	H.W. N. Y.	Sun rises	Sun sets	Moon sets.
		H M S	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M
1	S	12 12 30	6 35	5 50	morn	2 19	6 35	5 50	morn	morn	6 33	5 52	morn
2	M	12 12 18	6 33	5 51	0 41	2 58	6 33	5 51	0 36	0 38	6 31	5 53	0 [illegible]
3	T	12 12 5	6 32	5 53	1 55	3 39	6 32	5 53	1 48	1 19	6 30	5 54	1 41
4	W	12 11 52	6 30	5 54	3 0	4 27	6 30	5 54	2 53	2 7	6 29	5 55	2 45
5	T	12 11 38	6 29	5 55	3 57	5 30	6 29	5 55	3 50	3 10	6 27	5 56	3 42
6	F	12 11 24	6 27	5 56	4 44	7 15	6 27	5 56	4 38	4 45	6 26	5 57	4 31
7	S	12 11 9	6 26	5 58	5 18	8 47	6 26	5 58	5 13	6 27	6 25	5 58	5 8
8	S	12 10 54	6 24	5 59	5 47	10 4	6 24	5 59	5 44	7 44	6 24	5 59	5 39
9	M	12 10 39	6 23	6 0	6 8	10 53	6 23	6 0	6 6	8 33	6 22	6 0	6 3
10	T	12 10 33	6 21	6 1	rises	11 36	6 21	6 1	rises	9 16	6 20	6 1	rises
11	W	12 10 7	6 19	6 2	7 13	ev. 9	6 19	6 2	7 12	9 49	6 18	6 2	7 12
12	T	12 9 50	6 17	6 3	8 15	0 40	6 17	6 3	8 13	10 20	6 17	6 3	8 12
13	F	12 9 34	6 15	6 5	9 17	1 7	6 15	6 4	9 14	10 47	6 15	6 4	9 11
14	S	12 9 17	6 14	6 6	10 21	1 36	6 14	6 5	10 17	11 16	6 14	6 5	10 12
15	S	12 9 0	6 12	6 7	11 24	2 3	6 12	6 6	11 19	11 43	6 13	6 6	11 13
16	M	12 8 42	6 10	6 8	morn	2 31	6 10	6 7	morn	ev. 11	6 11	6 7	morn
17	T	12 8 25	6 9	6 9	0 28	3 0	6 9	6 8	0 21	0 40	6 10	6 8	0 15
18	W	12 8 7	6 7	6 10	1 30	3 37	6 7	6 9	1 23	1 17	6 8	6 9	1 15
19	T	12 7 49	6 5	6 11	2 23	4 19	6 5	6 10	2 16	1 59	6 6	6 10	2 8
20	F	12 7 31	6 3	6 13	3 15	5 22	6 3	6 12	3 9	3 2	6 5	6 11	3 1
21	S	12 7 13	6 2	6 14	3 57	7 0	6 2	6 13	3 51	4 40	6 3	6 12	3 45
22	S	12 6 54	6 0	6 15	4 30	8 33	6 0	6 14	4 25	6 13	6 2	6 13	4 20
23	M	12 6 36	5 59	6 17	4 59	9 48	5 59	6 15	4 56	7 28	6 1	6 14	4 53
24	T	12 6 18	5 57	6 18	sets	10 36	5 58	6 16	sets	8 16	5 59	6 15	sets
25	W	12 5 59	5 55	6 19	6 20	11 16	5 56	6 17	6 19	8 56	5 57	6 16	6 18
26	T	12 5 41	5 53	6 20	7 37	11 56	5 55	6 18	7 35	9 36	5 56	6 17	7 33
27	F	12 5 23	5 52	6 21	8 59	morn	5 54	6 19	8 55	10 12	5 54	6 18	8 51
28	S	12 5 4	5 51	6 22	10 20	0 32	5 52	6 20	10 15	10 52	5 53	6 19	10 10
29	S	12 4 46	5 49	6 23	11 44	1 12	5 51	6 21	11 37	11 33	5 52	6 20	11 30
30	M	12 4 27	5 47	6 24	morn	1 53	5 49	6 22	morn	morn	5 50	6 21	morn
31	T	12 4 9	5 45	6 25	0 55	2 35	5 47	6 23	0 48	0 15	5 48	6 22	0 40

Chronological view of the year 1857.—The year of the Vulgar or Christian era, 1857, corresponds with the 1861st from the Birth of Christ; with the latter part of the 81st and beginning of the 82d of the Independence of the United States of America, which was declared Thursday, July 4, 1776; with the close of the 1226th of the Persian Era, which began Tuesday, June 19. N. S., 632 A. D., (the years of this era begin now on the 29th of August;) with the latter part of the 1273d of the Hegira, or Mohammedan Era; with the 1305th of the Armenian Ecclesiastical year; with the 1573d of the Era of Diocletian, or Era of Martyrs; with the 1895th of the Era of the

MOON'S PHASES.	D	Boston H M	N. York. H M	Baltimore. H M	Pittsburgh. H M	Cincinnati. H M
First Quarter,........	1	8 50 m	8 38 m	8 28 m	8 15 m	7 56 m
Full Moon, ...	9	4 44 m	4 32 m	4 22 m	4 9 m	3 50 m
Last Quarter,.........	17	7 16 m	7 4 m	6 54 m	6 41 m	6 22 m
New Moon,......(*23d)	24	2 30 m	2 18 m	2 8 m	1 54 m	1 36 m
First Quarter,........	30	7 34 e	7 22 e	7 12 e	6 59 e	6 40 e

DAY OF MONTH.	DAY OF WEEK.	Shadow at the noon mark.	CALENDAR For Boston, N. England, New-York State, Michigan, Wiscon., Iowa, and Oregon.				CALENDAR For N. York City, Phila., Connec't, New-Jersey, Penn'ia, Ohio, Indiana, and Illinois.				CALENDAR For Washington, Maryl'd, Virg'a, Ken'y, Missouri and California.		
		Afternoon	SUN rises	SUN sets	MOON sets.	H. W. Bost.	SUN rises.	SUN sets	MOON sets.	H. W. N. Y.	SUN rises.	SUN sets.	MOON sets.
		H M S	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M
1	W	12 3 5	5 43	6 26	1 55	3 20	5 45	6 24	1 48	1 0	5 46	6 22	1 40
2	T	12 3 33	5 41	6 27	2 43	4 11	5 42	6 25	2 37	1 51	5 44	6 23	2 30
3	F	12 3 15	5 40	6 28	3 22	5 21	5 41	6 26	3 17	3 1	5 43	6 24	3 11
4	S	12 2 57	5 38	6 29	3 51	6 59	5 39	6 27	3 47	4 39	5 41	6 25	3 42
5	S	12 2 39	5 36	6 30	4 16	8 35	5 37	6 28	4 13	6 15	5 39	6 25	4 10
6	M	12 2 22	5 34	6 31	4 36	9 42	5 35	6 29	4 34	7 22	5 38	6 26	4 32
7	T	12 2 4	5 32	6 32	4 54	10 30	5 33	6 30	4 53	8 10	5 37	6 27	4 52
8	W	12 1 57	5 30	6 33	rises	11 5	5 31	6 31	rises	8 45	5 35	6 28	rises
9	T	12 1 30	5 29	6 34	7 6	11 35	5 30	6 32	7 4	9 15	5 33	6 29	7 1
10	F	12 1 14	5 27	6 35	8 10	ev. 6	5 28	6 33	8 7	9 46	5 31	6 30	8 3
11	S	12 0 56	5 25	6 36	9 14	0 36	5 26	6 34	9 9	10 16	5 29	6 31	9 3
12	S	12 0 42	5 24	6 37	10 18	1 3	5 25	6 35	10 12	10 43	5 28	6 32	10 6
13	M	12 0 26	5 22	6 38	11 20	1 32	5 24	6 36	11 14	11 12	5 27	6 33	11 6
14	T	12 0 11	5 21	6 39	morn	2 3	5 22	6 37	morn	11 43	5 25	6 34	morn
15	W	morning	5 19	6 40	0 17	2 35	5 21	6 38	0 10	ev. 15	5 24	6 35	0 2
16	T	11 59 41	5 17	6 41	1 10	3 12	5 20	6 39	1 3	0 52	5 23	6 36	0 55
17	F	11 59 27	5 16	6 42	1 58	3 59	5 18	6 40	1 51	1 39	5 21	6 37	1 45
18	S	11 59 13	5 15	6 43	2 29	5 1	5 16	6 41	2 23	2 41	5 20	6 38	2 18
19	S	11 59 0	5 13	6 44	2 58	6 33	5 15	6 42	2 54	4 13	5 19	6 39	2 50
20	M	11 58 47	5 12	6 46	3 24	8 0	5 13	6 44	3 22	5 40	5 17	6 40	3 19
21	T	11 58 34	5 10	6 47	3 46	9 10	5 11	6 45	3 45	6 50	5 15	6 41	3 44
22	W	11 58 22	5 8	6 48	4 9	9 58	5 10	6 46	4 9	7 38	5 14	6 42	4 10
23	T	11 58 11	5 6	6 49	4 35	10 41	5 9	6 47	4 35	8 21	5 13	6 43	4 37
24	F	11 57 59	5 4	6 51	sets	11 21	5 7	6 48	sets	9 1	5 11	6 44	sets
25	S	11 57 49	5 3	6 52	9 14	morn	5 6	6 49	9 8	9 43	5 10	6 45	9 2
26	S	11 57 41	5 2	6 53	10 33	0 3	5 5	6 50	10 27	10 29	5 9	6 46	10 19
27	M	11 57 29	5 1	6 54	11 43	0 49	5 3	6 51	11 36	11 12	5 7	6 47	11 28
28	T	11 57 20	4 59	6 56	morn	1 32	5 2	6 52	morn	11 59	5 6	6 48	morn
29	W	11 57 11	4 57	6 57	0 39	2 19	5 1	6 53	0 33	morn	5 4	6 49	0 25
30	T	11 57 3	4 56	6 58	1 21	3 8	5 0	6 54	1 15	0 48	5 3	6 50	1 9

Cæsars, or Spanish Era; with the 1902d of the Julian Era, or since the reformation of the calendar of Numa Pompilius, by Julius Cæsar; with the 2169th of the Grecian Era of the Seleucidæ; with the 2606th of the Babylonish Era of Nabonassar, used by Hipparchus and Ptolemy, (this Era dates from Wednesday. February 18th, N. S., 747 B. C., according to Chronologers, or 746 B. C., according to Astronomers.) The years contained 365 days *only*, and have, consequently, now advanced upon the Gregorian year 629 days. The 2606th year begins May 30, 1857; with the 2610th (according to Varro) of the old Roman Era A. U. C.; with the 2633d of the Olympiads,

MOON'S PHASES.	D	Boston. H M	N. York. H M	Baltimore. H M	Pittsburgh. H M	Cincinnati. H M
Full Moon, ...	8	9 27 e	9 15 e	9 5 e	8 52 e	8 33 e
Last Quarter, ...	16	6 26 e	6 14 e	6 4 e	5 51 e	5 32 e
New Moon, ...	23	10 4 m	9 52 m	9 42 m	9 29 m	9 10 m
First Quarter, ...	30	8 28 m	8 16 m	8 6 m	7 53 m	7 34 m

Day of Month.	Day of Week.	Shadow at the noon mark.	CALENDAR For Boston, N. England, New-York State, Michigan, Wiscon., Iowa, and Oregon.				CALENDAR For N. York City, Philadelphia, Conn., New-Jersey, Penn'ia, Ohio Indiana, and Illinois.				CALENDAR For Washington, Mayl'd, Virg'a, Ken'y, Missouri and California.		
		Morning.	SUN rises	SUN sets	MOON sets	H. W. Bost.	SUN rises.	SUN sets.	MOON sets.	H. W N. Y.	SUN rises.	SUN sets	MOON sets.
		H M S	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M
1	F	11 56 55	4 54	6 59	1 54	4 5	4 59	6 55	1 49	1 45	5 2	6 52	1 44
2	S	11 56 48	4 53	7 0	2 20	5 14	4 58	6 56	2 17	2 54	5 1	6 53	2 13
3	S	11 56 42	4 51	7 1	2 42	6 39	4 57	6 57	2 39	4 19	5 0	6 54	2 37
4	M	11 56 35	4 50	7 2	3 0	7 56	4 56	6 58	2 59	5 36	4 59	6 55	2 58
5	T	11 56 30	4 49	7 3	3 18	9 2	4 55	6 59	3 18	6 42	4 58	6 56	3 18
6	W	11 56 25	4 48	7 4	3 36	9 51	4 54	7 0	3 38	7 31	4 57	6 56	3 39
7	T	11 56 21	4 47	7 5	3 53	10 27	4 53	7 1	3 56	8 7	4 56	6 57	3 59
8	F	11 56 17	4 46	7 6	rises	11 2	4 52	7 2	rises	8 42	4 55	6 58	rises
9	S	11 56 13	4 45	7 7	8 10	11 33	4 51	7 3	8 4	9 13	4 54	6 59	7 59
10	S	11 56 11	4 44	7 8	9 14	ev. 7	4 50	7 4	9 7	9 47	4 53	7 0	9 0
11	M	11 56 9	4 43	7 9	10 13	0 37	4 49	7 5	10 6	10 17	4 52	7 1	9 58
12	T	11 56 7	4 42	7 10	11 6	1 9	4 48	7 6	10 59	10 49	4 51	7 2	10 51
13	W	11 56 6	4 41	7 11	11 53	1 43	4 47	7 7	11 46	11 23	4 50	7 3	11 39
14	T	11 56 6	4 40	7 12	morn	2 18	4 45	7 8	morn	11 58	4 49	7 4	morn
15	F	11 56 6	4 39	7 13	0 28	2 58	4 44	7 9	0 23	ev.38	4 48	7 5	0 17
16	S	11 56 7	4 38	7 14	0 58	3 50	4 43	7 10	0 53	1 30	4 47	7 6	0 49
17	S	11 56 8	4 37	7 15	1 24	4 48	4 42	7 11	1 21	2 28	4 46	7 7	1 18
18	M	11 56 10	4 36	7 16	1 49	6 6	4 41	7 12	1 47	3 46	4 45	7 7	1 45
19	T	11 56 13	4 35	7 17	2 9	7 17	4 40	7 13	2 9	4 57	4 44	7 8	2 9
20	W	11 56 16	4 35	7 18	2 32	8 24	4 39	7 14	2 34	6 4	4 44	7 9	2 35
21	T	11 56 20	4 34	7 19	2 56	9 15	4 38	7 15	2 59	6 55	4 43	7 10	3 2
22	F	11 56 24	4 33	7 20	3 26	10 5	4 37	7 16	3 30	7 45	4 42	7 10	3 35
23	S	11 56 29	4 32	7 21	sets	10 54	4 36	7 17	sets	8 34	4 42	7 11	sets
24	S	11 56 34	4 31	7 22	9 22	11 44	4 35	7 18	9 15	9 24	4 41	7 12	9 7
25	M	11 56 40	4 30	7 23	10 26	morn	4 35	7 19	10 19	10 11	4 40	7 13	10 11
26	T	11 56 46	4 29	7 24	11 17	0 31	4 34	7 20	11 10	11 1	4 40	7 14	11 4
27	W	11 56 53	4 28	7 25	11 54	1 21	4 33	7 21	11 49	11 50	4 39	7 14	11 44
28	T	11 57 0	4 28	7 26	morn	2 10	4 33	7 22	morn	morn	4 38	7 15	morn
29	F	11 57 7	4 27	7 27	0 23	3 0	4 32	7 23	0 19	0 40	4 38	7 16	0 16
30	S	11 57 15	4 26	7 28	0 45	3 54	4 31	7 24	0 43	1 34	4 37	7 16	0 40
31	S	11 57 24	4 26	7 28	1 5	4 51	4 31	7 25	1 3	2 31	4 37	7 17	1 2

or the latter part of the 4th of the 658th year, and beginning of the 1st of the 659th Olympiad of 4 years; with the 3872d of the Era of Abraham, used by Eusebius; with the 4205th from the Deluge, according to Usher and the English Bible; with the 4959th of the Cali Yuga, or Hindoo and Indian Era, which dates from the Deluge; with the 4254th of the Chinese, or the 54th of their 71st cycle; with the 5617th from the Creation of the World, according to the Minor Era of the Jews; or the 6216th, according to the greater Rabinical Era of the Jews; with the 6085th, according to Eusebius; with the 5801st, according to Scaliger; with the 5861st, according to Usher and

MOON'S PHASES.	D	Boston. H M	N. York. H M	Baltimore. H M	Pittsburgh H M	Cincinnati. H M
Full Moon, ...	7	0 39 e	0 27 e	0 17 e	0 4 e	11 45 m
Last Quarter, (*14th).	15	2 26 m	2 14 m	2 4 m	1 51 m	1 32 m
New Moon, ...	21	5 19 e	5 7 e	4 57 e	4 44 e	4 25 e
First Quarter, ...	28	11 36 e	11 24 e	11 14 e	11 1 e	10 42 e

Day of Month.	Day of Week.	Shadow at the noon mark. Morning. H M S	Calendar For Boston, N. England, New-York State, Michigan, Wiscon., Iowa and Oregon. Sun rises H M	Sun sets. H M	Moon sets. H M	H.W Bost. H M	Calendar For N. York City, Philadelphia, Conn., New-Jersey, Penn'a, Ohio, Indiana, and Illinois. Sun rises H M	Sun sets H M	Moon sets H M	H. W. N. Y H M	Calendar For Washington, Maryl'd, Virg'a, Ken'y, Missouri and California. Sun rises H M	Sun sets H M	Moon sets H M
1	M	11 57 33	4 25	7 29	1 23	5 55	4 31	7 24	1 23	3 35	4 36	7 18	1 23
2	T	11 57 42	4 24	7 30	1 41	7 3	4 30	7 25	1 42	4 43	4 36	7 19	1 43
3	W	11 57 52	4 24	7 30	2 0	8 1	4 30	7 25	2 2	5 41	4 35	7 19	2 5
4	T	11 58 2	4 23	7 31	2 19	8 56	4 29	7 26	2 23	6 36	4 35	7 20	2 27
5	F	11 58 12	4 23	7 32	2 44	9 44	4 29	7 27	2 49	7 24	4 35	7 20	2 54
6	S	11 58 22	4 23	7 33	rises	10 26	4 28	7 27	rises	8 6	4 34	7 21	rises
7	S	11 58 33	4 22	7 33	8 6	11 5	4 28	7 28	7 59	8 45	4 34	7 21	7 51
8	M	11 58 44	4 22	7 34	9 2	11 41	4 28	7 28	8 55	9 21	4 34	7 22	8 47
9	T	11 58 56	4 22	7 35	9 50	ev. 18	4 28	7 29	9 43	9 58	4 34	7 22	9 36
10	W	11 59 8	4 22	7 35	10 28	0 54	4 28	7 29	10 22	10 34	4 34	7 23	10 17
11	T	11 59 20	4 22	7 36	11 1	1 31	4 28	7 30	10 57	11 11	4 34	7 24	10 52
12	F	11 59 32	4 22	7 37	11 28	2 9	4 28	7 30	11 24	11 49	4 34	7 25	11 21
13	S	11 59 44	4 22	7 37	11 51	2 53	4 28	7 31	11 49	ev. 33	4 34	7 25	11 47
14	S	aftern'n	4 22	7 38	morn	3 37	4 28	7 31	morn	1 17	4 34	7 26	morn
15	M	12 0 9	4 22	7 38	0 12	4 29	4 28	7 32	0 12	2 9	4 33	7 27	0 11
16	T	12 0 22	4 22	7 38	0 34	5 30	4 28	7 32	0 35	3 10	4 33	7 27	0 36
17	W	12 0 35	4 22	7 39	0 58	6 38	4 28	7 33	1 0	4 18	4 33	7 28	1 3
18	T	12 0 48	4 22	7 39	1 23	7 36	4 28	7 33	1 27	5 16	4 33	7 28	1 31
19	F	12 1 1	4 23	7 39	1 54	8 40	4 29	7 34	2 0	6 20	4 33	7 28	2 5
20	S	12 1 14	4 23	7 39	2 35	9 41	4 29	7 34	2 42	7 21	4 34	7 28	2 48
21	S	12 1 27	4 23	7 39	sets	10 39	4 29	7 34	sets	8 10	4 34	7 28	sets
22	M	12 1 40	4 23	7 40	9 4	11 31	4 29	7 34	8 57	9 11	4 34	7 29	8 50
23	T	12 1 53	4 23	7 40	9 48	morn	4 29	7 35	9 43	10 5	4 34	7 29	9 37
24	W	12 2 6	4 24	7 40	10 22	0 25	4 30	7 35	10 17	10 55	4 35	7 29	10 13
25	T	12 2 19	4 24	7 40	10 47	1 15	4 30	7 35	10 44	11 41	4 35	7 29	10 41
26	F	12 2 32	4 24	7 40	11 9	2 1	4 30	7 35	11 7	morn	4 35	7 29	11 5
27	S	12 2 44	4 25	7 40	11 28	2 46	4 30	7 35	11 28	0 26	4 35	7 29	11 27
28	S	12 2 57	4 25	7 40	11 47	3 31	4 31	7 35	11 48	1 11	4 36	7 29	11 48
29	M	12 3 9	4 25	7 40	morn	4 18	4 31	7 35	morn	1 58	4 36	7 29	morn
30	T	12 3 20	4 25	7 40	0 2	5 5	4 31	7 35	0 4	2 45	4 36	7 29	0 6

the English Bible; with the 7349th, according to the Antiochian and Abyssinian Eras; with the 7359th, according to the Alexandrian Era; with the 7365th, according to the Era of Constantinople, used by the Byzantine historians. The age of the world is involved in great obscurity. There are about one hundred and forty different eras respecting it, some claiming the world to be more than *three millions* of years old. Julius Africanus, following the Septuagint version of the Bible, which is the most *reliable* authority for chronology that is known, makes the Creation to have taken place on the 1st of the Jewish month Tisri, 5508 years B. C., or 7365 years ago.

The 5618th year of the Jews begins on the 19th of September. The 1274th year of the Mahommedan era begins August 22d.

MOON'S PHASES.	D	Boston. H M	N. York. H M	Baltimore. H M	Pittsburgh. H M	Cincinnati. H M
FULL MOON,...... (*6th)	7	2 0 m	1 48 m	1 33 m	1 25 m	1 6 m
LAST QUARTER,........	14	8 12 m	8 0 m	7 50 m	7 37 m	7 18 m
NEW MOON,..... (*20th)	21	1 28 m	1 16 m	1 6 m	0 53 m	0 34 m
FIRST QUARTER,........	28	4 30 e	4 18 e	4 8 e	3 55 e	3 36 e

DAY OF MONTH.	DAY OF WEEK.	Shadow at the noon mark.	CALENDAR For Boston, N. England, New-York State, Michigan, Wiscon., Iowa, and Oregon.				CALENDAR For N. York City, Phila., Conn't, New Jersey, Penn'ia, Ohio, Indiana, and Illinois.				CALENDAR For Washington, Maryl'd, Virg'a Ken'y, Miss'ri, and California		
		Afternoon	SUN rises	SUN sets	MOON sets	H. W Bost	SUN rises	SUN sets	MOON sets	H.W. N. Y.	SUN rises	SUN sets	MOON sets.
		H M S	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M
1	W	12 3 32	4 26	7 40	0 23	5 58	4 31	7 35	0 26	3 38	4 37	7 29	0 30
2	T	12 3 44	4 26	7 40	0 46	6 56	4 32	7 35	0 51	4 36	4 37	7 29	0 55
3	F	12 3 55	4 27	7 40	1 14	7 54	4 32	7 35	1 19	5 34	4 38	7 29	1 25
4	S	12 4 5	4 27	7 39	1 47	8 57	4 33	7 34	1 53	6 37	4 38	7 28	2 0
5	S	12 4 16	4 28	7 39	2 30	9 53	4 33	7 34	2 37	7 33	4 39	7 28	2 45
6	M	12 4 26	4 29	7 39	rises	10 41	4 34	7 34	rises	8 21	4 40	7 28	rises
7	T	12 4 35	4 29	7 39	8 29	11 24	4 34	7 34	8 23	9 4	4 40	7 28	8 17
8	W	12 4 45	4 30	7 38	9 3	ev. 5	4 35	7 33	8 58	9 45	4 41	7 27	8 53
9	T	12 4 54	4 31	7 38	9 28	0 42	4 36	7 33	9 26	10 22	4 42	7 27	9 18
10	F	12 5 2	4 31	7 38	9 56	1 20	4 37	7 33	9 53	11 0	4 42	7 27	9 51
11	S	12 5 10	4 32	7 37	10 17	1 59	4 38	7 32	10 16	11 39	4 43	7 26	10 15
12	S	12 5 18	4 33	7 37	10 30	2 37	4 39	7 32	10 30	ev. 17	4 44	7 26	10 30
13	M	12 5 25	4 34	7 36	11 0	3 21	4 39	7 31	11 2	1 1	4 45	7 25	11 3
14	T	12 5 32	4 35	7 36	11 24	4 8	4 40	7 31	11 27	1 48	4 45	7 25	11 31
15	W	12 5 38	4 36	7 35	11 53	4 57	4 41	7 30	11 58	2 37	4 46	7 24	morn
16	T	12 5 44	4 37	7 34	morn	5 54	4 42	7 29	morn	3 34	4 47	7 24	0 3
17	F	12 5 49	4 38	7 34	0 30	7 1	4 43	7 29	0 36	4 41	4 48	7 23	0 42
18	S	12 5 54	4 39	7 33	1 17	8 14	4 43	7 28	1 23	5 54	4 49	7 23	1 31
19	S	12 5 58	4 39	7 32	2 17	9 31	4 44	7 27	2 24	7 11	4 50	7 22	2 32
20	M	12 6 2	4 40	7 32	3 28	10 35	4 45	7 27	3 35	8 15	4 50	7 22	3 42
21	T	12 6 5	4 41	7 31	sets	11 32	4 46	7 26	sets	9 12	4 51	7 21	sets
22	W	12 6 8	4 42	7 30	8 53	morn	4 47	7 25	8 49	10 1	4 52	7 20	8 45
23	T	12 6 10	4 43	7 29	9 9	0 21	4 48	7 24	9 7	10 45	4 53	7 19	9 5
24	F	12 6 12	4 44	7 28	9 29	1 5	4 49	7 23	9 28	11 23	4 53	7 18	9 28
25	S	12 6 12	4 45	7 27	9 49	1 43	4 49	7 22	9 49	12 0	4 54	7 17	9 49
26	S	12 6 13	4 46	7 26	10 47	2 20	4 50	7 22	10 9	morn	4 55	7 16	10 10
27	M	12 6 12	4 47	7 25	10 26	2 59	4 51	7 21	10 29	0 39	4 56	7 15	10 32
28	T	12 6 11	4 48	7 24	10 48	3 35	4 52	7 20	10 52	1 15	4 56	7 14	10 56
29	W	12 6 10	4 49	7 23	11 13	4 12	4 53	7 19	11 19	1 52	4 57	7 14	11 24
30	T	12 6 7	4 50	7 22	11 45	4 51	4 54	7 18	11 51	2 31	4 58	7 14	11 57
31	F	12 6 5	4 51	7 21	morn	5 43	4 55	7 17	morn	3 23	4 59	7 13	morn

EQUINOXES AND SOLSTICES.

		BOSTON. D H M	CINCINNATI D H M	S. FRANCISCO. D H M
Vernal Equinox,..........	March,........	20 11 1 m.	20 10 8 m.	20 7 35 m.
Summer Solstice,.........	June,.........	21 7 42 m.	21 6 49 m.	21 4 16 m.
Autumnal Equinox,.......	September,....	22 9 49 ev.	22 8 56 ev	22 6 23 ev.
Winter Solstice,.........	December,.....	21 3 33 ev.	21 2 40 ev.	21 0 7 ev.

MOON'S PHASES.	D	Boston. H M	N. York. H M	Baltimore. H M	Pittsburgh. H M	Cincinnati. H M
FULL MOON, ...	5	1 44 e	1 32 e	1 22 e	1 9 e	0 50 e
LAST QUARTER, ...	12	0 57 e	0 45 e	0 35 e	0 22 e	0 3 e
NEW MOON, ...	19	11 42 m	11 30 m	11 20 m	11 7 m	10 48 m
FIRST QUARTER, ...	27	10 21 m	10 9 m	9 59 m	9 46 m	9 27 m

DAY OF MONTH.	DAY OF WEEK.	Shadow at the noon mark.	CALENDAR For Boston, N. England, New-York State, Michigan, Wiscon., Iowa, and Oregon.				CALENDAR For N. York City, Phila., Connec't, New-Jersey, Penn'ia, Ohio, Indiana, and Illinois.				CALENDAR For Washington, Maryl'd, Virg'a, Ken'y, Missouri and California.		
		Afternoon	SUN rises	SUN sets	MOON sets.	H.W. Bost.	SUN rises.	SUN sets	MOON sets.	H. W. N. Y.	SUN rises.	SUN sets.	MOON sets.
		H M S	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M
1	S	12 6 1	4 52	7 20	0 25	6 53	4 56	7 16	0 31	4 33	[illegible] 0	7 12	0 39
2	S	12 5 57	4 53	7 19	1 13	8 9	4 57	7 15	1 20	5 49	5 1	7 11	1 28
3	M	12 5 52	4 54	7 18	2 13	9 24	4 58	7 14	2 19	7 4	5 2	7 10	2 27
4	T	12 5 47	4 55	7 16	3 17	10 21	4 59	7 13	3 23	8 1	5 2	7 9	3 29
5	W	12 5 41	4 56	7 15	rises	11 7	5 0	7 12	rises	8 47	5 3	7 8	rises
6	T	12 5 35	4 57	7 14	8 0	11 47	5 1	7 11	7 57	9 27	5 4	7 7	7 54
7	F	12 5 28	4 58	7 13	8 23	ev.28	5 2	7 10	8 22	10 8	5 5	7 6	8 20
8	S	12 5 20	4 59	7 11	8 42	1 3	5 3	7 9	8 42	10 43	5 6	7 4	8 42
9	S	12 5 12	5 0	7 10	9 5	1 39	5 4	7 8	9 6	11 19	5 7	7 3	9 7
10	M	12 5 3	5 1	7 9	9 28	2 16	5 5	7 6	9 31	11 56	5 8	7 1	9 34
11	T	12 4 54	5 2	7 8	9 56	2 54	5 6	7 5	10 0	ev.34	5 9	7 0	10 5
12	W	12 4 44	5 3	7 7	10 29	3 36	5 7	7 3	10 34	1 16	5 10	6 59	10 40
13	T	12 4 34	5 4	7 5	11 12	4 22	5 8	7 2	11 19	2 2	5 11	6 58	11 26
14	F	12 4 23	5 5	7 4	morn	5 19	5 9	7 0	morn	2 59	5 12	6 57	morn
15	S	12 4 11	5 6	7 2	0 6	6 38	5 10	6 59	0 13	4 18	5 13	6 55	0 21
16	S	12 3 59	5 7	7 1	1 11	8 10	5 11	6 58	1 18	5 50	5 14	6 54	1 26
17	M	12 3 47	5 8	7 0	2 23	9 34	5 12	6 57	2 29	7 14	5 15	6 53	2 35
18	T	12 3 34	5 9	6 58	3 39	10 37	5 13	6 55	3 44	8 17	5 16	6 52	3 49
19	W	12 3 20	5 10	6 56	sets	11 27	5 14	6 54	sets	9 7	5 17	6 50	sets
20	T	12 3 6	5 11	6 55	7 32	morn	5 15	6 53	7 31	9 48	5 18	6 49	7 29
21	F	12 2 52	5 12	6 54	7 52	0 8	5 16	6 51	7 52	10 25	5 19	6 48	7 52
22	S	12 2 37	5 14	6 52	8 11	0 45	5 17	6 50	8 12	10 58	5 20	6 46	8 13
23	S	12 2 22	5 15	6 51	8 29	1 18	5 18	6 49	8 31	11 30	5 21	6 45	8 34
24	M	12 2 6	5 16	6 49	8 50	1 50	5 19	6 47	8 54	morn	5 21	6 43	8 57
25	T	12 1 50	5 17	6 48	9 12	2 21	5 20	6 45	9 17	0 1	5 22	6 42	9 22
26	W	12 1 33	5 18	6 46	9 43	2 52	5 21	6 43	9 49	0 32	5 23	6 41	9 55
27	T	12 1 16	5 19	6 44	10 17	3 24	5 22	6 41	10 24	1 4	5 24	6 39	10 31
28	F	12 0 59	5 20	6 42	11 3	4 0	5 23	6 40	11 10	1 40	5 25	6 38	11 18
29	S	12 0 41	5 21	6 41	11 57	4 44	5 24	6 38	morn	2 24	5 26	6 36	morn
30	S	12 0 23	5 22	6 39	morn	5 56	5 25	6 36	0 4	3 36	5 27	6 34	0 12
31	W	12 0 4	5 23	6 37	1 0	7 26	5 26	6 34	1 6	5 6	5 28	6 33	1 13

SIGNS OF THE ZODIAC, WITH THE TIME OF THE SUN'S ENTERING EACH.

SPRING SIGNS.—♓ *Pisces*, March 20.—♈ *Aries*, April 20.—♉ *Taurus*, May 21.—Spring, 92d. 20h. 41m.

SUMMER SIGNS.—♊ *Gemini*, June 21.—♋ *Cancer*, July 23.—♌ *Leo*, August 23.—Summer, 93d. 14h. 7m.

AUTUMN SIGNS.—♍ *Virgo*, September 22.—♎ *Libra*, October 23.—♏ *Scorpio*, November 22.—Autumn, 89d. 17h. 44m.

WINTER SIGNS.—♐ *Sagittarius*, December 21.—♑ *Capricornus*, January 20.—♒ *Aquarius*, February 18.—Winter, 89d. 1h. 6m.

MOON'S PHASES.	D	Boston. H M	N. York. H M	Baltimore. H M	Pittsburgh H M	Cincinnati. H M
Full Moon,...... (*4th)	3	*0 23 m	*0 11 m	*0 1 m	11 48 e	11 29 e
Last Quarter,..	10	6 6 e	5 54 e	5 44 e	5 31 e	5 12 e
New Moon, ... († 17th)	18	0 49 m	0 37 m	0 27 m	0 14 m	†11 55 e
First Quarter,........	26	4 15 m	4 3 m	3 53 m	3 40 m	3 21 m

Day of Month.	Day of Week.	Shadow at the noon mark. Morning.	CALENDAR For Boston, N. England, New-York State, Michigan, Wiscon., Iowa and Oregon. SUN rises	SUN sets.	MOON sets.	H.W Bost.	CALENDAR For N. York City, Philadelphia, Conn., New-Jersey, Penn'a, Ohio, Indiana, and Illinois. SUN rises	SUN sets	MOON sets	H. W. N. Y.	CALENDAR For Washington, Maryl'd, Virg'a, Ken'y, Missouri and California. SUN rises	SUN sets	MOON sets
		H M S	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M
1	T	11 59 46	5 24	6 36	2 19	8 52	5 27	6 33	2 14	6 32	5 29	6 31	2 20
2	W	11 59 27	5 26	6 35	3 21	9 58	5 28	6 32	3 25	7 38	5 30	6 30	3 30
3	T	11 59 7	5 27	6 33	rises	10 45	5 29	6 30	rises	8 25	5 31	6 28	rises
4	F	11 58 48	5 28	6 31	6 47	11 27	5 30	6 29	6 47	9 7	5 32	6 27	6 46
5	S	11 58 28	5 29	6 30	7 9	ev. 2	5 31	6 27	7 10	9 42	5 33	6 25	7 11
6	S	11 58 8	5 30	6 28	7 31	0 37	5 32	6 26	7 33	10 17	5 34	6 24	7 36
7	M	11 57 48	5 31	6 26	7 57	1 13	5 33	6 24	8 0	10 53	5 35	6 23	8 5
8	T	11 57 27	5 32	6 25	8 29	1 51	5 34	6 23	8 34	11 31	5 35	6 21	8 39
9	W	11 57 7	5 33	6 23	9 9	2 29	5 35	6 21	9 15	ev. 9	5 36	6 20	9 22
10	T	11 56 46	5 34	6 21	10 0	3 9	5 36	6 19	10 7	0 49	5 37	6 18	10 15
11	F	11 56 25	5 35	6 19	11 1	3 58	5 36	6 18	11 8	1 38	5 38	6 17	11 16
12	S	11 56 4	5 36	6 17	morn	4 59	5 37	6 16	morn	2 39	5 39	6 15	morn
13	S	11 55 53	5 37	6 16	0 12	6 33	5 38	6 14	0 18	4 13	5 40	6 13	0 25
14	M	11 55 22	5 38	6 14	1 25	8 15	5 39	6 12	1 30	5 55	5 40	6 12	1 36
15	T	11 55 1	5 39	6 12	2 39	9 33	5 40	6 10	2 43	7 13	5 41	6 10	2 47
16	W	11 54 40	5 40	6 11	3 49	10 28	5 41	6 8	3 51	8 8	5 42	6 9	3 54
17	T	11 54 19	5 41	6 9	sets	11 10	5 42	6 7	sets	8 50	5 43	6 7	sets
18	F	11 53 58	5 42	6 7	6 15	11 46	5 43	6 5	6 16	9 26	5 44	6 5	6 16
19	S	11 53 37	5 43	6 5	6 35	morn	5 44	6 4	6 37	9 57	5 44	6 4	6 38
20	S	11 53 16	5 44	6 4	6 53	0 17	5 45	6 2	6 56	10 27	5 45	6 2	6 59
21	M	11 52 55	5 45	6 2	7 17	0 47	5 46	6 1	7 21	10 56	5 46	6 1	7 26
22	T	11 52 34	5 46	6 0	7 42	1 16	5 47	5 59	7 48	11 25	5 47	5 59	7 54
23	W	11 52 14	5 47	5 58	8 15	1 45	5 48	5 57	8 21	11 53	5 48	5 57	8 28
24	T	11 51 53	5 48	5 56	8 54	2 13	5 49	5 55	9 1	morn	5 49	5 55	9 9
25	F	11 51 33	5 49	5 54	9 46	2 46	5 50	5 53	9 53	0 26	5 50	5 53	10 1
26	S	11 51 12	5 50	5 52	10 44	3 22	5 51	5 52	10 50	1 2	5 51	5 52	10 58
27	S	11 50 52	5 51	5 50	11 49	4 7	5 52	5 50	11 55	1 47	5 52	5 51	morn
28	M	11 50 32	5 53	5 49	morn	5 14	5 53	5 49	morn	2 54	5 53	5 49	0 1
29	T	11 50 13	5 54	5 46	0 59	6 50	5 54	5 47	1 4	4 30	5 54	5 47	1 9
30	W	11 49 53	5 55	5 45	2 11	8 20	5 55	5 45	2 15	6 0	5 55	5 45	2 18

Pension-office.—The total number of army pensioners, June 30, 1855, was 13,680; the amount paid them within the year, $1,366,061. The number of navy pensioners, 858; amount paid them within the year, $139,050. Within the year, also 59,892 claims for land under the various pension acts were allowed, and warrants issued, granting 6,578,320 acres. The whole number of acres granted under pension acts since 1847, is 37,958,412.

The Militia.—The militia force of the United States, as near as can be ascertained from official reports, consists (1856) of 49,764 commissioned officers, and 1,873,558 non-commissioned officers, musicians, artificers, and privates; making a total of 2,407,826 men.

MOON'S PHASES.	D	Boston. H M	N. York. H M	Baltimore. H M	Pittsburgh. H M	Cincinnati. H M
Full Moon,	3	10 25 m	10 13 m	10 2 m	9 49 m	9 31 m
Last Quarter,	10	1 9 m	0 57 m	0 47 m	0 34 m	0 15 m
New Moon,	17	4 54 e	4 42 e	4 32 e	4 19 e	4 0 e
First Quarter,	25	9 21 e	9 9 e	8 59 e	8 46 e	8 27 e

Day of Month.	Day of Week.	Shadow at the noon mark.	CALENDAR For Boston, N. England, New-York State, Michigan, Wiscon., Iowa, and Oregon.				CALENDAR For N. York City, Philadelphia, Conn., New-Jersey, Penn'ia, Ohio, Indiana, and Illinois.				CALENDAR For Washington, Mary'd, Virg'a, Ken'y, Missouri and California.		
		Morning.	SUN rises	SUN sets	MOON sets	H. W. Bost.	SUN rises.	SUN sets.	MOON sets.	H. W. N. Y.	SUN rises.	SUN sets	MOON sets.
		H M S	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M
1	T	11 49 34	5 56	5 43	3 25	9 29	5 56	5 43	3 27	7 9	5 56	5 44	3 29
2	F	11 49 15	5 57	5 42	rises	10 15	5 57	5 42	rises	7 55	5 57	5 42	rises
3	S	11 48 56	5 58	5 40	5 34	10 54	5 58	5 41	5 36	8 34	5 58	5 41	5 37
4	S	11 48 28	5 59	5 39	5 59	11 29	5 59	5 39	6 2	9 9	5 59	5 39	6 5
5	M	11 48 20	6 1	5 38	6 27	ev. 6	6 0	5 37	6 32	9 46	6 0	5 38	6 37
6	T	11 48 3	6 2	5 36	7 7	0 46	6 1	5 36	7 13	10 26	6 1	5 37	7 19
7	W	11 47 46	6 3	5 34	7 54	1 25	6 2	5 34	8 1	11 5	6 2	5 35	8 9
8	T	11 47 29	6 4	5 33	8 55	2 8	6 3	5 33	9 2	11 48	6 3	5 34	9 10
9	F	11 47 13	6 5	5 31	10 2	2 54	6 4	5 31	10 9	ev. 34	6 4	5 32	10 16
10	S	11 46 57	6 6	5 29	11 16	3 46	6 5	5 29	11 21	1 26	6 5	5 31	11 27
11	S	11 46 42	6 8	5 28	morn	4 56	6 6	5 28	morn	2 36	6 6	5 30	morn
12	M	11 46 27	6 9	5 26	0 29	6 31	6 7	5 26	0 33	4 11	6 7	5 29	0 38
13	T	11 46 13	6 10	5 24	1 39	8 8	6 8	5 25	1 42	5 48	6 8	5 27	1 45
14	W	11 45 59	6 11	5 22	2 48	9 16	6 9	5 23	2 50	6 56	6 9	5 25	2 51
15	T	11 45 46	6 12	5 20	3 51	10 3	6 10	5 22	3 52	7 43	6 10	5 24	3 52
16	F	11 45 34	6 13	5 19	4 55	10 42	6 11	5 20	4 54	8 22	6 11	5 22	4 54
17	S	11 45 22	6 14	5 17	sets	11 15	6 12	5 19	sets	8 55	6 12	5 20	sets
18	S	11 45 11	6 15	5 16	5 19	11 47	6 13	5 17	5 22	9 27	6 13	5 19	5 27
19	M	11 45 0	6 17	5 14	5 44	morn	6 14	5 16	5 49	9 56	6 14	5 17	5 54
20	T	11 44 50	6 18	5 13	6 16	0 16	6 15	5 15	6 22	10 25	6 15	5 16	6 28
21	W	11 44 40	6 19	5 11	6 52	0 45	6 16	5 13	6 58	10 56	6 16	5 15	7 6
22	T	11 44 31	6 21	5 10	7 38	1 16	6 18	5 12	7 45	11 26	6 17	5 14	7 53
23	F	11 44 24	6 22	5 8	8 31	1 46	6 19	5 10	8 38	11 59	6 18	5 13	8 46
24	S	11 44 16	6 23	5 7	9 31	2 19	6 20	5 8	9 38	morn	6 19	5 12	9 44
25	S	11 44 9	6 24	5 5	10 40	2 57	6 21	5 7	10 45	0 37	6 20	5 10	10 51
26	M	11 44 3	6 25	5 4	11 50	3 42	6 22	5 5	11 54	1 22	6 21	5 9	11 58
27	T	11 43 58	6 27	5 2	morn	4 44	6 24	5 4	morn	2 24	6 22	5 7	morn
28	W	11 43 54	6 28	5 1	1 1	6 13	6 25	5 3	1 4	3 53	6 23	5 5	1 7
29	T	11 43 50	6 29	5 0	2 13	7 37	6 26	5 2	2 14	5 17	6 24	5 4	2 16
30	F	11 43 47	6 31	4 58	3 27	8 46	6 27	5 0	3 27	6 26	6 25	5 3	3 26
31	S	11 43 44	6 32	4 57	4 43	9 36	6 28	4 59	4 41	7 16	6 26	5 2	4 40

Zodiacal Light.—It is said that one of the incidental results of the Japan expedition is the discovery that the Zodiacal light is a belt extending entirely round the earth, after the manner of Saturn's ring. The matter has excited a good deal of interest among astronomers, some of the ablest of whom seem to consider the fact established by the observations taken.

The Asteroids.—M. Leverrier states, in a letter to the French Minister of Public Instruction, that he is firmly persuaded that a great number of small planets are situated between Mars and Jupiter, and that before 1860 nearly 100 will probably be discovered.

MOON'S PHASES.	D	Boston.	N. York.	Baltimore.	Pittsburgh.	Cincinnati.
		H M	H M	H M	H M	H M
FULL MOON,............	1	8 13 e	8 1 e	7 51 e	7 37 e	7 19 e
LAST QUARTER,.........	8	11 30 m	11 18 m	11 8 m	10 54 m	10 36 m
NEW MOON,.............	16	11 10 m	10 58 m	10 48 m	10 34 m	10 16 m
FIRST QUARTER,........	24	0 49 e	0 37 e	0 27 e	0 13 e	11 55 m

DAY OF MONTH.	DAY OF WEEK.	Shadow at the noon mark.	CALENDAR For Boston, N. England. New-York State, Michigan, Wiscon., Iowa, and Oregon.				CALENDAR For N. York City, Phila., Connec't, New-Jersey, Penn'ia, Ohio, Indiana, and Illinois.				CALENDAR For Washington, Maryl'd, Virg'a, Ken'y, Missouri and California.		
		Morning.	SUN rises	SUN sets	MOON rises.	H.W. Bost.	SUN rises.	SUN sets	MOON rises.	H. W. N. Y.	SUN rises.	SUN sets.	MOON rises.
		H M S	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M
1	S	11 43 43	6 33	4 55	rises	10 17	6 29	4 59	rises	7 57	6 27	5 1	rises
2	M	11 43 42	6 34	4 54	4 58	10 57	6 30	4 58	5 4	8 37	6 28	5 0	5 10
3	T	11 43 42	6 35	4 53	5 41	11 39	6 31	4 57	5 48	9 19	6 29	4 59	5 55
4	W	11 43 43	6 36	4 52	6 40	ev.23	6 32	4 56	6 47	10 3	6 30	4 58	6 55
5	T	11 43 45	6 37	4 50	7 48	1 7	6 33	4 55	7 56	10 47	6 31	4 57	8 3
6	F	11 43 48	6 39	4 49	9 4	1 53	6 35	4 53	9 10	11 33	6 32	4 56	9 16
7	S	11 43 51	6 40	4 48	10 18	2 45	6 36	4 52	10 23	ev.25	6 33	4 55	10 28
8	S	11 43 56	6 41	4 47	11 31	3 40	6 38	4 50	11 35	1 20	6 35	4 54	11 38
9	M	11 44 1	6 43	4 45	morn	4 47	6 39	4 49	morn	2 27	6 36	4 53	morn
10	T	11 44 7	6 44	4 44	0 39	6 11	6 40	4 48	0 41	3 51	6 37	4 52	0 43
11	W	11 44 14	6 45	4 43	1 45	7 31	6 41	4 47	1 46	5 11	6 39	4 51	1 47
12	T	11 44 22	6 47	4 42	2 48	8 37	6 43	4 46	2 47	6 17	6 40	4 50	2 47
13	F	11 44 30	6 48	4 41	3 50	9 27	6 44	4 45	3 48	7 7	6 41	4 49	3 47
14	S	11 44 40	6 49	4 40	4 52	10 9	6 45	4 44	4 49	7 49	6 42	4 48	4 46
15	S	11 44 50	6 51	4 39	5 55	10 46	6 47	4 43	5 51	8 26	6 43	4 47	5 47
16	M	11 45 1	6 52	4 38	sets	11 20	6 48	4 42	sets.	9 0	6 44	4 46	sets
17	T	11 45 14	6 53	4 37	4 51	11 53	6 49	4 41	4 57	9 33	6 45	4 46	5 4
18	W	11 45 27	6 54	4 36	5 35	morn	6 50	4 40	5 42	10 3	6 46	4 45	5 50
19	T	11 45 40	6 55	4 36	6 26	0 23	6 51	4 40	6 33	10 35	6 47	4 44	6 41
20	F	11 45 55	6 56	4 35	7 25	0 55	6 52	4 39	7 31	11 10	6 48	4 44	7 38
21	S	11 46 10	6 58	4 34	8 30	1 30	6 54	4 38	8 35	11 43	6 49	4 43	8 41
22	S	11 46 26	6 59	4 33	9 37	2 3	6 55	4 38	9 42	morn	6 50	4 42	9 46
23	M	11 46 43	7 0	4 33	10 46	2 42	6 56	4 37	10 49	0 22	6 51	4 42	10 52
24	T	11 47 1	7 1	4 32	11 55	3 27	6 57	4 36	11 57	1 7	6 52	4 41	11 59
25	W	11 47 19	7 3	4 31	morn	4 23	6 58	4 36	morn	2 3	6 53	4 41	morn
26	T	11 47 38	7 4	4 31	1 4	5 28	6 59	4 35	1 4	3 8	6 54	4 41	1 5
27	F	11 47 58	7 5	4 30	2 17	6 43	7 0	4 34	2 16	4 23	6 55	4 41	2 15
28	S	11 48 18	7 6	4 29	3 33	7 49	7 1	4 34	3 31	5 29	6 56	4 40	3 28
29	S	11 48 40	7 7	4 29	4 53	8 48	7 2	4 33	4 49	6 28	6 57	4 40	4 45
30	M	11 49 1	7 9	4 29	6 17	9 40	7 4	4 33	6 12	7 20	6 58	4 40	6 6

PUBLIC LANDS.—In the year ending June 30, 1855, there were sold of the public lands, 15,729,524 acres; located under military warrants, 1,345,580; reported as swamp lands, and ceded to the various states, 7,470,746; ceded for railroads and other internal improvements, 11,558; making a total disposed of, of 24,557,409 acres. Within the year, 15,315,283 acres have been surveyed. The amount sold for cash was 9,777,284 acres more than the preceding year.

COINAGE OF VARIOUS COUNTRIES.—The total coinage of Great Britain, France, the United States, Russia, Austria, Prussia, Holland and Belgium, for the seven years from 1848 to 1854, inclusive, amounted to $1,097,584,330.

MOON'S PHASES.	D	Boston. H M	N. York. H M	Baltimore. H M	Pittsburgh H M	Cincinnati. H M
FULL MOON, ...	1	6 13 m	6 1 m	5 51 m	5 37 m	5 19 m
LAST QUARTER, ...	8	1 54 m	1 42 m	1 32 m	1 18 m	1 0 m
NEW MOON, ...	16	6 17 m	6 5 m	5 55 m	5 41 m	5 23 m
FIRST QUARTER, ...	24	1 52 m	1 40 m	1 30 m	1 16 m	0 58 m
FULL MOON, ...	30	4 49 e	4 37 e	4 27 e	4 13 e	3 55 e

DAY OF MONTH.	DAY OF WEEK.	Shadow at the noon mark. Morning.	CALENDAR For Boston, N. England. New-York State, Michigan, Wiscon., Iowa, and Oregon. SUN rises	SUN sets	MOON rises.	H. W Bost.	CALENDAR For N. York City, Phila., Conn't, New Jersey, Penn'ia, Ohio, Indiana, and Illinois. SUN rises	SUN sets	MOON rises.	H.W. N. Y.	CALENDAR For Washington, Maryl'd, Virg'a Ken'y, Miss'ri, and California SUN rises	SUN sets	MOON rises.
		H M S	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M	H M
1	T	11 49 24	7 10	4 29	rises	10 31	7 5	4 34	rises	8 11	6 59	4 40	rises
2	W	11 49 37	7 11	4 29	5 25	11 19	7 6	4 34	5 32	8 59	7 0	4 39	5 40
3	T	11 50 11	7 12	4 28	6 40	ev. 9	7 7	4 34	6 46	9 49	7 1	4 39	6 53
4	F	11 50 35	7 13	4 28	7 57	0 57	7 8	4 33	8 2	10 37	7 2	4 39	8 8
5	S	11 51 0	7 14	4 28	9 14	1 50	7 9	4 33	9 18	11 30	7 3	4 38	9 22
6	S	11 51 25	7 15	4 28	10 27	2 40	7 10	4 33	10 29	ev. 20	7 4	4 38	10 32
7	M	11 51 51	7 16	4 28	11 35	3 31	7 11	4 33	11 57	1 11	7 5	4 38	11 38
8	T	11 52 18	7 17	4 28	morn	4 26	7 12	4 33	morn	2 6	7 6	4 38	morn
9	W	11 52 45	7 18	4 28	0 40	5 24	7 13	4 33	0 40	3 4	7 7	4 38	0 40
10	T	11 53 12	7 19	4 28	1 43	6 32	7 14	4 33	1 41	4 12	7 8	4 38	1 40
11	F	11 53 40	7 20	4 28	2 45	7 34	7 15	4 33	2 42	5 14	7 9	4 38	2 40
12	S	11 54 8	7 21	4 28	3 49	8 34	7 15	4 33	3 45	6 14	7 10	4 39	3 41
13	S	11 54 37	7 22	4 28	4 52	9 31	7 16	4 33	4 47	7 11	7 10	4 39	4 42
14	M	11 55 6	7 22	4 28	5 45	10 13	7 17	4 34	5 40	7 53	7 11	4 39	5 [illegible]
15	T	11 55 35	7 23	4 28	6 58	10 55	7 17	4 34	6 51	8 35	7 11	4 39	6 44
16	W	11 56 8	7 24	4 28	sets	11 31	7 18	4 34	sets	9 11	7 12	4 39	sets
17	T	11 56 34	7 24	4 29	5 29	morn	7 18	4 34	5 26	9 49	7 12	4 40	5 33
18	F	11 57 4	7 25	4 29	6 23	0 9	7 19	4 35	6 29	10 25	7 13	4 40	6 35
19	S	11 57 34	7 25	4 29	7 29	0 45	7 19	4 35	7 34	10 59	7 13	4 40	7 39
20	S	11 58 4	7 26	4 30	8 37	1 19	7 20	4 36	8 41	11 35	7 14	4 41	8 45
21	M	11 58 34	7 26	4 30	9 44	1 55	7 20	4 36	9 46	morn	7 14	4 41	9 49
22	T	11 59 4	7 27	4 31	10 52	2 33	7 21	4 37	10 53	0 13	7 15	4 42	10 54
23	W	11 59 34	7 27	4 31	morn	3 14	7 21	4 37	morn	0 54	7 15	4 42	morn
24	T	aftern'n	7 28	4 32	0 2	4 0	7 22	4 38	0 2	1 40	7 16	4 43	0 1
25	F	12 0 34	7 28	4 32	1 13	4 49	7 22	4 38	1 11	2 29	7 16	4 43	1 10
26	S	12 1 3	7 29	4 33	2 27	5 47	7 23	4 39	2 24	3 27	7 17	4 44	2 21
27	S	12 1 33	7 29	4 34	3 47	6 53	7 23	4 39	3 42	4 33	7 17	4 45	3 37
28	M	12 2 2	7 29	4 34	5 7	8 4	7 24	4 40	5 1	5 44	7 18	4 45	4 55
29	T	12 2 31	7 29	4 35	6 27	9 11	7 24	4 40	6 20	6 51	7 18	4 46	6 13
30	W	12 3 0	7 30	4 36	rises	10 12	7 25	4 41	rises	7 52	7 19	4 47	rises
31	T	12 3 29	7 30	4 37	5 29	11 7	7 25	4 42	5 35	8 47	7 19	4 48	5 41

THE MILKY-WAY.—The number of telescopic stars in the milky-way is estimated at eighteen millions. In order, I will not say to realize the greatness of this number, but, at any rate, to compare it with something analogous, I will call attention to the fact, that there are not in the whole heavens more than about eight thousand stars visible to the naked eye.—*Humboldt*.

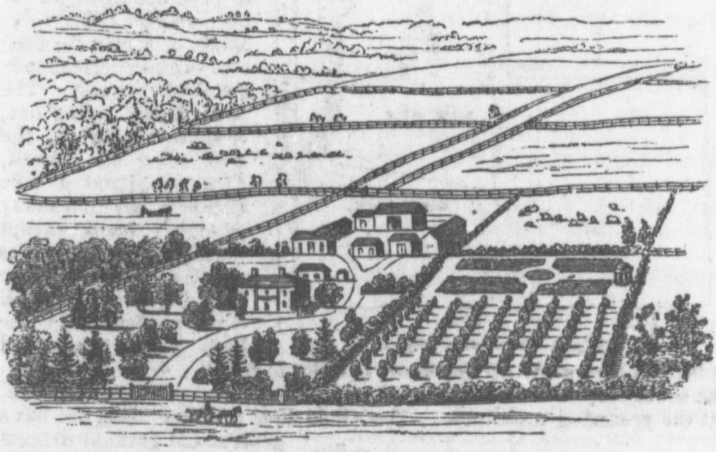
HOW TO BE POOR.—Do nothing. Just let estate, soul, and body all alone, and your poverty will come as an armed man.

THE

ILLUSTRATED ANNUAL REGISTER

OF

RURAL AFFAIRS.



LAYING OUT AND DIVIDING FARMS.

ONE of the most important parts of farm management, consists in the convenient and economical subdivision of farms into fields. It is the very foundation of systematic culture. A good rotation, and a profitable application of labor, cannot exist in badly arranged and inaccessible lots. The following may be given as some of the most prominent points to be observed in planning subdivisions:

1. Fields to be of nearly equal size, so as to admit a rotation of crops.
2. A suitable number of fields, to allow the various crops to occupy each its own field.
3. The form to be nearly square, to save fencing material, unless the land varies in character.
4. Where the land varies much, a variation in boundaries so as to bring the same kind of soil into the same field, more especially if swamp and upland.
5. Placing the lane or farm road, so as to enter all the fields by as short a way as practicable.

6. On a hilly or uneven surface, varying the farm road so as to keep it as nearly level as may be.

7. Placing the barn and other out-buildings as near the center of the farm as other circumstances will admit.

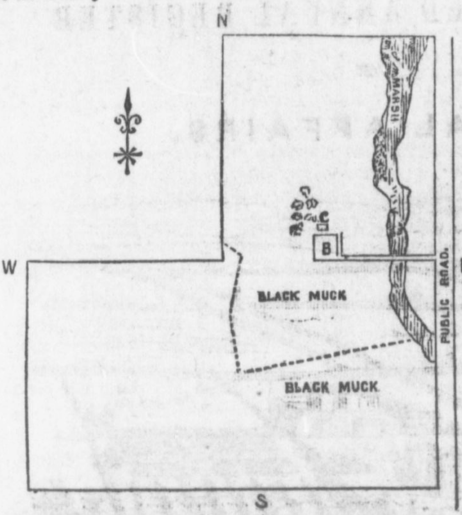


Fig. 2—Farm as it now is.

As a guide in the subdivision of a new farm, or in re-arranging an old one, we give a single example of a plan furnished a western correspondent at his request. The farm, before laying out, is shown in fig. 2, the land being all cleared, (the woodland a mile distant,) and all a sandy or clayey loam, except those portions marked as muck and marsh. The dotted line is a ditch, B is the garden, and C the house, and it is intended to build a barn north of the house, in order to secure a side-hill locality. The south side of the house would be a more central place for the barn, but the ground is unsuitable. The whole farm is rolling land, but has a general and gradual descent from the south-west to the north-east—and no part is too steep to plow. The whole contains about 120 acres.

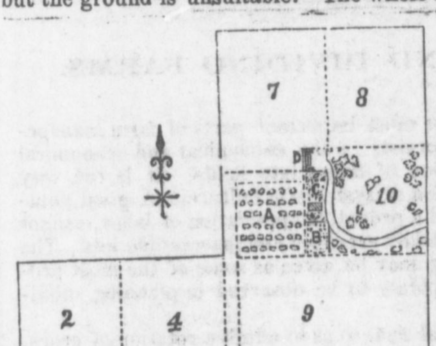


Fig. 3—Farm with proposed subdivisions.

In fig. 3, we have given the plan which we propose for this farm. A more accurate knowledge of the surface might enable us to improve this plan, as we may possibly have run the lane which leads to the several fields over hills, which might be avoided by slight flexures, or by altering its position.

There are ten fields besides the orchard, containing about eleven acres each. If this is more than can be fenced at once, Nos. 1 and 2, may be thrown into one field, and the same may be done with 5 and 6, and with 7 and 8, leaving only seven fields. No. 10, being intersected by the marsh, (which now affords heavy crops of wild hay,) and in front of the house, we have concluded to throw several acres into pasture, to plant a few trees to give it something of a park appearance, and to give a curve to the entrance road, to avoid the stiffness of straight lines. If thought best, less breadth may be given to this field, leaving it still wide enough to embrace the curved entrance. The grass is to be kept short by pasturing animals.

The soil west of the house being more sandy, we propose to occupy as an orchard. No. 7 may also be used for this purpose, if desired.

The barn is easily accessible, and fronting the east, the yard is protected from west winds.

Fields number 1, 2, 3, 4, 5, 6 and 7, if we understand the description of the land, will be dry land, and capable of entering any proposed rotation. No. 8 is largely marsh, and No. 9 low black muck. The former may therefore be mostly kept as meadow or pasture, and the latter for corn and turnips, or pasture and meadow. These low portions wlll need a large portion of timothy for seeding.

Fields Nos. 7 and 8, are entered from the barn-yard; 9, from the public road, or from the lane back of the orchard, or both; and No. 6, from the road. All the others are accessible from the lane.

The following rotations may be adopted, or varied from according to circumstances:

Three-course system—1st year, corn, potatoes, carrots, ruta bagas, with all the manure—2d, wheat—3d, clover, one or more years.

Four-course system—1st corn and roots—2d, barley and peas—3d, wheat—4th, clover, one or more years. The several arable fields will admit four years of grass in this course. If more wheat is desired in this course, a crop of wheat may commence the rotation, and precede the corn.

The engraving at the head of this article, represents a birds-eye view of a neat and well laid out farm, the dwelling being in front, and at the center, the garden and fruit garden, surrounded by an Osage orange hedge, being on the right, the orchard on the left, and the barn and other out-buildings in the form of a hollow square, at the back of the house. The fields, with plowman, sheep and cattle, are in the distance. A plan of this place is shown in fig. 4.

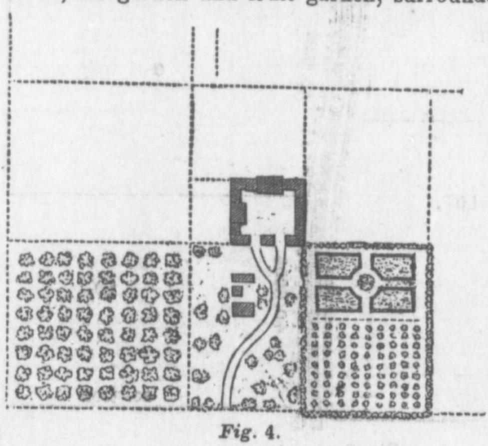


Fig. 4.

The accompanying engravings are a plan (fig. 5) and view (fig. 6,) of the farm and buildings of Daniel D. T. More, of Watervliet, near Albany. The view

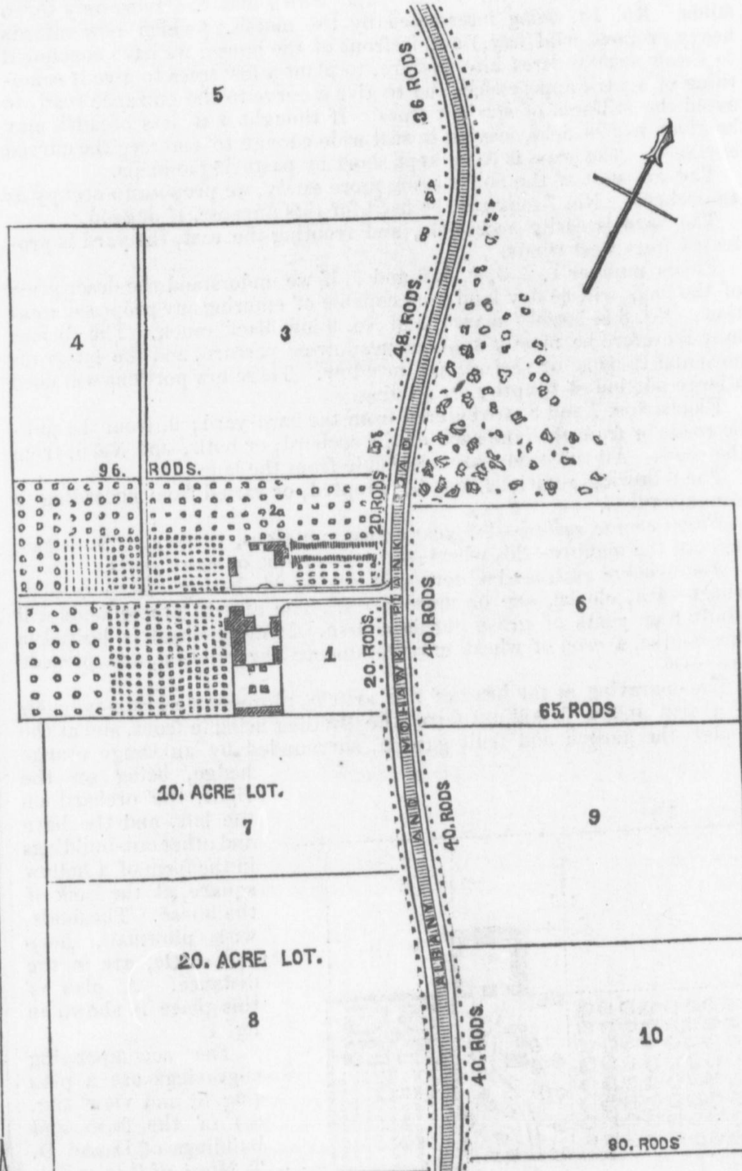

5
36 RODS
48. RODS.
4
3
96. RODS.
20. RODS
2a
20. RODS.
1
40. RODS
6
65. RODS
ALBANY AND MOHAWK PLANK ROAD
10. ACRE LOT.
7
9
40. RODS
20. ACRE LOT.
8
40. RODS
10
80. RODS

Fig. 5.

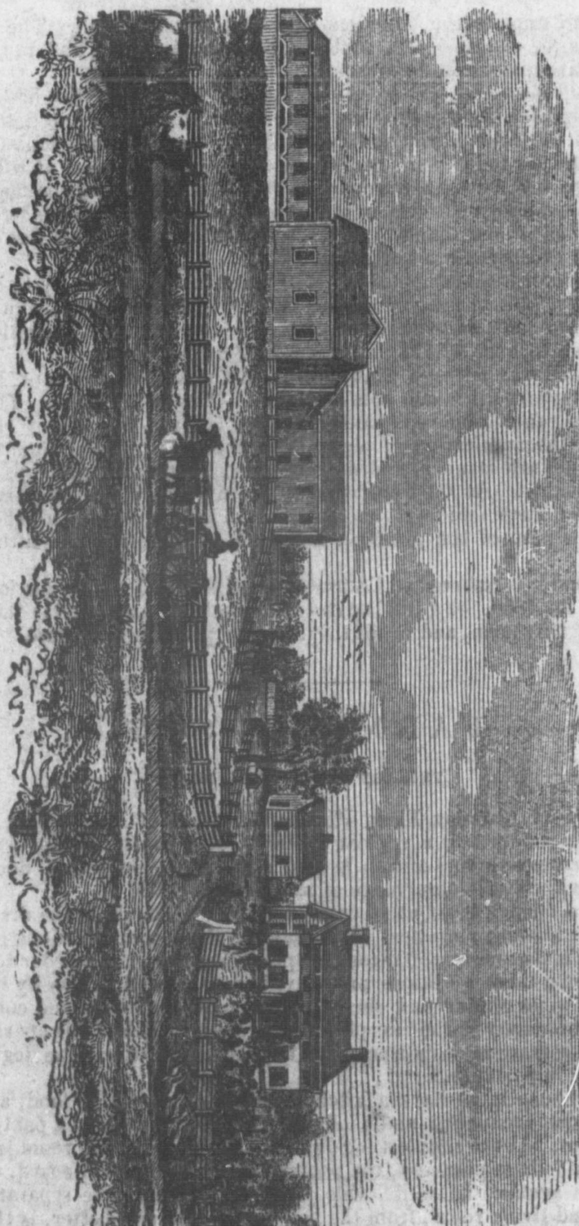


Fig. 6.

serves to explain the buildings represented in the plan. The whole is given as an example of a well laid out establishment, and to show the good management of the owner.

He purchased an old worn out farm of 185 acres, that had been so long subjected to the skinning system, that one hundred dollars was thought too high a rent for it—it having been let to tenants for fifty years, and for many years previously occupied by a tenant at will. The buildings and fences had nearly all rotted down. After paying all the purchase money on the farm that could be raised, more was left to pay annually as interest than had before been paid as rent. This was certainly a dull prospect for a beginning.

By skillful management, the owner was enabled so greatly to improve its quality, that in five years from taking possession, the receipts of the farm in one year, amounted to $4,852; the expenditures, including family expenses, were $2,174; leaving $2,678 as net profits.

The land was light—a sandy loam—and was at first so poor, that the two first years little else could be raised than white beans. The chief means of renovation were deep plowing, *turning in crops of clover as manure*, the application of plaster and lime, and of large quantities of purchased yard manure, and the adoption of a rotation of crops as soon as practicable. At the expiration of the five years, a substantial dwelling house, farm buildings, and fences, had been built, and all the interest and a part of the principal had been paid, besides the fifth year's profits.

The reader is referred to Transactions of the N. Y. State Agricultural Society, for 1850, for a full statement of the means adopted in the renovation of this farm, and of all the items of profit and expense.

FARM HOUSES.

THE ART OF PLANNING THEM.

The art of planning Farm Houses, like that of subdividing farms, should be reduced to a regular system. It is most commonly a mere chance process—a sort of hap-hazard arrangement of rooms, doors and entries, without the observance of any general rules.

When a farmer is about to erect a house, he should in the first place make two leading inquiries. 1, What are the accommodations I want? 2, What is the amount of means for providing them? In order to assist in answering these questions properly, it may be well to classify houses, from the most simple and cheap, to the most expensive and complex. But it is necessary in the first place, to examine which of the apartments of a dwelling are most indispensible, and which are of various degrees of secondary importance.

Every house must have a kitchen or place for cooking food, a living room for day occupancy, and a lodging room for night—and a pantry and store-room. In the simplest log-hut or board shanty, one room is made to serve all these purposes, the pantry being merely a cupboard, or tier of shelves against the wall. One step above this, is the separation of kitchen and living room, from the bed-room; and still better, is the appropriation of three distinct rooms for these purposes. As we continue to ascend in the scale, we find at last, that the largest and most complete houses, have most of the following apartments, although all may not be found in any single house :

1. Kitchen, with appended iron closet, store-room, dairy, wood-room and laundry.
2. Bed-rooms, including nursery, and other sleeping apartments.
3. Dining-room.
4. Library, or office.
5. Bath-room.
6. Breakfast-room, parlor, sitting-room, or living-room.
7. Drawing-room and conservatory.
8. Entrance hall and veranda.
9. Cellar.

Now, going back to the two leading inquiries already mentioned, let every one about to build, ask himself: How many of these different rooms will be indispensible for me; and 2, what can I expend in procuring them? We suppose that no man, even with quite moderate means, will be satisfied without,

1. Kitchen and small pantry;
2. Parlor;
3. Nursery or bed-room on the ground floor;
4. Small entry;
5. Bed-rooms with closets above stairs;
6. Cellar.

The cost of a house containing all these, will of course depend much upon the nature of the materials, their cost, the size of the rooms, and the cheapness of the finish; but with a plain frame or wooden house, they could be had from six to twelve hundred dollars.

A larger and more complete farm-house, costing two thousand or more, would contain,

1. Kitchen, pantry, store-room, and iron closet;
2. Dining-room, and china closet;
3. Parlor or drawing-room;
4. Nursery or bed-room below stairs, with ample closets; and with bath-room attached;
5. Bed-rooms above stairs, with closets to all;
6. Office or library—which may be simply a small business room, for keeping account books, settling with workmen, making bargains, &c.; or a more complete library, with book-cases and newspaper closets, and even cases for minerals, dried plants, shells, stuffed birds, &c., according to circumstances.
7. Verandas;
8. Cellar.

After the greater or less number of these rooms has been fixed upon, according to wants and circumstances, the next step is to arrange them in the most convenient and economical manner. This is a difficult task to a person of inexperience, but it may be greatly assisted by observing the following rules, and by an examination of published plans, such for instance as we are about to give in the present number of the Register, or which have been furnished in the former numbers.

1. Let the kitchen (the most important apartment) always be on a

level with the principal floor—and for strong light and free ventilation, it should have, if possible, windows on opposite or nearly opposite sides.

2. The pantry or dish-closet should be between the kitchen and dining-room, and easily accessible from both.

3. There should be a set of *easy* stairs from the kitchen to the cellar, and also an outer set into the cellar for admitting barrels, &c.

4. More attention should be given to the arrangement and convenient disposition of such rooms as are in constant use, than those but occasionally occupied. Hence the kitchen and living room should receive more attention on the ground of convenience, than the parlor.

5. Every entrance, except to the kitchen, should be through some entry or hall, to prevent the abrupt ingress of cold air, and for proper seclusion.

6. Let the entry or hall be near the center o the house, so that ready and convenient access may be had from it to the different rooms; and to prevent the too common evil of passing through one room to enter another.

7. Place the stairs so that the landing shall be as near the center as may be practicable, for the reason given for the preceding rule.

8. Let the partitions of the second floor stand over those of the lower, as nearly as may be, to secure firmness and solidity.

ONE STORY FARM HOUSE.

A correspondent has sent us a plan of a farm cottage, with the request that we would suggest improvements, and which is here given to our readers in order to show how such improvements may be made. His chief object is *internal convenience*, with cheapness—outside appearance is a secondary consideration. Fig. 1 is a reduced plan of the sketch sent us, S, being the sitting-room or parlor; D, dining-room; K, kitchen; F, B, family bed-room; B, B, B, bed-rooms; P, pantry; W, woodhouse; p, porch; b, bath-room; c, c, c, closets. Our correspondent adds, "a useless hall is dispensed with, the doors opening outward, are protected by porch and veranda, the kitchen and dining-room are not separated by a long entry. If built one story high, it will not cost over $1,000."

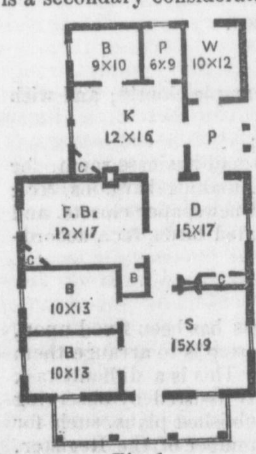


Fig. 1.

The defects of this plan, are,—1, the kitchen is not sufficiently lighted,—clean work requires a strong light; 2, the dishes must be carried through the whole length of the kitchen to the dining-room three times a day; 3, the bath is too far from the warm water of the kitchen; 4, the triangular closet in the nursery will not fit a square carpet; there are no stairs to descend to the cellar; 5, the house being 32 feet wide, the chamber would be *at least* 8 feet high in the middle, and no stairs or other provision is made for using this

large space. Bed-rooms opening directly into the parlor will not be so retired as opening into a hall, but will be more easily warmed from the parlor fire. The outer doors opening under the veranda and porch, are more exposed to the weather, than if a hall or entry intervene, but room and cost are saved—double doors, one opening inward and the other outward, will be an improvement. Every farmer must have boys or hired men—no provision is made for lodging them.

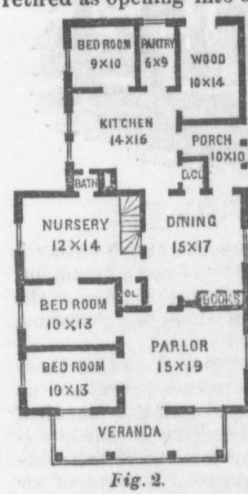
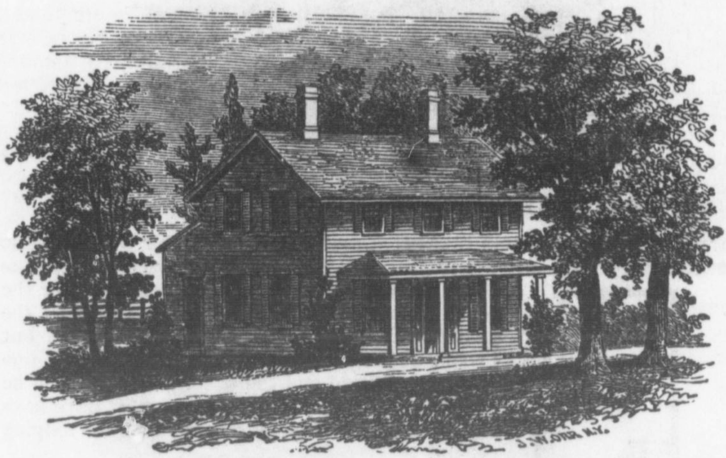


Fig. 2.

In fig. 2, we propose alterations, avoiding most of these difficulties. One of the bed-rooms opening into the parlor, has also a door to the nursery or family bed-room, so as to be used as a children's bed-room, the parlor door being kept locked; or *vice versa*. The bath is placed near the kitchen, and between them is a *slide*, in an opening two feet square, through which hot water is handed. The dish-closet (marked "D. cl.") is accessible to both kitchen and dining-room. The kitchen wing being 2 ft. longer, the wood-room opens directly to the kitchen. The stairs ascend to the chamber, which contains two useful bed-rooms, and three large closets, fig. 3. If the eaves are raised two or three feet higher than the second floor, four chamber rooms might be made for a larger family. An opening may be made from the head of the stairs to the kitchen garret. Beneath the stairs, is the descent from the kitchen to the cellar.

Fig. 3.

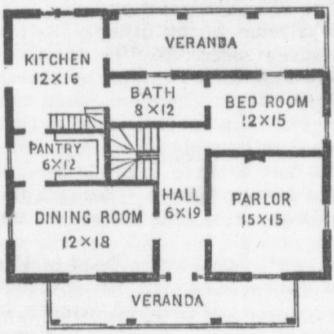
As suggested, we furnish at the head of this page, a view of the house as seen outside, constructed in the simplest and cheapest manner, so far as neatness will admit. A few additional dollars would give it the simple Gothic finish shown in the lower figure on page 195 of our Illustrated Annual Register for 1856; and a larger sum would give the more perfect Gothic expression shown on page 31, of the Register for 1855.



A PLAIN FARM HOUSE.

This design is intended for a farm-house, where the entire outlay is devoted to convenience and comfort, and not a dollar to mere ornament. It has a special regard to furnishing the greatest amount of room at the least practicable cost for a substantial erection, the whole being afforded for fifteen to seventeen hundred dollars.

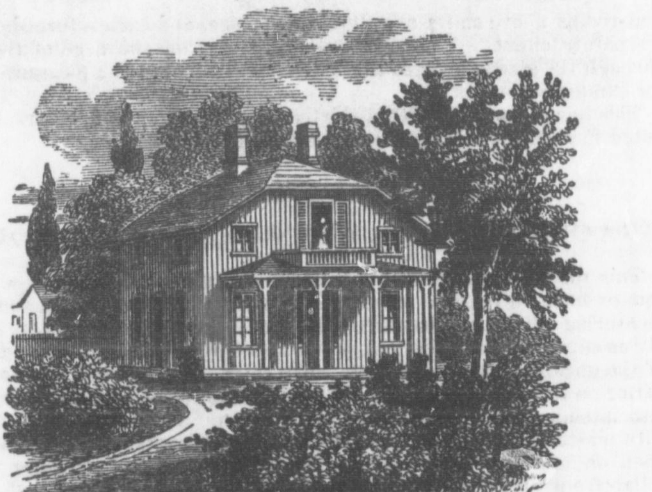
It will be observed the rooms are compactly disposed, so that those required in connection, are very easily accessible to each other, and no space is lost. The dining room is long and narrow, the most economical form for such an apartment; the kitchen projects in part from the main building, so as to secure a current of air through the opposite doors. The pantry being placed between them, is readily accessible to both, and also affords a passage from one to the other. As personal cleanliness is indispensable to a farmer, a bath is placed between the bed-room (which may be used as a *nursery,*) and the kitchen,—for fresh or warm water on one hand, and for dressing on the other. Those who do not need a separate bath-room, may convert this to a bed-room, or to



a milk-room, as circumstances may require. The cellar is reached by a descent placed under the kitchen stairs.

The arrangement of the second story is an exact copy of the lower, affording four bed-rooms opening into the upper hall; and two more for hired persons, over the pantry and kitchen, and entered by the kitchen stairs. Closets for the rooms may be taken off from them, on the outer sides, where the roof is lowest.

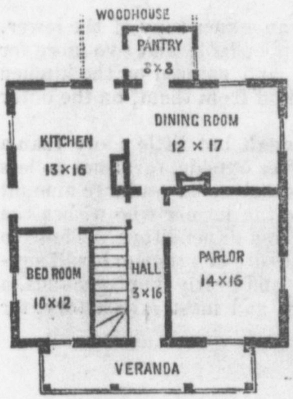
It will be observed that this house, although but little more than a story and a half, and twenty-eight by forty feet outside, furnishes no less than twelve rooms besides the hall, closets and cellar—a large amount for the cost, and therefore well adapted to the farmer who wishes the greatest amount of accommodation for a given expenditure. Those to whom the exterior appears too plain and destitute of ornament, will supply the deficiency by handsomely planted and neatly kept grounds, a mode, beyond all comparison, the cheapest and most satisfactory, for ornamenting country dwellings.



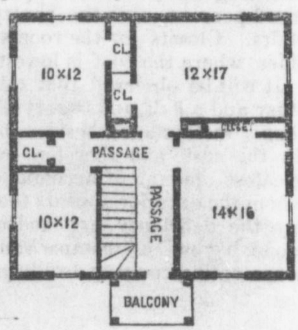
SQUARE FARM HOUSE.

The most economical form for enclosing a given amount of room within the smallest practicable extent of outer wall, is that of a square. An octagon, it is true, exceeds the square in the area enclosed, but the impossibility of adapting it to the ordinary forms of rooms, renders it awkward, troublesome, and in fact extremely wasteful in expenditure.

The design here given is that of a house thirty feet square outside, furnishing four convenient rooms below, and the same number above stairs.



GROUND PLAN.



CHAMBERS.

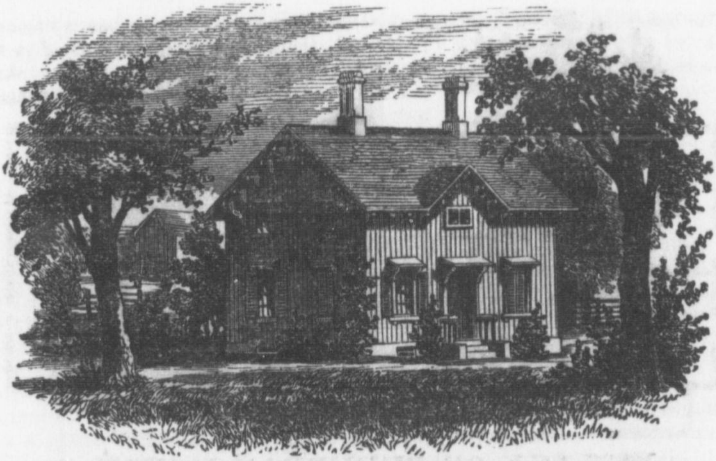
The bed-room, opening into the kitchen, is occupied by the heads of the family, and enables the mistress to give a ready superintendence of her work. As the kitchen opens directly into the entrance hall and to the stairs, but one flight is required to the second story. Under these stairs is the descent to the cellar. The dining-room is the ordinary family or living room. The four bed-rooms above stairs are all of ample size, and each is furnished with a separate closet. A passage leads directly from the head of the stairs through the glazed door to the balcony, which affords a pleasant retreat for summer evenings.

This house may be built for thirteen to fifteen hundred dollars, if executed in a plain and substantial manner of wood.

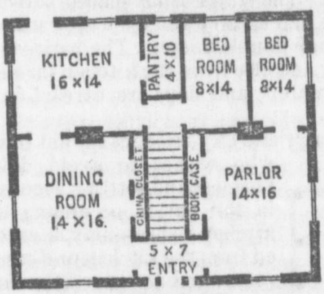
BRACKETED SYMMETRICAL FARM HOUSE.

This design (see next page) which represents a house in a nearly square form, gives ten rooms within story and a half walls, the whole measuring only thirty by thirty-five feet inside. The rooms are probably as compactly arranged as can be possibly effected, not a single inch of the enclosed space being lost. The entry, 5 by 7 feet, conducts to the parlor on one side and to the dining-room on the other, the latter being also intended as the family or living-room. The stairs being flanked with plastered walls, are made at one-fourth the expense required where open on one side with railing or balustrade. The entrance to the cellar from the kitchen is under these stairs. The mistress of such a house as this, (which is intended for a farm of moderate size,) will superintend her own kitchen, and therefore her lodging room will need to be near at hand, being the bed-room which opens into the kitchen through the small entry at the head of the cellar stairs. The room adjoining this is a "spare room" for a visitor, opening into the parlor. The five rooms above may be all reached from the single flight of stairs; or if desired, one or two rooms for hired persons may be entered from a small narrow flight placed adjoining the pantry.

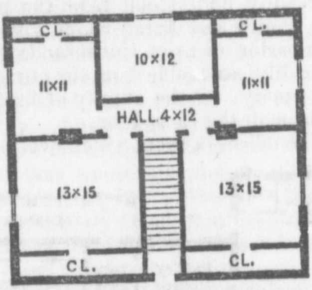
Ample closet room is obtained up stairs by occupying for this purpose the lower portions of the chamber, nearest the eaves, thus leaving for the bed-rooms the higher or more central portions.



The chimneys are so placed that every room below stairs, and all but one above, may be warmed by an open fire-place, or by stoves; and the stacks may be carried up almost perpendicularly from bottom to top, which is better for safety, cheapness and durability.



PRINCIPAL FLOOR.

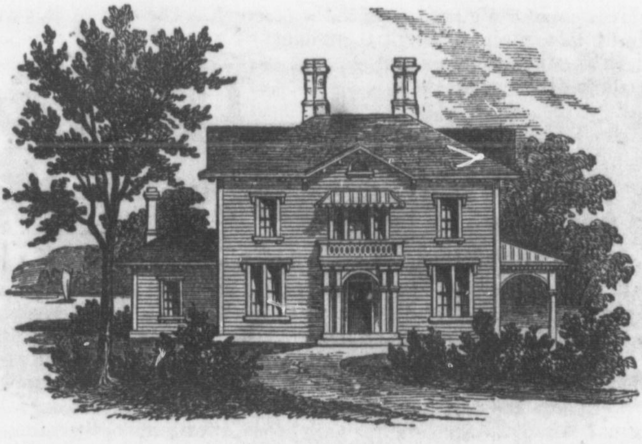


SECOND STORY.

The dairy is in the cellar, and a woodhouse may adjoin the rear, or be built detached at a convenient distance. In the latter case, a double row of evergreen trees, with an avenue or path between, will be found convenient and pleasant in winter.

The exterior conveys an expression of cheerfulness and neatness; and has so small an amount of ornamental appendages, that the cost is scarcely increased by them. The window under the small front gable, inserted for lighting the upper hall and stairs, imparts a certain sheltered aspect, which is carried out by the addition of the window hoods over the lower windows.

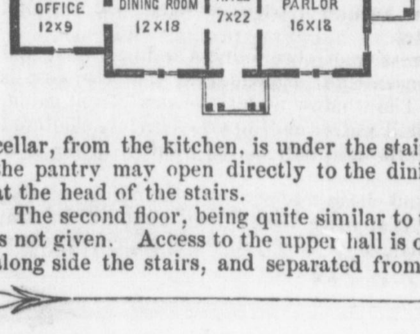
This house, built in a plain and cheap manner, and including painting and window blinds, would not cost more than fifteen hundred dollars; substantially built and with a little more finish, it would approach nearer two thousand.



VILLAGE OR SUBURBAN HOUSE.

A residence with the Italian characteristics, but more symmetrical and regular in form than is adapted to the broad landscape of the country, is shown in this design for a suburban or village residence. The interior is readily understood from the plan. The stairs being placed between the pantry and dining-room, give the hall an airy and open appearance. The parlor opens on the veranda through double doors. The bath-room is readily accessible from the nursery; and also from the kitchen through the pantry, for the supply of heated water; and slops are carried from it through the back door.

The office—a room which every country and city resident should have, who wishes to avoid doing business and settling accounts in the parlor, or among the kitchen dishes—may be entered from the kitchen or dining-room. and an outer door may be added if desired. The kitchen is spacious to avoid the necessity of a separate laundry, and the back door being on an opposite side from the windows, summer ventilation is easily given. A door may be placed on each side. The interior entrance to the cellar, from the kitchen. is under the stairs from the hall. If desired, the pantry may open directly to the dining-room, across the platform at the head of the stairs.



The second floor, being quite similar to the first story, a separate plan is not given. Access to the upper hall is obtained by means of a passage along side the stairs, and separated from them by a railing. This hall opens by means of a glazed door to the balcony. The cost of this dwelling, built in a plain, substantial manner, of wood filled in with brick, would be about three thousand dollars, varying however with prices of materials in different localities.

FARM MANAGEMENT AND CAPITAL.

The great leading error of most of the young farmers of our country is in not "counting the cost." The first thing they do is to expend not only all their capital in buying as large a farm as possible, but most usually they run largely into debt. Their desire for large possessions leaves them nothing to stock and improve the farm, and hence for many years, while loaded with a discouraging debt, their farms remain poorly provided with animals, with good implements and with a good supply of manure. They are therefore compelled to perform all their operations to a great disadvantage; their small crops afford no net profits, and they become discouraged and lose the energy and enterprise essential to success. These causes are the most fruitful source of poor and slip-shod farming in America. It is not very difficult, in traversing the country, to point out among the various occupants of the land, from the appearance of the premises, such as are burthened with heavy debt, from those who have a good supply of spare capital.

It has been remarked that in England, where taxes are levied on everything that a man wears and everything that he eats, and where the cultivator must farm well or not at all, the amount of capital to begin with, must be about as great in *renting* a farm, as in *buying* one in the best farming districts of our own country. The result is, everything is done in the best manner; and if farmers are *compelled* to farm well there or else become bankrupt and starve, why may we not adopt from *choice* the same advantageous course in this country,—to lay up handsome profits against a rainy day,—and be enabled to enjoy the rare gratification of feeling able to give liberally to charitable or useful objects, without deranging one's financial concerns?

One great reason why young (and often old) farmers are so poorly supplied with surplus capital after buying land, is, that they have never estimated how much they will want. An estimate of this sort would prevent many heavy purchases of farms and the entire consumption of means,—it would induce smaller outlays in land, and larger expenditures in the means for making heavy net profits. We therefore purpose, by way of affording some assistance on this subject, to point out what a moderate farmer actually and indispensably requires besides a farm and *good buildings*.

The *average* of farms in this country, will not perhaps exceed one hundred *improved* acres. The following will be required for commencing operations to advantage.

LIVE STOCK.—This will vary much with the character and quality of the land, its connection with market, &c., but the following is a fair average, for fertile land, and the prices an average for different years, although lower than they have recently been :

3 horses, at $100	$300
1 yoke of oxen	100
8 mich cows, $25	200
10 steers, heifers and calves	100
20 pigs, $5	100
100 sheep, $2	200
Poultry, &c.,	10
	$1010

IMPLEMENTS.—To farm *economically*, these must be of the best sort, especially those that are daily used. A plow, for instance, that saves only *one-eighth* of a team's strength, will save an hour a day, or more than *twelve* days (worth $24,) in a hundred—an amount, annually, that would be well worth paying freely for in the best plow. A simple hand-hoe,—so well made that it shall enable the laborer to do one hour's more work daily, will save twelve days in a hundred,—enough to pay for many of the best made implements of the kind. These examples are sufficient to show the importance of securing the best.

2 plows fitted for work, and 1 small do	$25 00
1 cultivator	7 00
1 harrow	10 00
1 roller	10 00
1 seed planter	15 00
1 fanning mill, 1 straw cutter	40 00
1 root slicer	28 00
1 farm wagon, 1 ox-cart, one-horse cart, with hay racks, &c.	180 00
Harness for three horses	50 00
1 shovel, 1 spade, 2 manure forks, 3 hay-forks, 1 pointed shovel, 1 grain-shovel, 1 pick, 1 hammer, 1 wood saw, 1 turnip-hook, 2 ladders, 2 sheep-shears, 2 steelyards (large and small,) 1 half-bushel measure, each $1,	20 00
1 horse-rake	8 00
2 grain-cradles, 2 scythes	12 00
1 wheel-barrow	5 00
1 maul and wedges, 2 axes	6 50
1 hay-knife, 1 ox-chain	6 00
1 tape line, for measuring fields and crops	2 00
1 grindstone	3 00
1 crowbar	2 00
1 sled and fixtures	30 00
Hand-hoes, hand-rakes, baskets, stable lantern, currycomb and brush, grain-bags, &c., say	15 00
	$474.50

The addition of a subsoil plow, sowing machine, mower and reaper, thrashing machine, horse-power for sawing wood, cutting straw, &c., would more than double the amount, but young farmers may hire most of these during the earlier periods of their practice. A set of the simpler carpenter's tools, for repairing implements in rainy weather, would soon repay their cost.

Besides the preceding, the *seeds* for the various farm crops, would cost not less than $75; hired labor for one year, to do the work well, would probably be as much as $350; and food for maintaining all the domestic animals from the opening of spring until grass, and grain for horses till harvest, would not be less in value than $100; $525 in all.

For domestic animals	$1010 00
" implements	474 50
" seeds, food and labor	525 00
	$2009 50

That is, *two thousand dollars* are needed the first year, for stocking and conducting satisfactorily the operations of a good hundred acres of improved land; several items will doubtless be supplied or added to the list by the recollection of every farmer.

This sum will no doubt seem frightfully large to some who have never made a similar estimate; we would therefore request such to sit down and see how much they can reduce the amount, for vigorous and energetic farming. They will probably be surprised to find how few of the items they can spare without inconvenience or loss; and the question will arise, how can we command so large an amount? We answer, Buy smaller farms—expend less in land, and more in means to till it *well*. Much as we dislike running into debt, it is better to borrow money for the latter, than the far more common practice of borrowing to pay for land. For, by running in debt for land, followed by bad tillage, the young farmer will be long in extricating himself from a depressing load; while on the contrary, movable capital will enable him to perform every thing at the right moment of time, and in the very best manner. He will not be "too poor to be economical," but will often save much by a little timely outlay.

A single example will show the economy of a prompt use of means. Two farmers had each sown a crop of ruta bagas. The first, who was always enabled to take time by the fore-lock, hoed the young weeds when only an inch high, with very little labor, and the young plants grew vigorously. The other, being crowded in his work from deficient calculation, and consequently deficient help, was compelled to defer his hoeing ten days, when the weeds had grown six inches high, and had half smothered the crop. The labor was more than triple the former, and the crop greatly inferior. We could multiply instances of all kinds bearing in the same direction, and showing that the farmer who in his eagerness to possess many acres, weakens his means for present action, not only adopts the worst kind of economy, but compels himself to continue in this losing system for years to come.

Agricultural Experiments.—A great many valuable hints and suggestions for practice may be learned from agricultural papers. It is not uncommon to hear farmers remark that they have derived more pecuniary advantage from a single article, than the price of the paper for many years. But to prevent disappointment, farmers must always use their judgment; circumstances vary so greatly, that what is highly beneficial in one case, may be ruinous in another. Great mischief is done by looseness, carelessness, or partiality in reporting experiments; a single trial of a crop, sown by guess-work, cultivated at random, and measured by a hasty glance of the eye, is often considered decisive by the inaccurate farmer. He sees a little, presumes a great deal, and jumps to a conclusion, when perhaps if he had taken the twenty other operating causes into the account, there would have been no conclusion at all. Opinions are sometimes formed and facts afterwards sought to support them; the report of such facts is not worth the ink that records them. It is no wonder that some are disheartened by these, from all trials.

FARM IMPLEMENTS.

In the previous chapter, the importance of good farm implements has been pointed out, and a simple list of those in most common use, furnished the reader. A more particular notice, with figures, of those which modern improvement has pointed out as among the best, will doubtless be acceptable to young farmers.

PLOWS.

Nothing shows the improvement of modern agriculture more conspicuously, than the difference between the old and new plows. The "old plow" is still used in many countries, where farmers do not enjoy the benefit of agricultural periodicals. Fig. 1, represents the plow at present used in Morocco. It would hardly receive the premium of the State Agricultural Society, and has probably never been patented. It may however be made very cheaply, the point only being shod with iron. In the less civilized regions of Morocco, the plow consists only of a crooked limb of a tree, with a projecting branch sharpened to a point for scratching up the ground. The Moors do not take the Agricultural papers.

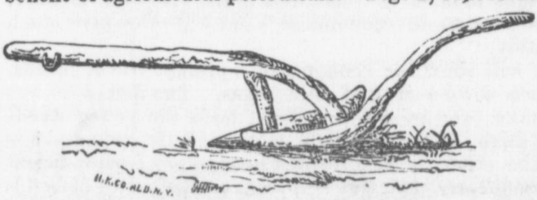


Fig. 1.—Moorish Plow

One of the best plows used in Baden, in Germany, is exhibited by Fig. 2. It is quite similar to the best plows of ancient Greece and Rome, (except some of them had a wheel under the beam,) and is not unlike the "bull plow" used fifty years ago in this country. Thro' the genius and untiring labors of Jethro Wood and of those who have succeeded him, the cast-plow has been introduced on every farm in the Union, and has been the means of effecting a pecuniary gain, in the aggregate, first and last, of several hundred million dollars.

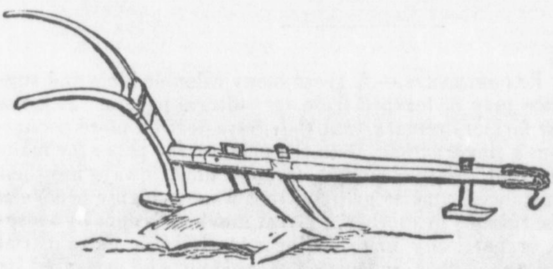


Fig. 2.—Baden Plow.

A few engravings, representing some of the best modern plows, will prove interesting to such of our young readers as are looking for the best forms of this indispensable implement. Fig. 3 exhibits Prouty &

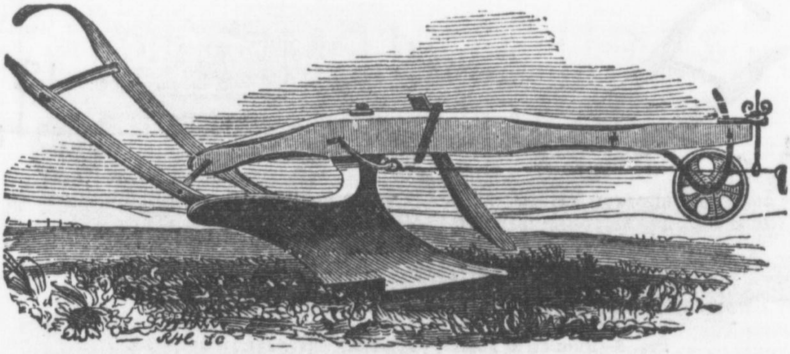


FIG. 3—PROUTY & MEARS' CENTER DRAFT, FOR SANDY SOILS.

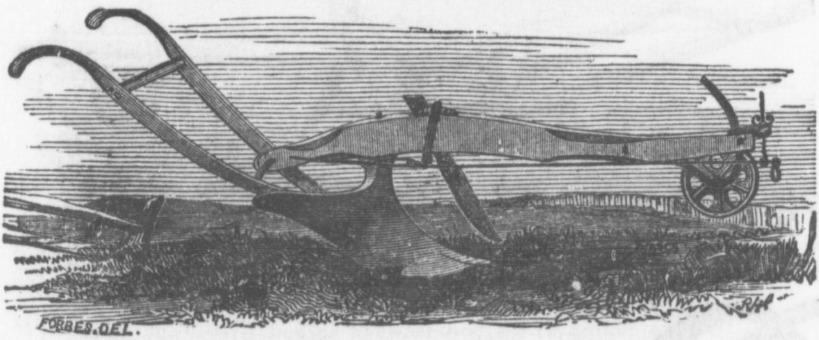


FIG. 4—PROUTY & MEARS' CENTER DRAFT FOR CLAY SOILS.

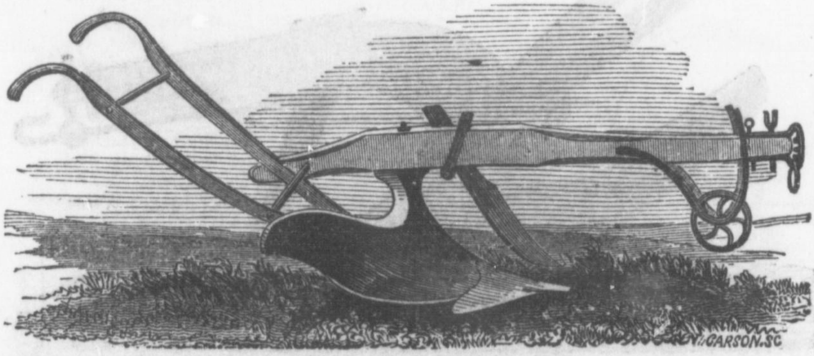


FIG. 5—MINOR & HORTON'S.

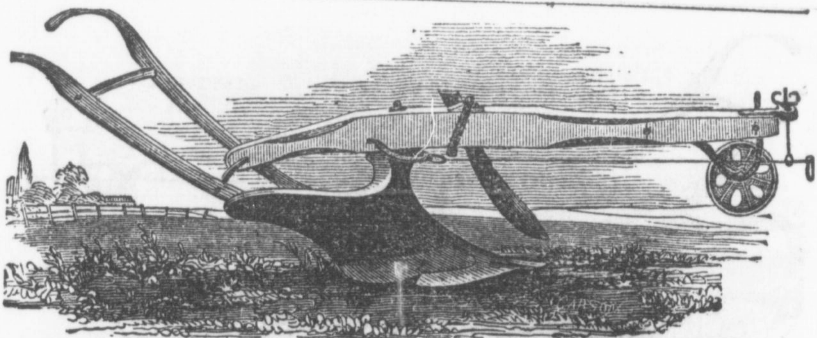


FIG. 6—PROUTY & MEARS'—FOR DEEP AND NARROW FURROWS.

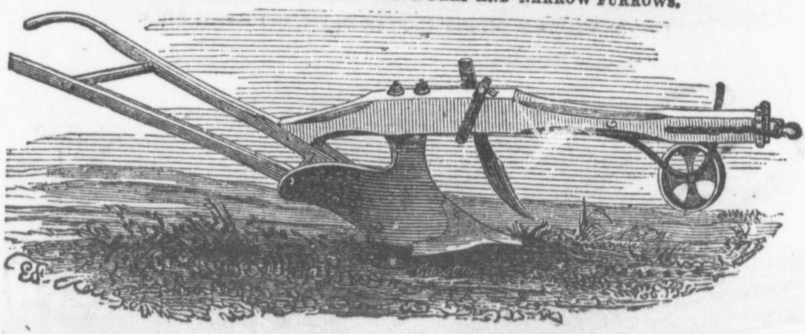


FIG. 7—CHASE'S AMSTERDAM

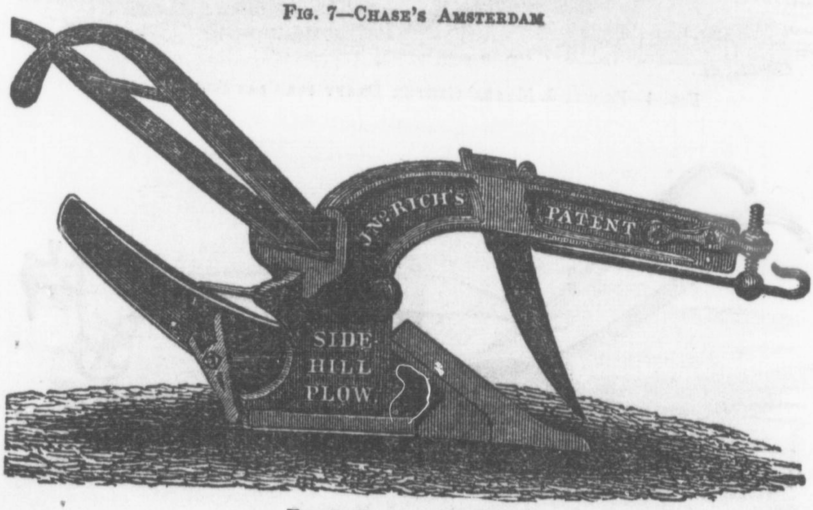


FIG. 8—RICH'S SIDE HILL.

Mears' Center-Draft plow, the form of which is intended for light or sandy soil; and Fig. 4, the same implement varied to adapt it to stiff or clayey soils, giving less surface of mouldboard and less friction for adhesive earth. Fig. 5, is Minor & Horton's Peekskill plow, intended for both fallows and stiff soils; and Fig. 6 is Prouty & Mears' plow, constructed with special reference to deep and narrow furrows, and intended for stiff soil. Chase's Amsterdam plow, shown by Fig. 7, exhibits a good form for a plow to be used in light soils.

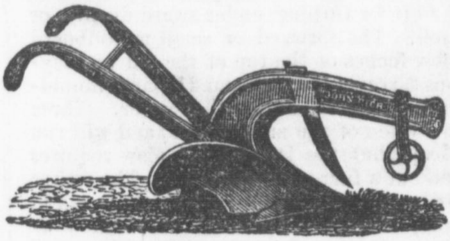


FIG. 9—RICH'S SIDE-HILL.

These different modifications of the cast-iron plow, do not vary essentially in the main points of construction, from a large number of excellent implements manufactured throughout different parts of the country.

An implement of simple con-

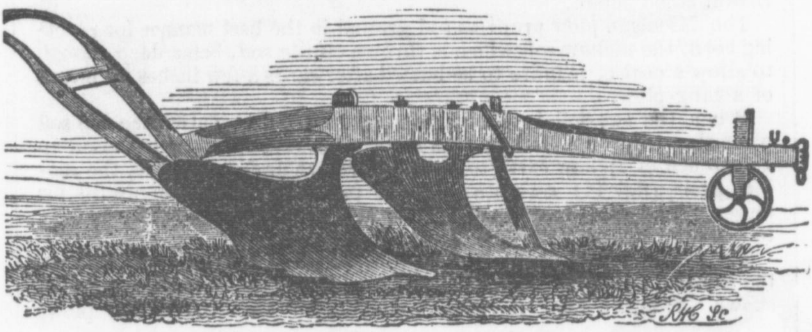


FIG. 10—MICHIGAN SOD AND SUB-SOIL.

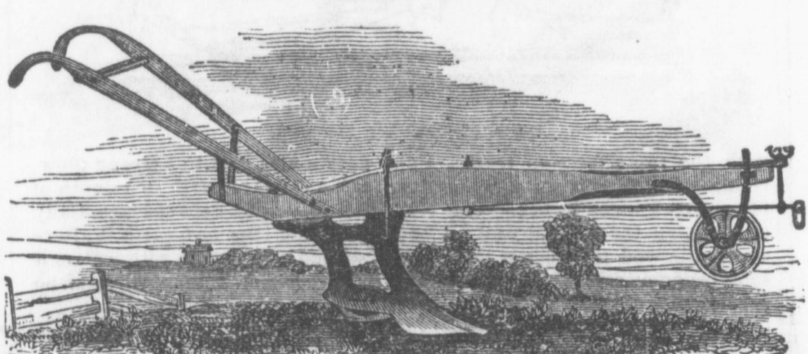


FIG. 11—SUB-SOIL PLOW.

struction, very durable when of good iron, and much valued in many places as a sward plow, is Rich's cast-iron beam plow, shown in Fig. 9. Rich's cast-beam side-hill plow, is exhibited by Fig. 8.

French and Smith's celebrated "Sod and Sub-soil" plow, more commonly known as the "*Double Michigan*," is shown by Fig. 10. This is a most valuable implement in all cases where deep plowing proves advantageous. Nothing is equal to it for turning under sward deeply, or any vegetable growth on the soil. The forward or small mouldboard skims the surface, taking off a few inches of the top of the sod and laying it in the bottom of the previous furrow; and the second or large mouldboard turns up what is left, and completely buries the former. Three strong horses will draw this plow when of the smaller size, and will run a furrow eight or nine inches deep; but the larger sized plow requires nearly double this force, and will cut a furrow a foot deep. The writer has used one which required three yoke of oxen to do it justice, and in an old pasture, beaten down hard, has turned up a furrow which measured eleven inches and a half as an average, from the unplowed surface down, and twenty inches from the top of the newly turned earth to the bottom of the furrow—thus loosening the soil up eight inches higher than it stood before.

The Michigan plow prepares sod ground in the best manner for planting corn, the mellow soil which is thrown on the sod, being deep enough to allow a coat of manure to be buried afterwards a few inches by means of a gang-plow.

When the sub-soil is of such a nature as not to enrich the top soil when thrown up and mixed with it, or when it is desirable to loosen up a deep bed of mellow earth to serve as a reservoir for moisture, the *sub-soil plow* (fig. 11) serves a valuable purpose. It is also useful for loosening the soil to allow the trench or Michigan plow to enter more fully to a greater depth.

The sub-soil plow merely loosens the earth but does not turn it up to the surface. It is made to follow in the furrow of a common plow, as shown in figure 12. It runs much deeper than the trench plow,

FIG. 12—SUB-SOIL PLOWING.

with the same force of team. Four horses attached to a strong plow, running in a furrow seven inches deep, will loosen the earth to a depth of fifteen to eighteen inches. The benefit of subsoiling depends essentially on keeping the ground well drained; for if the loosened earth is afterwards allowed to become thoroughly soaked or flooded with water, it soon becomes compacted together again, and the operation proves of no permanent advantage. This is one fruitful source of failure.

HARROWS AND CULTIVATORS.

The Geddes Harrow is one of the best in use. The teeth being situated considerably back of the point of draught, its motion is more even and steady, and consequently easier for the team. In consequence of its wedge-form, it passes obstructions more readily. The center or draught-rod forms a set of hinges, by which it becomes adapted to uneven ground, or by which it may be easily lifted to discharge weeds, roots or other obstructions. Or it may be doubled back and carried easily in a wagon. The accompanying figure (Fig. 1) renders its construction perfectly intelligible without further description. To prevent its rising in the middle as it has been found to do when the draught traces are as short as easy draught requires, the chain is attached to the bar on each side, as shown in fig. 2.

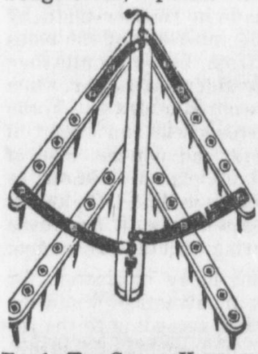


Fig. 1—The Geddes Harrow.

Fig. 2.

Hanford's Harrow, a modification of the Geddes Harrow, differs from the latter in the hinges operating crosswise instead of lengthwise or in the direction of the draught. The forward and back part are each made a distinct and solid piece, connected together by two clevises and a link. In crossing a ridge or depression, it adapts itself readily to the surface; or if an obstruction should raise the forward frame, the back one is not raised at the same moment as in the Geddes harrow. A convenient size, in constructing this harrow, is to use three by four scantling; to make the wings about five feet long, and the spread about six feet across behind. The brace of the forward frame has three teeth behind it on each side, and the back frame but two, as shown in the figure. A common clevis causes the forward harrow to rise from the ground; it should be therefore bent upwards about two inches, as the cut represents. Such a harrow as this will not easily become clogged or obstructed by stones; but on fine, clear earth, the teeth may be smaller and more numerous, without inconvenience.

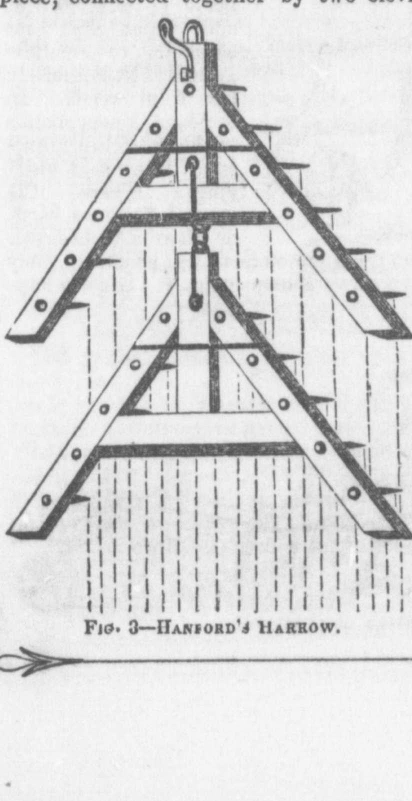


Fig. 3—Hanford's Harrow.

The Scotch or square harrow, (fig. 4) when made of light timber, and numerously furnished with small teeth, is a capital implement on land free from stones, for fine pulverization.

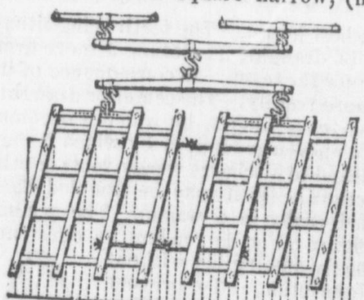


Fig. 4—The Scotch Harrow.

An improvement, at increased cost, is made in Harrow-teeth by passing the upper end of the teeth through from below, until they reach a shoulder and washer, when they are secured with a nut on the top. Harrows will run easier, if the corners, and not flat sides of the teeth, are placed foremost, so as to cut like a wedge. We do not see why cast-iron teeth for coarse harrows might not be adopted, made flat, and cutting with the sharp edge.

Cultivators.—The form of the common one-horse cultivator, for working all hoed crops, is well understood; but an advantage would result in a greater variation in the form of the teeth, according to the requirements of the soil, than is commonly adopted. Fig. 5 shows the usual form of teeth made of steel plates, and which are best adapted to mellow ground, kept nearly free from weeds. In foul land, longer shanks to the teeth are requisite, to prevent clogging. Where the ground becomes hard, or where it is desirable to loosen it to a greater depth than the common teeth will penetrate, they should have the form of the sharp claws shown in fig. 6. It often hap-

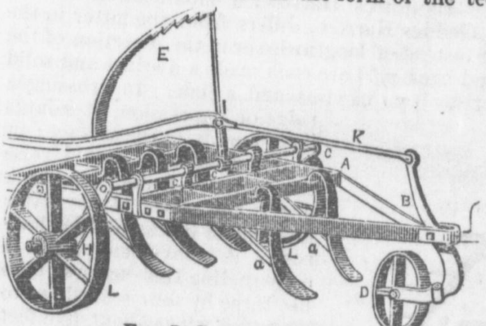


Fig. 5—Scotch Scarifier.

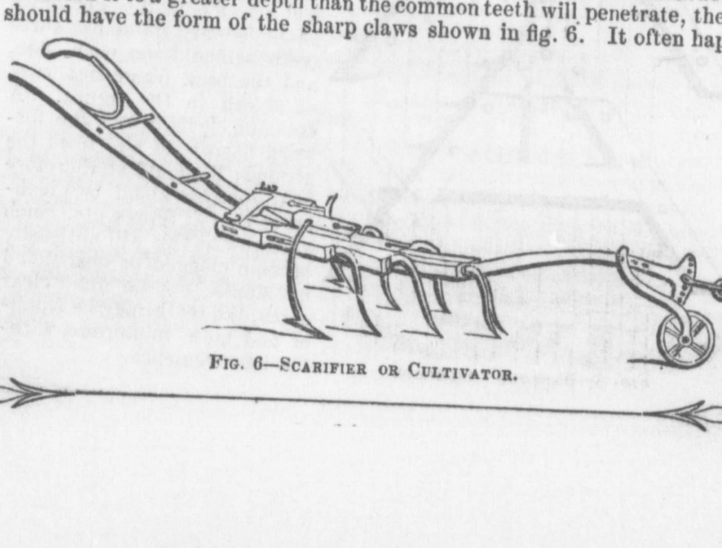


Fig. 6—Scarifier or Cultivator.

pens in ordinary practice that the one-horse cultivator works to best advantage when these two forms are combined in the same implement; the claws being placed forward, where they will turn up the crust in advance of the common flat teeth, and where they will be near the center of the space between the rows, and remote from the roots which they might otherwise injure.

The two-horse cultivator has been found valuable for preparing inverted sod land for wheat, by pulverizing the surface without tearing up the covered turf, thus diminishing the labor of preparing fallows, and leaving the decaying green crop untouched. Fig. 5 represents an English implement, precisely similar in operation to the American two-horse cultivators, but made wholly of iron, and raised or lowered as required, by simply raising or lowering the handle which projects behind. Lowering the handle throws the forward and two back wheels more immediately under, and elevates the teeth; while an opposite movement allows them to sink into the soil.

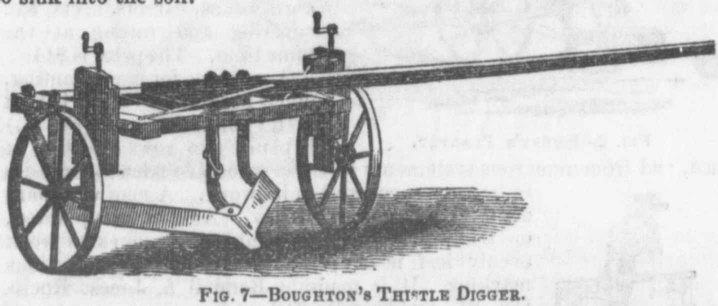


Fig. 7—Boughton's Thistle Digger.

In land infested by Canada thistles, or by other weeds with deep roots, Boughton's "Thistle Digger," fig. 7, has been found very effective. It has a cast-iron cutting blade, (steel would be better,) made in the form of a V, the point running forwards, and by means of the regulating screws, lowered so as to shave off all roots of weeds and grass a few inches beneath the surface.

PLANTERS AND SOWERS.

The modern practice of planting seeds in hills or drills by means of machines contrived for this purpose, secures two important advantages. They effect a great saving of labor, whether used by hand or worked by horse labor; and by the uniform and accurate distribution of seed, give more uniform and consequently larger crops. The evenness or straightness of the rows

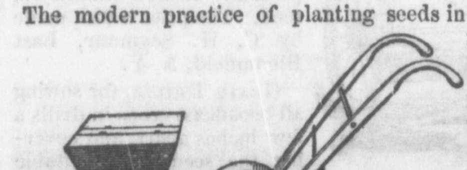


Fig. 1—Billings' Corn Planter.

of hoed crops, planted by good machines, admits the closer working of the plow and cultivator, and thus saves a considerable amount of hoeing by hand.

BILLINGS' CORN PLANTER.—(Fig. 1.) This is one of the best planters in use. It is drawn by a horse, and will plant 7 or 8 acres in a day. It drops guano, bone-dust or any other concentrated fertilizer, with the seed, covering and rolling at one operation as fast as the horse will walk. It will drop in hills or drills, and answers well for sowing corn fodder. It does its work well on inverted sod. It is made by Billings & Bryant, of South Deerfield, Mass., at $15.

Another excellent machine proved by several years' trial, is EMERY'S PLANTER, (Fig. 2.) It measures the seed, deposites it in hills or drills at pleasure, dropping nearly all kinds of seeds, corn, beans, carrots, beets, &c. covering and rolling at the same time. The price is $14.

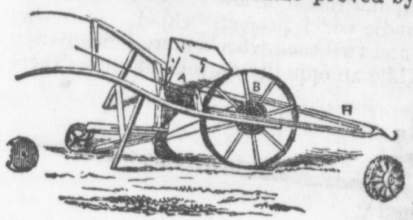


FIG. 2—EMERY'S PLANTER.

A machine for hand planting, much used at the West, is that of RANDALL & JONES (Fig. 3.) It plants two rows (in hills) at once, and from numerous statements of those who have tried it, appears to be very successful in its work. A man will plant eight or ten acres in a day. An acre was planted, on trial, in twenty-five minutes. It does its work evenly and neatly, the ground needing previous marking. It is made by Randall & Jones, Rockton, Ill., and sold for $10.

FIG. 3—RANDALL & JONES' CORN PLANTER.

SEYMOUR'S BROADCAST SOWING MACHINE (Fig. 4) is the best which has been extensively tried, for sowing easily and evenly any kind of grain or grass-seed, plaster, ashes, lime, guano, or other pulverized fertilizer. It is drawn by one horse, and sows ten feet wide, and the quantity may be made to vary from half a bushel of plaster to forty bushels of lime per acre; or it will deposit any desired quantity of seed. The price is $55, made by C. H. Seymour, East Bloomfield, N. Y.

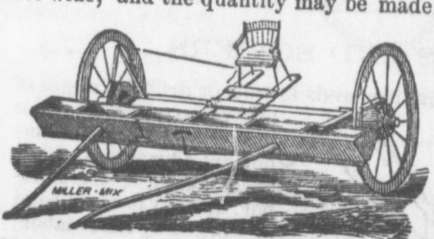


FIG. 4—SEYMOUR'S BROADCAST SOWING MACHINE.

GRAIN DRILLS, for sowing all broadcast crops in drills a few inches apart, and covering the seed at a suitable depth, have effected a marked increase in grain crops, by the even distribution of the seed, by placing it at a uniform depth, and by securing wheat crops in a great measure from winter-killing. The two most widely approved are *Bickford & Huffman's*, (fig. 5) manufactured at Macedon, N. Y., and *Seymour's*, (fig. 6) made at East Bloomfield, N. Y. Horse-hoes have been added

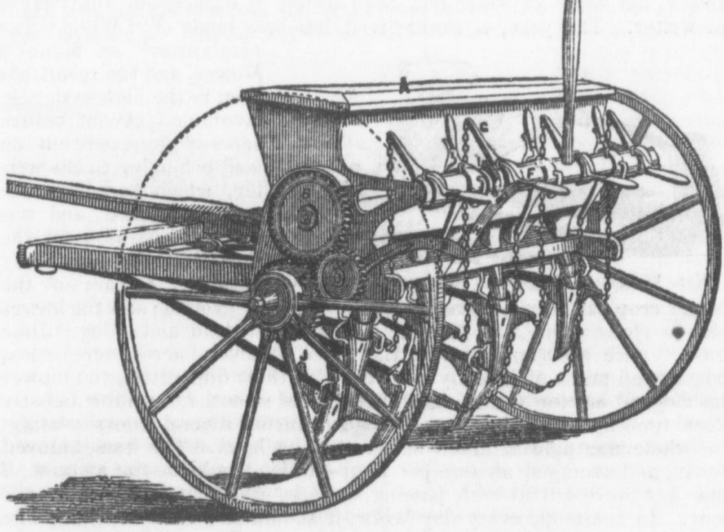


FIG. 5—BICKFORD & HUFFMAN'S SEED DRILL.

to the latter, for dressing out several rows of the drilled crop at once, like Garrett's celebrated English Horse-hoe. These two drills vary in price from about $70 to $100, and both have received the highest premiums from some of the State Agricultural Societies for their excellence and value. They are generally adopted and used by all the best farmers in most of the finest grain-growing districts of the country.

FIG. 6—SEYMOUR'S GRAIN DRILL.

MOWING MACHINES.

It is one object of the Register, to give the latest and most reliable information on improved labor-saving machines. Nothing has tended more to relieve the farmer of a heavy burden at a time when labor is scarce and only secured at high prices, than mowing and reaping machines. Many large land-owners would now find it nearly impossible to secure their hay and harvests, if they were compelled to return to hand labor—to mowing, reaping and cradling.

In the Register for 1856, a figure and description were given of Allen's Mower, the value of which had been tested by observation and trial of the writer. This year, a similar trial has been made of "WOOD'S IMPROVEMENT" on Manny's Mower, and the result has been in the highest degree favorable. About twelve acres of grass were cut, on land belonging to the writer, which had been recently occupied, and was in a bad condition for the successful working of any mower. A part of the former crop had been suffered to decay upon the ground; and the knives had to shear their way through a mixture of dead and living "June grass," mice nests and clover, the whole of several acres more or less lodged, and much of it badly so. With all these difficulties, the mower was clogged but few times. On another and smoother meadow, mostly erect timothy grass, it was not clogged during several hours' cutting. The whole was mowed much better than by hand. The horses moved slowly, and averaged an acre per hour—which would be the amount, if four feet were cut at each passing, and the speed were two miles per hour. In common, every-day work, it should not exceed this. The total expense paid for the mowing was seventy-five cents per acre; raking with a revolver, less than twenty-five cents; product about two tons per acre; cost of making hay, from standing grass, to winrows, *fifty cents per ton*.

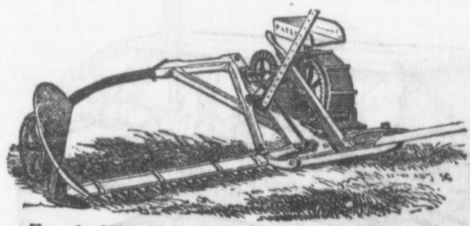


FIG. 1—WOOD'S IMPROVED MOWING MACHINE.

KETCHUM'S MOWING MACHINE, originally the best, but now equalled by several competitors, has with others been much improved of late years, and is worthy of high recommendation. Those who purchase mowing and reaping machines, should remember that such should be selected as not only evince the best contrivance or invention, but which are also *manufactured* in the best manner and of the best materials. We have known some celebrated machines of different patents, to fail because they were not well made. An important advantage of mowing machines, is that they leave the hay already spread for drying, and obviate the use of the hay-spreading machine.

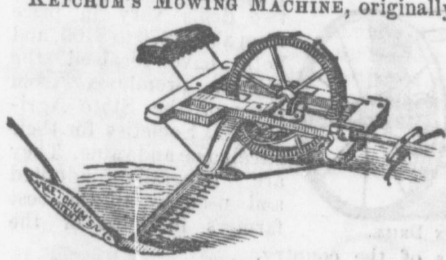
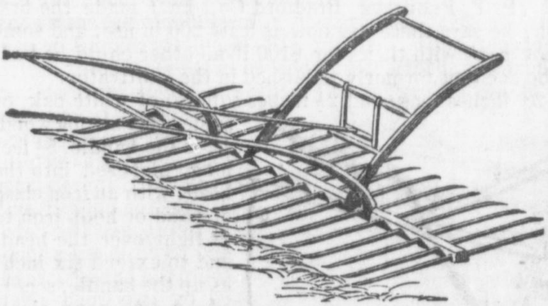


FIG. 2—KETCHUM'S MOWING MACHINE.

The mowing machine, if owned by the farmer who uses it, will enable him to cut his hay at less than one-third the cost required for hand mowing; and if all the farms in the Union were supplied, they would save annually over $6,000,000, in cutting the sixteen million tons grown in the States.

THE REVOLVING HAY-RAKE.

We like the old revolver the best of the several hay-rakes for all purposes combined. The spring-tooth rake is excellent for grain stubble, but too weak for heavy meadow. Each of the other sorts have some objections. The revolver supplies all purposes best, so far as the writer's observation goes.

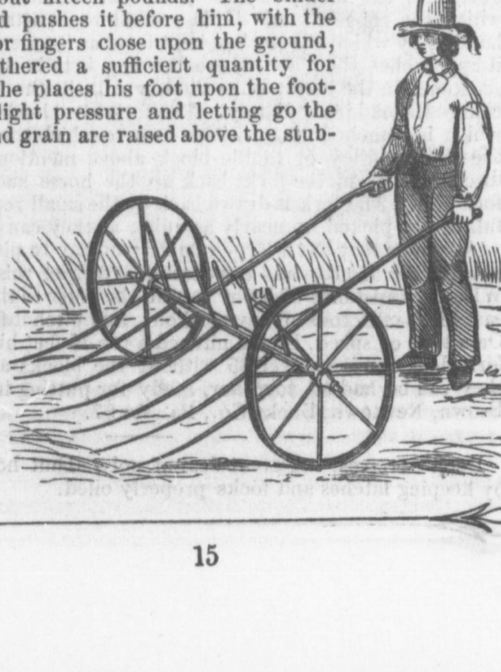


REVOLVING HORSE-RAKE.

A well made rake (costing about 7 or 8 dollars) will sweep a space averaging ten feet wide; and as the horse only stops at the ends of the field, a gait of two and a half miles an hour will rake over two acres an hour, allowing one-fourth of the time for turning at the ends, stopping for obstructions, &c. This has been often and easily accomplished. Where meadows yield one and a half to two tons per acre, the cost of raking together into winrows, need not be ten cents per ton.

GRAIN BINDER'S WHEEL-RAKE.

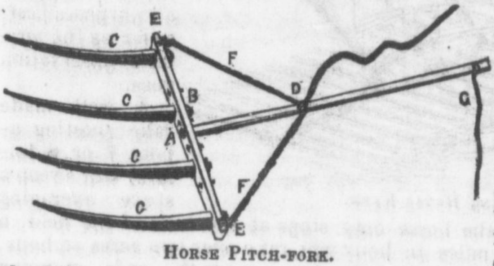
This is a labor-saving implement, used extensively in several States. It is light, weighing about fifteen pounds. The binder takes the handles and pushes it before him, with the points of the teeth or fingers close upon the ground, and when he has gathered a sufficient quantity for binding into a sheaf, he places his foot upon the foot-piece, (*a*) and by a slight pressure and letting go the handles, the fingers and grain are raised above the stubble, when it is readily bound, the binder being required to stoop much less than in the old way of reaching to the ground. When the sheaf is bound and thrown aside, the foot is removed from the foot-piece, the teeth drop down, and the handles rise ready for the next operation.



HORSE PITCH-FORK.

This simple and efficient implement is now extensively used in many of the States. It was described in the Cultivator in 1848, from which a late correspondent (P. P. PECKHAM, Bradford Co., Pa.) made the first used in that region; he says there are now at least 200 in use, and some say they would not part with theirs for $100 if no other could be had. The following is the account formerly published in the Cultivator.

A, is the head, 28 inches long, and $2\frac{1}{2}$ inches square, of white oak, or some other strong wood. B, is the handle, $5\frac{1}{2}$ feet long, mortised into the head, with an iron clasp of band or hoop iron to fit tight over the head, and to extend six inches up the handle, secured by two good rivets through the handle, to increase its strength—*c, c, c, c*, the prongs of



HORSE PITCH-FORK.

the fork, made of good steel, and of the right temper, $\frac{1}{2}$ an inch wide at the head, and drawn out tapering to the point. They are to be 20 inches long, 8 inches apart in the head, with a burr to screw them up tight, and a rivet on each side of the middle prongs, to keep the head from splitting. E, E, staples, riveted over the end prongs, to which the rope, F, F, is to be attached—the rope to be drawn together 3 feet from the head in the form of an A, and then the single rope to extend from that over a tackle-block, which is hung to a rafter at the peak of the roof of the barn, and two feet over the side of the mow, and thence to the bottom of the door-post, where another tackle-block is attached, under which the rope passes. G, is a small rope, attached to the end of the handle, by which the fork is kept level as it ascends over the mow. As it approaches the place where the hay is to be left, the rope should be slackened in the hand, when the hay will tilt the fork so that it will discharge its load immediately. The fork when loaded, is raised by a horse, which is attached to a swingle-tree to which the rope is fastened, near the lower pulley or tackle-block above mentioned. When the hay is discharged from the fork, back up the horse and be ready for another fork-full. The fork is drawn back by the small rope. In this way forks-full can be picked up nearly as quick as they can be by hand.

A farmer that has a large quantity of hay to pitch, will more than get pay for the trouble and expense of a fork of this kind in a single year. With the assistance of a boy to lead the horse to the fork, a man can with ease pitch off 6 tons of hay per hour, and pitch it from 15 to 20 feet high. On a trial of speed, I have pitched a ton 15 feet high in 4 minutes. The fork does not cost over $5 without the blocks and ropes, and I think they can be had all together, ready for putting in operation, of Garret Brown, Newtown, Bucks Co., Pa., for $7.

DOOR LATCHES.—A great deal of noise about house may be prevented by keeping latches and locks properly oiled.

WASHING MACHINES.

The best washing machine we know of, is one the writer has used for ten years and is exhibited in the accompanying figure. It is worked by an alternating motion of the handle or lever A, which turns on the central hinge or joint B, pressing the perforated board which swings like a pendulum within the trough by means of the connecting bar C, against the grooved side of the trough beyond. Fig. 1, is the whole machine; Fig. 2, the handle and bar C, detached, showing the notched end of the bar, for regulating the space for the clothes. The handle and bar are cast iron. The perforated board and its suspending frame, are easily lifted out whenever necessary.

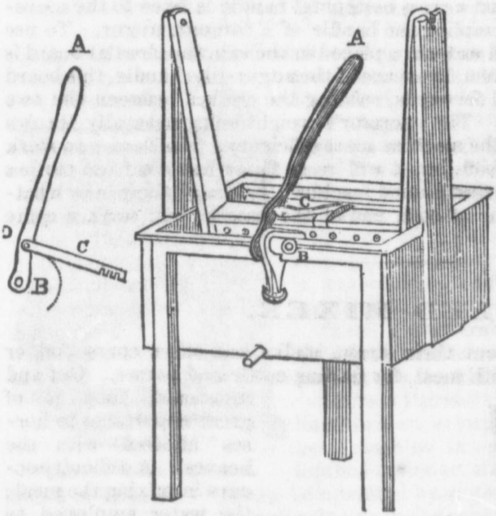


Fig. 2. Fig. 1.

The box or trough must be made very strong, for the pressure exerted against the side by means of the lever, is enormous. At the first motion of the handle, the pressure is only five or six times as great as the strength of the person working it, but as it approaches a horizontal position, it becomes greater and greater, precisely like that of the *lever printing press*. A little care is required in regulating the quantity of clothes, so as to admit the lever being brought down to a level position as the finishing stroke is given.

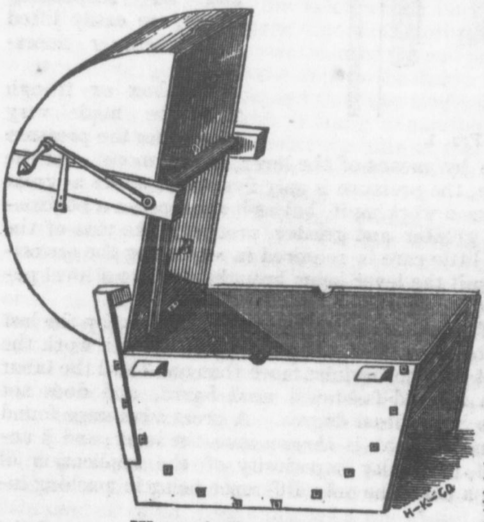
So great is the force of pressure exerted upon the clothes, by the last or finishing motion of the lever, that a boy ten years old can work the machine with ease, and it does not require more than one-third the labor needed in washing with the old-fashioned *wash-board*, and does not wear or chafe the clothes in the least degree. A great advantage found in working it, is that one's weight is *thrown upon* the lever, and it accordingly possesses that particular superiority of the application of strength found in rowing a boat, the only difference being in pushing instead of pulling.

Machines on this principle are made and sold in various parts of the country. Some are made too complex, being encumbered by a wheel and needless appendages. The simpler the better. The writer used one about ten years, without fifty cents of repairs. The cost need not exceed five or six dollars.

A simpler, and an excellent washing machine is made by fastening a common wash-tub to a stand made of a common plank-bottom chair, with the back off; fastening radiating ribs to the bottom of the tub (that is, ribs pointing in every direction outwards from the center); and then making a circular board just to fit loosely within the wash-tub, also with ribs on the lower side radiating from the center. The tub has a perpendicular axle in the middle of the bottom, on which the circular board is placed by means of a hole in its center, and a cross horizontal handle is fixed to the moveable circular board, resembling the handle of a common augur. To use the machine, clothes and water are placed in the tub, the circular board is placed upon them, and then, by means of the augur-like handle, this board is turned backwards and forwards, rubbing the clothes between the two ribbed or grooved faces. The operator's weight being naturally thrown upon the handles, gives the machine more efficiency. It is harder to work than the one last described, but it will work faster and wear out clothes rather more rapidly, the first named machine "*rubbing*" them none whatever. Two persons, one at each end of the handle, will work it quite easily.

FEED MIXER.

Economical farmers cut their straw, stalks and other coarse fodder and mix it moistened with meal, for feeding cattle and horses. Cut and moistened food is of great importance to horses affected with the heaves. A difficulty occurs in mixing the meal; the water employed to make it adhere, settles to the bottom, and feeding-troughs often become thus gradually filled with ice in winter. To prevent this difficulty, H. V. Welton has constructed and described in the *Country Gentleman*, a simple and efficient mixer by which several bushels of cut fodder may be coated with moistened meal in half a minute, and leave no water at the bottom. It operates something like a cylinder churn; the feed is placed in a semi-circular trough, and mixed by revolving arms turned with a long crank—a short one will not have power enough. The trough is made of sheet-iron, the edges of which are fitted into semi-circular grooves made in the side-boards, which are kept to their places by cross-rods, the heads of which are seen in the cut. The arms are placed near the ends and at



Welton's Feed-Mixer.

the middle of the axle, and only on one side, so that they may be turned up and not prevent the lid shutting down. A sheet-iron trough is found to be more easily cleared of ice—it should be painted—and a wooden shovel used, so as not to scrape it.

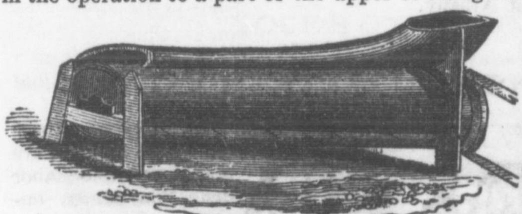
CORN SHELLERS.

The "CLINTON CORN-SHELLER" has been in use many years. With two men, two hundred bushels of ears may be shelled in a day, or with a double hopper, so as to shell two ears at a time, double that amount may be done by three men—quite an improvement over the old mode, yet in use in many places, of thumping out the cobs by the tedious process of hand flails. The price of this sheller is from ten to thirteen dollars. How much will be saved by it, every farmer can easily estimate after he has tried it.

CLINTON CORN-SHELLER.

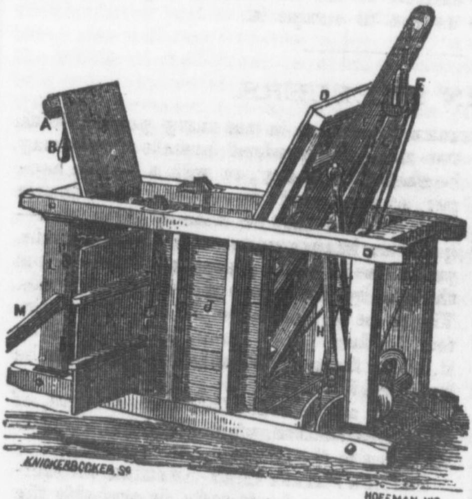
There are several other corn-shellers, of good construction, which possess similar advantages to the above.

SMITH'S PATENT CORN-SHELLER, for shelling corn on a large scale, is probably the best machine in use. It is a horizontal toothed cylinder, six feet long, and fourteen inches in diameter. It can be operated by water, steam, or horse-power, and hence would be very valuable in the western states, where Indian corn is grown in very great quantities. "The ears of corn are confined in the operation to a part of the upper or rising side of this cylinder, by means of a cast-iron concave or case extending the whole length of the machine; and the corn being shovelled in at one end is driven through, and the cobs discharged at the other, while the corn falls below, being admitted by the small space on either side of the cylinder. The operation is governed by elevating or depressing the discharging end, which causes the machine to discharge the cobs fast or slow, and of course operating more or less upon them, thus securing to the operator the means of finishing his work. It is capable of shelling two hundred bushels of ears per hour with a two-horse power. Price $45 and $50."


SMITH'S PATENT CORN-SHELLER.

EVERYTHING IN ITS PLACE.—The man who loses half an hour daily going for or hunting displaced tools, loses 150 hours per year, or about half a month working time.

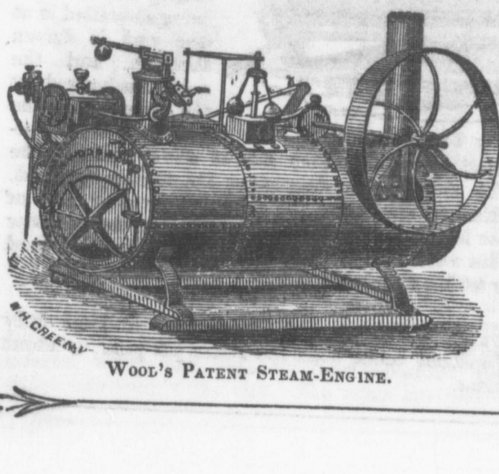
DEDERICK'S HAY-PRESS.



DEDERICK'S HAY-PRESS.

Since the increased facilities, of late years, for conveyance of farm products, the close packing of hay for market, has become a greater object. One of the best presses, perhaps the most so, for this purpose, is DEDERICK'S, shown in the accompanying cut. It is worked by single-horse power. The hay is trodden in through the doors at the top (represented open in the cut) when they are buttoned down by cross-bars, the side-door secured, and an enormous force exerted upon the enclosed hay by a horse working on the knee or toggle-joints. Two hundred and fifty pounds of hay are reduced to a space of about half a cubic yard. To press each bale, the horse goes around the capstan eight times; and, without stopping, twice more to withdraw the follower for another. Two men and a horse will bale six to eight tons of hay in a day. The weight of the bale varies from 250 to 500 lbs. according to the size of the machine—the price also varying from $130 to $175. It is made by Wm. Deering & Co. of Albany.

WOOD'S PORTABLE STEAM-ENGINE.



WOOL'S PATENT STEAM-ENGINE.

In England where iron-work and coal are cheap, and horse-labor dear, the steam engine has long since become an essential machine on nearly every large farm. Its increased perfection and economy of fuel, are facilitating its gradual introduction among the larger farmers of this country.

A. N. WOOD & Co.
of Eaton, Madison Co.

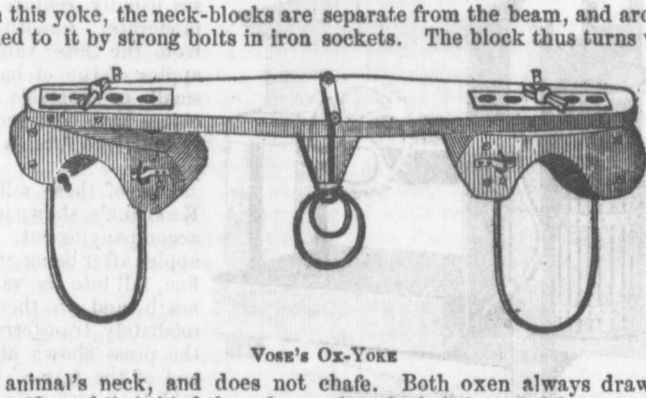
N. Y., have been remarkably successful in their manufacture of small and portable engines, suited to farm purposes. A Kentucky correspondent of the *Country Gentleman*, (J. A. HUMPHREYS,) who has one of Wood's eight-horse powers, has found it of great value, consuming four barrels of water and only a fourth of a cord of wood in a day. One person runs the engine, keeping up the fire, oiling the parts, and doing all else necessary, with great ease. It never gets out of order, and "works with the regularity and precision of a patent-lever watch." One-third of its power will cut up a four-horse load of straw in 22 minutes—it crushes and grinds for cattle food, thirty bushels of corn in the ear, per hour. It thrashes grain with great success. It is also to be used on a portable saw-mill.

An engine of 2½ horse power weighs 1500 lbs. and costs $225; a 4 horse power weighs 2000 lbs., costing $340; and an 8 horse engine weighs 4500 lbs. and costs $680. These engines are easily drawn (on trucks fitted to them) from one place to another, but are always stationary when in use. It will probably be a long time before any locomotive steam-power can be used for plowing, on account of the power lost in moving so heavy a body over a soft surface; and plowing with a stationary machine would be difficult from the great weight required for its firm and steady action. Some new mode of pulverizing the earth may be however devised, which shall be well adapted to the application of steam-power.

One great advantage of steam for farm purposes, is that no food is consumed when it is not working. Limited farmers will usually have enough spare horse-power at certain seasons to do their stationary work; but those who occupy hundreds of acres will doubtless find a great advantage in being able at any time to turn on an eight or ten horse force, for threshing, grinding, cutting straw, sawing wood, &c. &c.

VOSE'S OX YOKE.

In this yoke, the neck-blocks are separate from the beam, and are attached to it by strong bolts in iron sockets. The block thus turns with

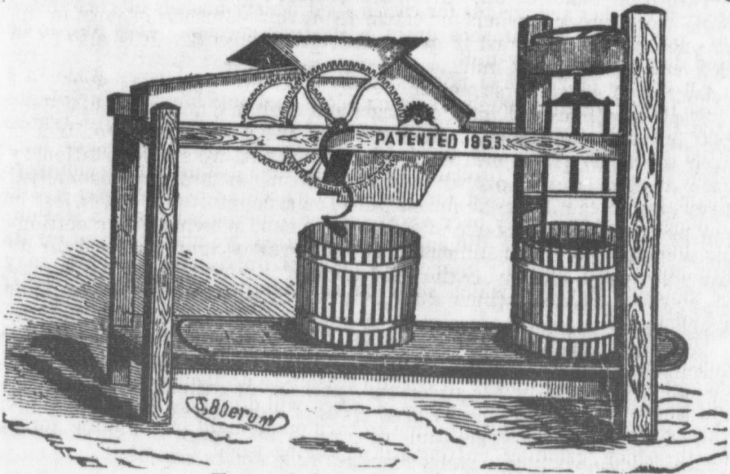


VOSE'S OX-YOKE

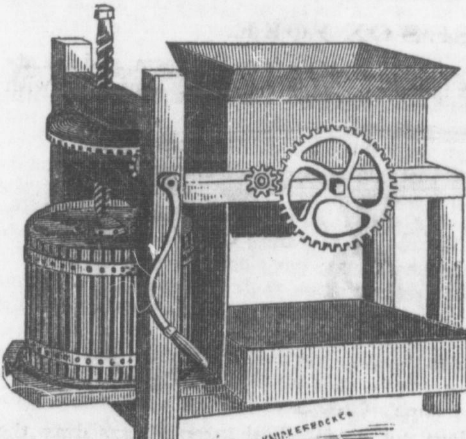
the animal's neck, and does not chafe. Both oxen always draw the same, if one falls behind the other, unless the bolt is varied from the center purposely in different holes, to favor a weak animal. The length of the yoke may be also thus varied, for different purposes. The bows are said to last much longer by the diminished side stress upon them. It is manufactured by Wm. Deering & Co., Albany, for $6.

CIDER MILLS FOR VINEGAR FACTORIES.

The manufacture of cider for conversion to vinegar and for culinary purposes, (for we cannot recommend it fermented to an intoxicating



KRAUSER'S CIDER-MILL AND PRESS.



EMERY'S CIDER-MILL AND PRESS.

drink) is a desirable object, and as these purposes usually require but moderate quantities—from the less valuable apples of the orchard—small or portable machines have been recently contrived for this purpose.

One of these mills is KRAUSER'S, shown in the accompanying cut. The apples after being grated fine, fall into the vat beneath, and are then immediately transferred to the press shown at the end of the frame. It is said that two men with this machine will make 8 or 10 barrels of cider in a day. It is much used and approved in eastern Pennsylvania, and is sold by R. H. Pease of Albany, for $40.

Hickok's, also a Pennsylvania mill, is a strong and compact machine, and said to be one of the best in use.

Emery's mill is a remarkably well made, neat and efficient one, and is especially valuable for the power of its press. It will grate with rapidity, and fine or coarse as desired. It may be worked by one or two men. Its weight is about three hundred pounds, and it is made for $45.

The great value of apples for feeding stock through winter, besides those intended for market as well as for baking, stewing, pies, &c., have very properly superseded the supposed necessity of converting them into hurtful drinks; and hand-mills, such as those now described, are sufficient for all ordinary purposes.

The improvement of farm machines and tools within the last fifty years has probably enabled the farmer to effect twice as much work with the same force of horses and men. Plows turn up the soil deeper, more evenly and perfectly, and with greater ease of draught; hoes and spades have become lighter and more efficient; grain, instead of being beaten out by the slow and laborious work of the flail, is now showered in torrents from the threshing machine; horse-rakes accomplish singly the work of many men using the old hand-rake; twelve to twenty acres of ripe grain are neatly cut in one day with a two-horse reaper; wheat drills, avoiding the tiresome drudgery of sowing by hand, are materially increasing the amount of the wheat crop; while a few farmers are making a large yearly saving by the application of horse-power to sawing wood, churning, driving washing-machines, and even to ditching. A celebrated English farmer has lately accomplished even more; for, by means of a steam-engine of six-horse power, he drives a pair of mill-stones for grinding feed, thrashes and cleans grain, elevates and bags it, pumps water for cattle, cuts straw, turns the grindstone, and drives liquid manure through pipes for irrigating his fields; and the waste steam cooks the food for his cattle and swine—all this work being performed in a first-rate manner.

Now these improvements were mainly effected through the knowledge of mechanical principles, and many of them would doubtless have been sooner achieved and better perfected if these principles had been well understood by farmers; for, constantly using the machines themselves, they could have perceived just what defects existed, and, by understanding the reasons of those defects, have been able to suggest the remedies in a better manner than the mere manufacturer. Moreover, as the introduction of what is new and valuable depends greatly upon the call for them, farmers would have been prepared to decide with more confidence and certainty upon their real merits, and thus to increase and cheapen the supply of the best, and to reject the worthless.

One great reason that farm implements are still so imperfect, is, that the farmers themselves do not fully understand what is needed, and how much may be yet accomplished. They have not enough knowledge of the principles of mechanics to qualify them for judging of the merits of new machines; and, being afraid of imposition, often reject what is really valuable, or else, being pleased with a fine appearance, are easily deceived with empty pretensions.

FRUIT CULTURE.

LAYING OUT AND PLANTING A FRUIT GARDEN.

THE frequent failure in attempts to raise good fruit, is mainly owing to a want of systematic and labor-saving culture. The owner of a piece of ground procures a few trees, and sticks them into the earth wherever he can find a vacant space, and without any previous preparation of the soil. The work is generally performed in quite a superficial manner. He is unwilling to incur the expense of digging very large holes and of filling them with enriching composted materials. The trees are mostly placed where they cannot be efficiently and economically cultivated, and, as an inevitable result, grass and weeds choke them, so that if they survive removal, they make but little growth for years, and when they bear, the fruit is small, imperfect, and deficient in flavor. The owner concludes that the flattering stories he has heard and read about delicious fruit, and the ease and rapidity with which it may be brought forward on young trees, are all chimera, and only invented to effect the sale of the trees by the nurseryman.

This treatment, and this result, in some modification or other, are far more frequent than the more favorable exceptions. No wonder, that in spite of the myriads of trees that are sold from the nurseries, there is still but little good fruit, and so few who are successful cultivators.

We can hardly expect our landowners generally to resort to the toil and cost of keeping all their trees in perfect order, by means of spading, hoeing, trenching, and other *hand* labor. And even when performed, it often but partially accomplishes its object, for small spaded circles, six or eight feet in diameter, do not extend their benefits sufficiently to the roots of trees which often spread over an area ten times the size—the roots being usually about as long as the stem and branches, and extending in every direction—so that a tree sixteen feet high probably throws the network of its roots over a circle two rods in diameter.

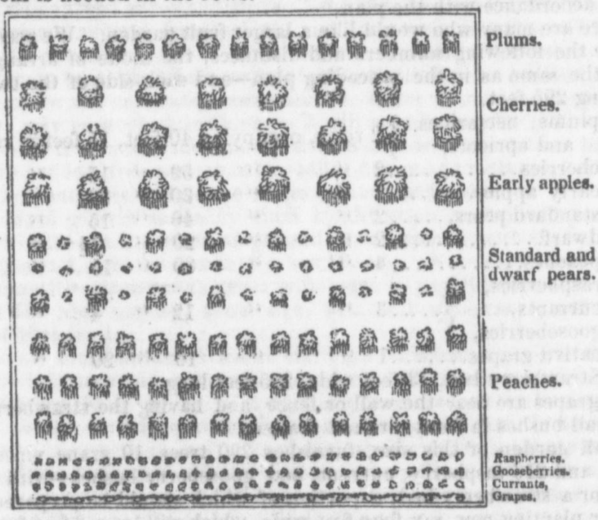
The only true way, therefore, for all who would have the very best of fruit, and obtain it economically, is to devote a lot of ground exclusively to fruit trees, and do all the work of preparing the ground and of its subsequent tillage, by horse labor.

In selecting and setting apart such a lot, the first question that arises is, "how much ground need I devote to this purpose?"

To enable every one to answer this question understandingly, we furnish the accompanying plan of an *acre-fruit-garden*, showing the number and disposition of the trees of each kind. It is represented as a *square*, but may be varied in form to an oblong shape, only planting about the same number of trees in fewer or more rows, as the case may be. It is so arranged that although the trees are of different sizes and at different distances, the rows run both ways, and admit readily of horse-cultivation. The plums are placed in a row at one side, in order that pigs and poultry may be confined exclusively among them during the season of the curculio, which proves one of the most efficient means for its destruction; and in connection with knocking on sheets, will afford good crops under any circumstances, if fully and efficiently applied. A movable or hurdle fence, separating the plums from the rest of the trees, renders the remedy many times more efficient than if these animals were allowed the whole range of the fruit garden. In some places, where the curculio is particularly destructive, cherries and early apples are also attacked; in which case, as these fruits are next to the plum row, all may be included in the pig-yard if desired.

Autumn and winter apples are not required in an enclosure of this kind, and the early sorts are placed here only to protect them from being stolen, besides the reason last named.

Pears may be planted with standards and dwarfs together in the same row, the dwarfs bearing and flourishing while the others are coming forward; or they may be placed in separate rows. The peaches, if in rows twenty feet apart, and twelve and a half feet in the row, will have quite enough room at any age, provided the long limbs are *thinned-in* from the outside every two or three years. With this care, apples may be planted much nearer than usual. None of the trees stand on exact squares; the importance of preserving straight rows for cultivation being greater than the form of the space occupied by each tree. When rows are wide apart, less room is needed in the rows.



PLAN OF FRUIT GARDEN.

By the arrangement we have here planned, the following trees may be planted on an acre, namely:

15 plum trees.......	1 row,	occupying	20 feet—	13 feet in the row.
16 cherry trees.....	2 "	"	40 "	26 " "
8 early apples.....	1 "	"	25 "	26 " "
16 standard pears, }	3 "	"	40 "	{ 26 " "
29 dwarf do }				{ 13 " "

48 peach trees......3 rows, occupying	60 feet—	13 feet in the row.		
45 raspberry.......1 " "	4 "	4 "	"	
45 gooseberry......1 " "	4 "	4 "	"	
45 currant.........1 " "	4 "	4 "	"	
10 native grapes....1 " "	12 "	20 "	"	

In all 132 trees, besides the raspberries, currants, gooseberries and grapes.

As every cultivator would make a different selection, and as we have elsewhere given carefully made lists, it is hardly necessary to occupy space at present on this subject, except to remark that varieties *ripening in succession* should be sought, when a *family* supply is the object.

It may occur to some as an objection, that too much space is given to cherry trees. There will be, however, a decided advantage from the abundance of light and air for the trees, in diminishing the tendency to *rot* in the fruit, one of the most serious drawbacks in cherry culture. More room is given for the dwarf pear than usual, on account of proximity to the standards.

All kinds of trees may be made to conform in some degree to the room allotted to them by thinning in the exterior occasionally.

We should have stated before that each side of a square acre, is about 209 feet, and that the preceding measurements of distances will all come out in accordance with the plan.

There are many who would like a larger fruit garden. We accordingly give the following numbers and distances, the mode of arrangement being the same as in the preceding plan—and each side of the two-acre lot being 295 feet.

40 plums, nectarines and apricots,	2 rows, occupying	40 feet,	15 feet in row.	
40 cherries...........	2 " "	50 "	15	"
10 early apples.......	1 " "	30 "	30	"
40 standard pears......	2 " "	40 "	15	"
80 dwarf..............	2 " "	20 "	$7\frac{1}{2}$	"
80 peaches...........	4 " "	80 "	15	"
72 raspberries, 72 currants, 72 gooseberries,	.....3 " "	12 "	4	"
10 native grapes.......	1 " "	10 "	20	"

Strawberry bed, 13 feet wide, 295 feet long.

The grapes are near the wall or fence, and having the strawberry bed and small bushes in front, are not shaded.

A full garden of this size, furnishes 290 trees, 10 grape vines on a trellis, and 216 raspberry, currant, and gooseberry bushes—with ample space for a strawberry bed, a portion of which should be prepared each year for planting new, say four feet wide, which will leave 8 feet for bearing beds, and give new plantations every third year.

Having now stated the size and contents of the fruit garden, which may be freely varied at pleasure, the next thing is to prepare the ground.

In the first place, there are but very few pieces of land that are not benefitted by underdraining; and as an almost universal rule, wherever the water will stand in a post-hole, dug in the wettest season of the year, underdraining should be thoroughly performed before planting trees. Ditches, at least two and a half feet deep, should run down the slope in the steepest direction, and unless the soil is very porous, be not more than two rods apart each. If fitted with tile,. which is best, or stone, which is next best, or with brush from cedar, pitch-pine, white-oak, locust, &c., which will answer a good purpose when but little water is to drain off, the roots of the trees will have an excellent chance to extend themselves without being drowned in stagnant water at wet times, and which is a frightful source of stunted and diseased trees, and bad and scabby fruit.

Next, the soil should be subsoiled and trench-plowed several times, accompanied with repeated applications of manure, (except on the richest natural soils,) until all is thoroughly worked together to a good depth. If this could be done six months or a year before the trees are planted, so that all may become well diffused together, it would be best, but it is by no means essential, provided the harrow is thoroughly and repeatedly used in breaking and mixing the manure with the earth.

The trees are then planted as already designated; *and then comes the most important operation of all*, namely, keeping the whole surface clear and mellow among the trees, *as long as they are expected to bear good fruit*. When the trees are quite young, two or three rows of carrots, potatoes, beans, or turnips, may be raised between the more remote rows, *but never within six feet of any tree;* for the roots of even very young trees extend three or four feet, and the fine roots of the crops already named, several feet besides, and they soon interfere with each other, and retard the trees. After the trees become a few years of age, it is best to keep *the whole surface perfectly clean and mellow*, by the plow, harrow and cultivator, using the two latter nearest the roots. As the rows may be worked both ways, it will be much easier to keep such a garden as this clean, than an equal area of corn or potatoes, because the trees are less frequent than the hills of corn and potatoes. A very few dollars annually will be the entire cost of cultivation.

The rapid growth made by such a cultivation, on so well prepared and well cultivated a piece of ground, as compared with that made in ordinary cases, will be absolutely astonishing. Not less so will be the quickness with which many trees will begin to supply crops of fruit, as well as the high quality, great size, beautiful appearance, and heavy crops of that fruit.

There are some instances where the high cultivation given to the soil must not be continued after mid-summer. This is more especially the case with the *pear*, which, if continuing to grow late in the season, is subject to the malady known as the *frozen-sap blight*. If therefore, cultivation is suspended early, the thrifty shoots will ripen their wood in time, and the hardiness and vigor of the tree will exceed such as have had no thrifty growth at all. The same treatment to some extent, should be given to the peach tree.

The cost of preparing and cultivating an acre of land, as we have proposed, will be almost incomparably less than where all is done by hand. The following will approach a correct estimate:

Underdraining an acre of land, at intervals two rods apart..	$25 00
Subsoiling twice, trench plowing four times, and harrowing 25 times..	22 00
100 loads manure, and drawing, say....................	50 00
	$97 00

This expenditure will probably be returned, as an average, at least every year, in the increased value of the crop, after the first five years of growth.

The annual expense of cultivating such a fruit garden, would be about as follows:

Plowing once in spring to break up the settled earth.........	$2 00
Cultivating with horse, or harrowing six times...............	3 00
Whole annual cost..	$5 00

LAYING OUT ORCHARDS.

We have often observed a good deal of inconvenience and perplexity in measuring off and laying out orchards, from a want of accuracy at the commencement. If the rows are begun crooked, stake after stake may be altered, without being able to form straight lines, and with only an increase of the confusion. If the first tree, in a row of fifty, be placed only six inches out of the way, and be followed as a guide for the rest, the last one will deviate fifty times six inches, or twenty-five feet from a right line, even if the first error is not repeated. We have seen large apple orchards with rows nearly as crooked as this. To say nothing of the deformed appearance to the eye, they prove exceedingly inconvenient every time the crooked space between the rows was plowed, and every time the ground was planted and cultivated with crops in rows.

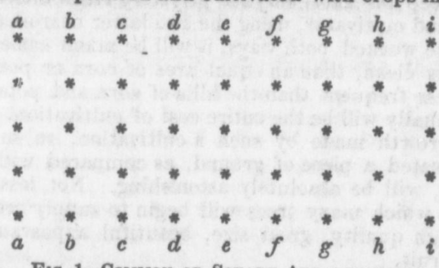


FIG. 1—COMMON OR SQUARE ARRANGEMENT.

The most simple and convenient arrangement for orchards in all ordinary cases, is in squares, as shown in fig. 1. But planters are often puzzled to know how to lay out such orchards with trees at equal distances throughout, and in perfectly straight rows. The easiest and most successful mode is first to measure off one side along the boundary, with a chain or tape-line (a chain is best,) and drive in a stake perpendicularly at equal distances, (say two rods or 33 feet,) *in a straight line*, and at a proper distance from the fence for the first row of trees. Then measure off each end in the same way; and between the two last stakes in these end rows, form another line of stakes like the first, which will be parallel and opposite to it. The more accurately the measuring is done, the less labor will be required in rectifying small errors—no stake should stand half an inch out of a straight line. These rows are represented by the letters a, b, c, d, e, f, g, h, i. Then measure off the distance between a and a, driving in a small stake or peg at each distance of two rods; and then in the same way between b b, c c, &c. If accurately done, these will all form perfectly straight rows. The holes may then be dug without the least difficulty or embarrassment, and the trees set out. But a difficulty arises,—as the stakes must be removed in digging the holes; this is at once obviated by the plan here proposed, by placing the tree in a line with the row of stakes on one side, and with the newly set trees on the other, as the holes are successively dug, and the trees set.

These directions may seem quite simple, but for want of being generally understood, a great many crooked lines of trees are seen through the country.

The second mode of arranging trees is in the old *quincunx* form (fig. 2) which is nothing more than a series of squares laid off diagonally, and has no special advantage to recommend it except novelty.

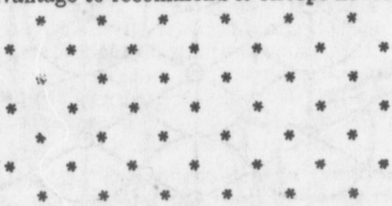


FIG. 2—OLD QUINCUNX ORDER.

The *hexagonal or modern quincunx*, (fig. 3) possesses two important advantages. One is its more picturesque appearance, and its consequent fitness for proximity to ornamental plantations; and the other is its

FIG 3—HEXAGONAL OR MODERN QUINCUNX.

greater economy of space, as the trees are more evenly distributed over the ground. This is shown in fig. 4, where each tree stands in the center of a circle surrounded at equal distances by six other trees, and each single circle leaves but little vacant space beyond it. If cultivated with horses, the furrows may be drawn in three different directions, instead of only two as in the square arrangement.

One principal reason why the hexagonal mode is so little adopted, is the supposed difficulty in laying out the ground. But like many other apparent difficulties, it becomes very simple and easy when once understood.

To lay off a piece of ground for this purpose, measure off one side of the field at equal distances, as already described for squares, as at a, b, c, d, e, fig. 4. These distances must be the distance apart at which the trees are to stand, because they form the sides of the equilateral triangles into which the whole ground becomes divided. The next thing is to find the distances, a, f, g, for the line of trees at right angles to the first mentioned row. An arithmetician will easily determine this, for the triangle b a f, being a *right* one, the square of b a (which is 83 feet,)

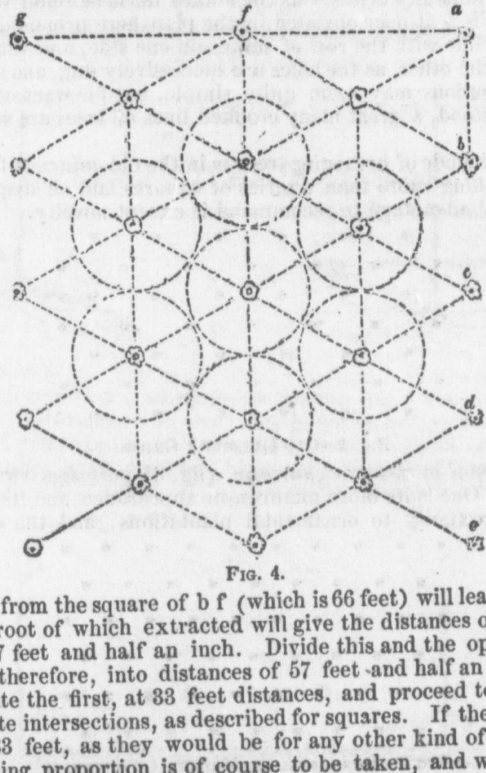


FIG. 4.

subtracted from the square of b f (which is 66 feet) will leave the square of a f, the root of which extracted will give the distances of f, f, g, &c., which is 57 feet and half an inch. Divide this and the opposite side of the field, therefore, into distances of 57 feet and half an inch, and the side opposite the first, at 33 feet distances, and proceed to stake off all intermediate intersections, as described for squares. If the distances are less than 33 feet, as they would be for any other kind of fruit trees, a corresponding proportion is of course to be taken, and which is easily determined as above.

MULCHING AND DEEP PLANTING.

A common rule, in directions for transplanting trees, is to place them at the same depth as they stood before removal. But the *reasons* are not always well understood. The chief difficulty that occurs from deep planting, (fig. 1) is from placing the roots so far down that they must enter the hard cold subsoil, and become subjected to a degree of wetness to which the upper soil is not incident.

The opposite extreme, or shallow planting, is much better, provided the roots are well covered, even if a considerable mound is raised, (fig. 2,) for in this instance, the roots have an opportunity of extending through the richer, drier and warmer top soil, made deeper by this addition to the surface. The advantages of *mulching* are thus obtained, which owes much of its efficacy to the facility it offers for roots to draw nourishment from the upper soil. But as roots quickly extend over much breadth of surface, the mound must be wide, and not as is too often the case, a mere hillock at the foot of the stem, as is seen in fig. 3.

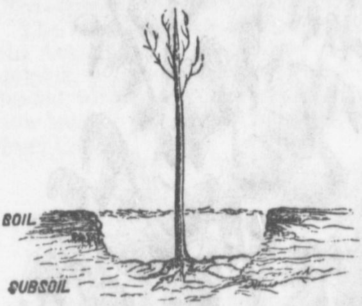


FIG. 1.

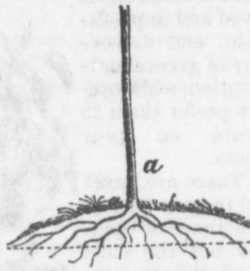


FIG. 2.

A mistaken notion and consequent error in practice commonly prevails, in relation to the *length* of the roots of young trees. The writer has found that manure placed at a distance of eight feet from young peach trees, which were scarcely eight feet high, very sensibly affected them, more than doubling the growth of the shoots. We may hence in-

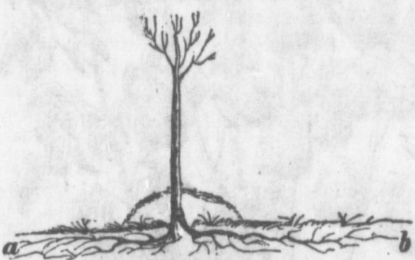
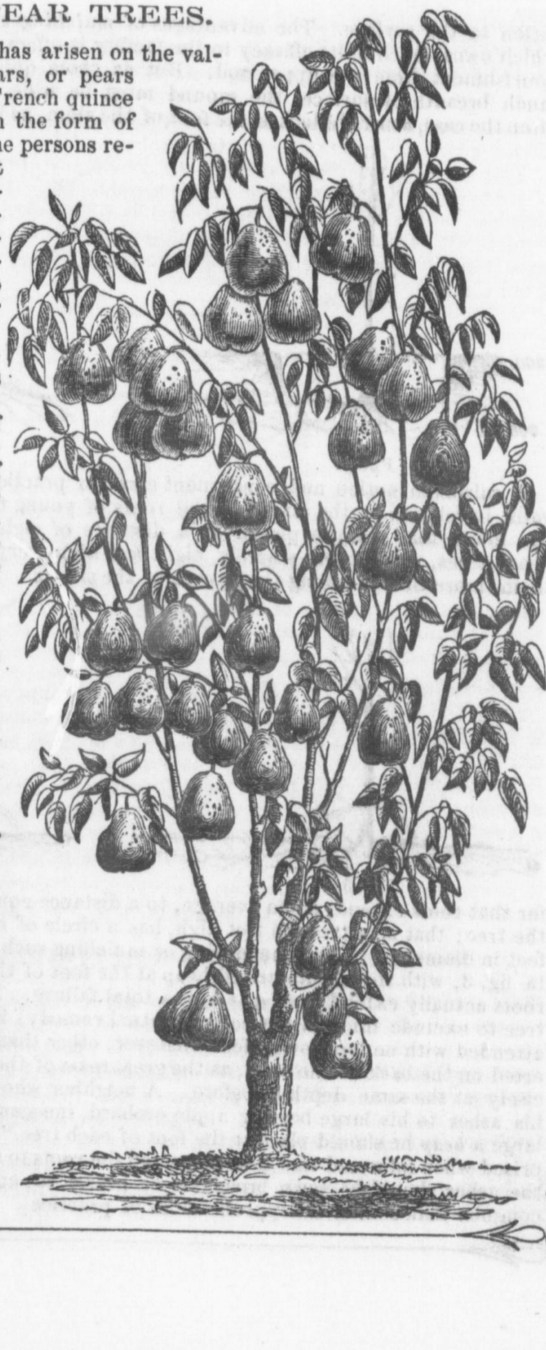


FIG. 3.


FIG. 4.

fer that roots extend, on an average, to a distance equal to the height of the tree; that is, a tree ten feet high, has a circle of roots about twenty feet in diameter. Hence, manuring or mulching such a tree as is shown in fig. 3, with the circumscribed heap at the foot of the trunk, while the roots actually extend from *a* to *b*, is a total failure. Banking up such a tree to exclude mice (a perfectly effectual remedy) is, on the contrary, attended with no injurious effect whatever, other than what may be exerted on the bark of the stem, as the great mass of the roots remain precisely at the same depth as before. A neighbor who intended to apply his ashes to his large bearing apple orchard, innocently inquired "how large a *heap* he should place at the foot of each tree," and was quite surprised when informed that if he expected the roots to receive the benefit, the ashes should be sown broadcast or nearly so; and nothing is more common than similar misapprehensions of practice.

DWARF PEAR TREES.



A controversy has arisen on the value of dwarf pears, or pears budded on the French quince stock, and kept in the form of small trees. Some persons regard them as short lived and unprofitable, and unworthy of general cultivation; while others prefer them to pears on pear roots.

There are several reasons for this difference of opinion, but the chief one is the too common practice of classing the two kinds of trees and their management together, without discrimination.—Dwarfs are *garden* trees, needing high culture, generous manuring, and judicious pruning; there are but few sorts of the pear that fully succeed on quince stocks; and the indiscriminate working of so many sorts as dwarfs, and an entire neglect of their proper cultivation, has resulted in frequent failure and disbelief in their success. Properly selected and managed, pears grown as dwarfs come soon into bearing, the fruit is easily gathered, they require little room, and will continue to flourish for many years. The following varieties have been proved by long trial to succeed well on the quince:—*Duchess of Angouleme, Louise Bonne of Jersey, Vicar of Winkfield, Beurre Diel, Easter Beurre, Glout Morceau, White Doyenne, Beurre d'Amalis,* and *Buffum*. There are several other sorts that promise well so far, among which are *Osband's Summer, Tyson, Stevens' Genesee, Rostiezer, Brandywine, Dearborn's Seedling*, &c.

The accompanying engraving is an exact portrait of a dwarf tree of the Angouleme pear, standing on the grounds of J. J. SMITH, of Philadelphia, (editor of the *Horticulturist*,) as it appeared last autumn when loaded with fruit. It was set out four years before with several others now bearing equally well, and of the same age, and was then one year from the bud.

NOTES ON FRUIT CULTURE.

INCONSISTENCIES IN CULTIVATION.—The disposition, habit, fashion, or other cause of neglecting the culture of fruit trees, is so common, that we fear it will be a long time before the evil is thoroughly reformed. There seems to be a very common determination to give them the *last chance*, of all cultivated crops. A row of *currants*, for example, is planted in a garden; it will indeed bear well with neglect; but an annual manuring and thinning out of old wood, would at least triple the size of the fruit, and improve its quality. The row of currants will furnish a daily supply of refreshing fruit to the table for months together; why should its culture then be totally neglected, when a row of corn by its side of equal length, that will supply only a single feeding to a pen of swine, is most carefully manured, watched, plowed and hoed? We have not unfrequently seen farmers, who after expending a quarter of a dollar each on a young orchard of trees and in carefully setting them out, would destroy one half by choking them with a crop of oats or clover, because they could not *afford* to lose the use of the small strip of land a few feet wide in the row, which ought to have been kept clean and cultivated. The same men would regard it as insanity to plant corn among the grass of a meadow, or in a field of oats, although the planting would not cost a hundredth part of the value of the young trees. In other cases, farmers may be seen driving their teams and plows directly over a young fifty-cent tree, tearing its bark and risking its life, in order to avoid running over an adjacent potato-hill, not worth three mills currency.

There seems to be two or three causes for this strange behavior. One is, habit, or doing so because others do. Another, is a sort of indefinite notion that trees will take care of themselves. A third is an almost total want of appreciation of the real value of trees. A volume might be written on the subject; but we can only add here in a few words, that no growing plant feels more the life-giving influence of good cultivation than young trees—the difference between good treatment and neglect often being as great as *twenty to one*, as shown by the actual measurement of the growth. A single acre of well chosen trees has produced fruit for a regular family supply for months together, that has saved in provisions, to say nothing of increased health, at least ten times as much as some would raise from the same acre in ordinary farm crops; and we could cite several cases where a five or six acre orchard has brought a larger return of money than all other sales from a hundred acre farm.

Isabella Grapes in Vermont.—The following facts are condensed from Proceedings of the Massachusetts Horticultural Society:

E. C. Tracy, of Windsor, Vt., (a cold region, about 60 miles further north than Albany,) presented Isabella grapes, the *bunches* of which were of "extra size," and the *berries* "of so remarkable a size" as to receive the Society's silver medal. According to the statement furnished relative to their management, it appears that the vine stands in a very exposed situation, and runs on a trellis—is kept well cut back, well manured, and well watered with soap suds, while the grapes are swelling. When the buds are breaking in spring, they are thinned to one at a joint; and when the fruit buds appear, all are rubbed off but one or two to a shoot. When the fruit is the size of a large pea, the shoots are girdled just below the clusters by removing half an inch in length of bark,—taking care not to injure the bud at the base of the shoot for next year. It has been found impossible to ripen a crop of exposed Isabellas there, without this girdling.

Pyramidal Training of Grapes.—C. A. Brackett, of Winchester, who has uniformly exhibited the finest specimens of the Diana grape, trains them each to a stake, and gives them the pyramidal form. The soil is first trenched two feet deep, and stakes eight feet high are set seven feet apart, a vine planted at each and immediately cut down to two eyes. The first year two shoots are allowed to grow, and are carried up spirally, both in the same direction, about five inches apart, around the stake, till they reach the top. The laterals grow at random. They are pruned back in the fall to eighteen inches, and the laterals to one eye. The second year, two shoots are carried up as before, from the two upper eyes, the laterals requiring summer pruning. In the fall, the vines are cut back to within eighteen inches of last year's wood. This course is continued till the vine permanently covers the whole of the stake or post—whatever surmounts it is cut back. The fruit is borne on the side shoots, the pruning is done on the short-spur system, and a handsome pyramidal form is given to the whole.

By this system the vine is kept *at home*, light and air have easy access, the buds break easily, the flow of sap is equal and natural, and when once established the vine requires comparatively little care.

Little or no manure is used—a few feet of short-jointed wood being preferred to a longer growth from a heavy use of animal matters—doubtless different soils require different treatment in this respect. The Diana, thus treated, has proved "a great grower and free-bearer—the bunches of good size, and the berries large, some of them measuring *seven-eighths of an inch in diameter*."

Pears on Apple-Stocks.—It is very rare that pears succeed well on apple stocks. Sometimes they will give much promise for a year or two, and then fail. The Winkfield and Summer Bonchretien, will often grow freely for a few years. We have raised about one peck of fine Seckel pears on a small tree on apple root, five years old, but the union being imperfect, it broke off at the surface of the ground. We cannot recommend the practice, except to those who are fond of unsuccessful experiments, often not one in a hundred succeeding after the first year or two.

Great Profits of Pear Trees.—The following instances of the large profits of raising pears are from the Proceedings of the Fruit Growers' Society of Western New-York, and are not to be regarded as unusual or extraordinary instances or not easily attained, for in most of the instances little or no cultivation was given:

Mrs. George, of Victor, sold $24 worth of White Doyenne Pears from one tree eighteen years old, on the tree; the buyer picked them.

Marshall Phinley, of Canandaigua, has three White Doyennne Pear trees, one quite small; sells the pears on the tree for from $50 to $60 yearly; has been offered $100 per tree for the trees; they are constant bearers.

There is a tree of this variety on Judge Howell's homestead, about seventy years old, which has not failed of a good crop for forty years, and has averaged about twenty bushels a year for the last twenty years, which have been sold on the tree at the average of $3 per bushel, or $60 a year. This tree has been worth, or produced about $3,750 worth of pears, in the New-York market.

Judge Taylor has three large trees of this splendid pear, of about the same age; yield in 1854, eleven barrels; sold for $137.

T. Chapin has a young orchard of this variety, of about 400 trees, some eight years from planting; he sold thirty barrels in New-York in the fall of 1853, for $15 a barrel—$450. In 1854, his crop amounted to fifty barrels, which he sold in New-York for from $18 to $22 a barrel; average, $20, equal to $1000.

This year he lost a portion of his crop by the pears dropping, caused by planting corn in his orchard close to his trees, and which was a very heavy crop. All the White Doyenne trees about Canandaigua produce in about the same proportion.

Soil, deep, dark clay vegetable mould, sub-soil clay; trees sound and healthy.

Grafting the Peach.—This, in the northern states, requires great skill for its successful performance, but at the south where growth is so much more rapid, and other influences more favorable, it is comparatively easy. In a late letter from Robert Harwell, of Mobile, long known for his skill in fruit culture at that place, he gives the following results of his practice: "I propagate all my peaches by grafting, beginning in November or December, and if the stocks and grafts are good and the grafting well done, I do not lose over *five* in a hundred. I have my grafting done at the house, and plant the grafts like cabbage plants. I formerly budded, but found it very troublesome, and have entirely abandoned it."

The Use of Leaves.—The office and utility of leaves are becoming better understood by cultivators than formerly; yet we find a good many still adhering to the old belief that the sun's rays directly shining on forming fruit, are what perfect it, independently of other influences.

On this subject, theory and practice have been invariably found in perfect accordance with each other. The principles of physiology teach us that the sap of a tree, when it passes in at the roots, remains nearly unchanged in its upward progress through stem and branches, until it reaches the LEAVES, where being spread out in those thin organs, to light and air, it undergoes a complete change, and thus becomes suited to the formation of new wood and new fruit. Strip a rapidly growing tree of its leaves at midsummer, and from that moment the supply of new wood ceases, and it will grow no more till new leaves are formed; and if it have young fruit, the growth and maturity of the latter will cease in the same way. A few years since, a Yellow Gage plum tree lost all its foliage from leaf blight, when the plums were not fully grown, and while yet destitute of flavor. The fruit remained stationary and unaltered, until, in a few weeks, a second crop of leaves came out. They then swelled to full size, received their crimson dots, and assumed their honied sweetness of flavor.

The object of pruning should be, therefore, to allow THE LEAVES to grow to full size without being injured from crowding.

We find the following corroborative fact stated in a late number of the New-England Farmer:

We once knew an intelligent lady, and one who understood much about horticulture, strip her grape vines of a portion of their leaves, in order *to let in the sun and ripen* the fruit; but to her surprise, where the leaves remained as Nature had disposed them, the grapes were the earliest, and every way the best. This led her to investigate the matter, when she was delighted to learn that the leaves were not only the *protectors*, but the *caterers* of the fruit, constantly elaborating and supplying it with the pabulum it required to bring it to perfection.

HARDY PEARS FOR THE NORTH.—Seckel, Flemish Beauty, Giffard, Virgalieu, Sheldon, Lawrence, Winter Nelis; *on pear stocks*. Louise Bonne Jersey, Tyson, Angouleme, Winkfield, Osband's Summer, Glout Morceau, *on quince*.

APPLES FOR COLD REGIONS.—Red Astrachan, Sops of Wine, Early Joe, Gravenstein, Oldenburgh, Porter, St. Lawrence, Fameuse, Ribston Pippin, Baldwin, Jonathan, Peck's Pleasant, Pomme Grise.

APPLES FOR MICHIGAN.—At the recent meeting of the Michigan Fruit Grower's Association, the following apples were recommended for general cultivation in that state, viz: Swaar, Rambo, Yellow Bellflower, Esopus Spitzenburgh, Rhode Island Greening and Belmont or Waxen. The Baldwin, although found to be variable, and often badly affected with dry rot, was on account of its many excellent qualities, also similarly recommended.

PEARS.—At the same convention, the following pears were recommended for general cultivation: Glout Morceau, Flemish Beauty (for light soils,) Stevens' Genesee, Dearborn's Seedling, Swan's Orange (Onondaga,) and English Jargonelle. The latter must be picked and house ripened, or it rots at the core and becomes worthless.

SELECT FRUITS FOR TENNESSEE ANE OTHER SOUTH-WESTERN STATES.—The best native *grapes* (for open culture,) in Tennessee, are Catawba and Isabella. Of the exotics, (needing a glass covering,) Early Black July is the earliest; and Black Hamburgh, Royal Muscadine, and Muscat of Alexandria, the best. There are several other foreign grapes, nearly as good as these, and having peculiar excellencies—for an account of which see works on pomology.

Peaches—Early York, Crawford's Early, Oldmixon Freestone.
Plums—Lawrence Gage, Jefferson, Coe's Golden Drop.
Pears—Bartlett, Seckel, White Doyenne.
Cherries—Early Purple Guigne, Governor Wood, Downer's Late.
Apples—Early Harvest and Sweet Bough for summer; Gravenstein and Fall Pippin for autumn; and Newtown Pippin, Pryor's Red, and Rawle's Janet, for winter.

Strawberries—for ordinary culture, and the most reliable for crops,—Cincinnati, Hudson. Sometimes very fine—Hovey's Seedling and Burr's New Pine. New sorts, promising well, Jenney's Seedling and McAvoy's Superior.

Early Bearers.—The following varieties of apples and pears come early into bearing, and are therefore well adapted to planting a new place.

Apples—Red Astrachan, Sops of Wine, Late Strawberry, Lowell, Oldenburgh, Dyer, Porter, Baldwin, Jonathan.

Pears—Julienne (takes the lead for early bearing, of all others,) Bartlett, Washington, Dearborn's Seedling, Madeleine, Buffum, Onondaga, Howell, Summer Doyenne, Oswego Beurre, Passe Colmar, Easter Beurre.

Manures for Fruit Trees.—The best manures for fruit trees, under usual circumstances, are composts made of stable manure, turf, muck, or loam, with a small quantity of ashes, and still less lime. The addition of guano, bone manure, &c., increase its value. The proportions may be one-third yard manure, over one-third turf, loam, or peat, and a tenth ashes, a twentieth guano or bone manure. The special manures applied separately, *sometimes* produce decided results, but not usually.

Fruit versus Disease.—In a recent conversation with an intelligent person who has made long-continued and extensive observations on climate and disease, we were assured that nothing had a more beneficial influence in preventing intermittents and the other effects of malaria, than a moderate and regular use of wholesome, well ripened fruit. Our own limited observations abundantly confirm this opinion. This being the case, what millions in losses, to say nothing of the untold discomforts and suffering experienced by the settlers of the great West, might thus be prevented or mitigated. Our western emigrants could carry no better medicine chest with them than a box well packed with a well selected assortment of early bearing fruit trees. Dwarf pears for instance, often bear even the first year, and sometimes produce abundantly in the course of the first two or three seasons; we have known a peach tree to yield three pecks the third summer. The smaller kinds, such as strawberries, raspberries, gooseberries and currants, afford a quick return of very wholesome fruit. A little attention and care of this kind in connection with a moderate share of information and intelligence, would doubtless prevent many serious losses, and avert a vast amount of positive suffering during the first few years of frontier life, when a sufficient degree of privation and inconvenience is often experienced, even with the blessing of uninterrupted health.

Gas Tar for Insects.—Humphrey Howland, of Aurora, N. Y. has found gas tar the most efficient agent for destroying the common orchard caterpiller. It is applied by means of a swab on a pole, and so powerful are its effects, that the slightest touch the insects receive from the pungent and corrosive liquid, kills them instantly.

A PRODUCTIVE TREE.—A. LOOMIS, of Byron, Genesee county, N. Y., says that the past season, a tree of the Baldwin apple, standing on the ground of his brother, produced last year twelve barrels (besides four or five bushels of windfalls,) that sold for $2.25 per barrel. The year's product of this tree was consequently *twenty-seven dollars*—quite equal to an acre of wheat in net profit.

TO PREVENT FRUIT TREES FROM SPLITTING.—For preventing forked trees from splitting under their weight of fruit, Isaac Lewis of Hopkinsville, Ky., has given the *Prairie Farmer* his plan. "My plan," he writes, "which I have followed for thirty years, is this: when I find a forked tree that is likely to split, I look for a small limb on each fork, and clean them of leaves and lateral branches for most of their length. I then carefully bring them together and wind them round each other, from one main branch to the other. In twelve months they will have united, and in two years the ends can be cut off. The brace will grow as fast as any other part of the tree, and is a perfect security from splitting. I have them now of all sizes, and I scarcely ever knew one to fail to grow."

KEEPING APPLES.—S. S. Boyd of Jacksonburgh, Indiana, states that he has found apples to decay in keeping, more from being kept too close and warm, than from all other causes put together. He has succeeded remarkably with a cellar where the air circulates freely, and is so cool that potatoes cannot be kept there. Close or confined air we have long since found to be detrimental, and we have therefore adopted the plan of suspending the apple shelves in the middle of the cellar, so that one can pass round on every side, which is the most convenient; and so as to admit a free circulation of air, which cannot take place when the shelves are in contact with the damp walls. Iron rods are best for supporting them, and if sufficient space is allowed, rats and mice cannot reach them.

COST AND PROFITS OF AN APPLE ORCHARD.—A. Preble, of Lincoln Co., Maine, makes the following estimate, which will be nearly correct in all good apple regions, allowing for some variation in prices: One hundred trees planted on an acre of land will cost, on an average, $25. The land should be kept in a state of cultivation whilst the trees are coming into bearing. About $25 expended in care and labor, besides the crops taken from the land, will bring them into a bearing state. When an acre of trees is in its prime, it will average 400 bushels per annum, provided the land is kept rich and loose, and the trees well managed. Average price, 66 cents per bushel. Our surplus apples are valuable for all kinds of stock, particularly to winter store-hogs. Sweet apples are worth about as much as potatoes.

GOOD CULTURE.—Henry Little of Bangor, Maine, justly observes: I see no reason why we should manure our lands for crops of wheat, corn and potatoes, and utterly neglect to enrich the soil for our crops of fruit. One of our farmers was asked why his apples were so much superior to those of the same variety raised by his neighbor? "Because," he replied, "I *fat* my apples—by enriching the soil around the roots of my trees." There may be a few instances at the west where the soil is already rich enough for grain and root as well as for fruit crops, but the reverse is often strikingly the case in other places.

CULTURE OF THE RASPBERRY.

The Raspberry has much to recommend its culture. Immediately succeeding the Strawberry, and coming in before the larger fruits, it occupies a time when there is little else to be had; it is more conveniently gathered than the strawberry; and the plants not being large enough to shade other crops in the kitchen garden, they may be set on the line of any subdivision of the grounds. It is eminently a wholesome fruit, and sometimes proves a valuable medicine from its expectorant qualities, which the writer proved to advantage in his own case, for whom it was recommended by high medical authority, and it was found not at all repulsive to take, even in quite large doses.

Propagation.—Most varieties increase rapidly by suckers—a few, as the American Black and White, root readily from layers, the tips of the recurved shoots being buried; and nearly all sorts may be propagated rapidly by cutting the roots into small pieces, and starting them with bottom heat. New varieties, raised from seed by crossing, often bear the second year.

Soil.—The soil should be rich, and inclining to moist. A strong, deep loam, is the only soil from which a full crop may be expected every season. But the most important requisite is *depth*, attained by deep trenching, which will go far towards affording a remedy for the natural defects of a stiff clay on one hand, and a dry gravelly or sandy soil on the other. *Irrigation* has doubled the size of the berries in a few days, and more than doubled the growth of the stems in a season,—showing the great importance of securing moisture for the roots, by a *deep, mellow* soil, and by *mulching*. The latter has been found of great importance and has greatly increased the crop. The tender sorts will ripen wood more perfectly, and endure cold with less injury if planted on the drier and firmer spots of ground.

Pruning.—This consists simply in cutting away, early in spring, all the last year's bearing canes, now two years old, and leaving only the one year's shoots, which will bear the coming summer. Half a dozen of the strongest in each bunch will be enough, and the rest may be cut away at the surface by the use of a sharp trowel. The tops are then cut off three or four feet from the ground.

Training.—The most common and simple mode is to tie the canes to-

Fig. 1.

Fig. 2.

gether, loosely, so that they may spread at the top in the form of a wine-glass, and employing a stake to stiffen them, fig. 1. An improvement on the same principle, is made by stretching a wire along the row, spreading out the canes in contact with the wire, and securing them by cord loops, as shown in fig. 2. Another mode is shown in fig. 3, the two-year bearing-canes, being bent over in the form of an arch and tied to stakes, while the present year's shoots grow upright, to be bent down in the same way the following spring, after the old bearing canes are cut away.

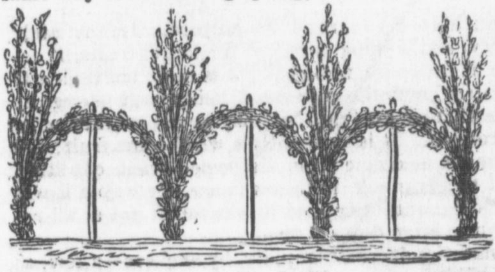


Fig. 3.

Fig. 4 shows the appearance in spring after the pruning has been performed and before the new shoots have sprung up. By this mode the bearing canes are separated from the others, and have more light and air. Instead of a row of stakes, as in this mode, (the *end* of each row being towards us,) a wire may be stretched as indicated by fig. 2, the arched shoots meeting both ways at this wire. But this arrangement requires that the canes should be spread thinly out, or the light will not reach the fruit growing beneath.

Fig. 4.

A decided improvement, with the same principle, is shown in fig. 5, where *two* poles or wires are placed one each side of the row of plants, the bearing and the growing shoots being separated from each other, and tied to opposite sides Fig. 6 shows the mode by which these shoots are attached by a cord. A tarred rope is better than wire, by enabling the operator to secure the shoots more firmly without danger of subsequent sliding.

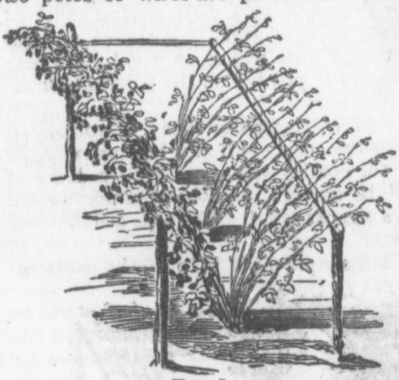


Fig. 5.

Tender varieties may be protected by prostrating them and covering thinly with earth. Even when not so tender as to be killed, this protection assists their productiveness. A small earth mound should be placed against each stem to bend upon and prevent breaking.

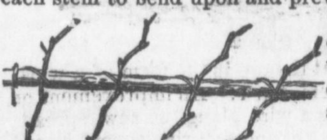
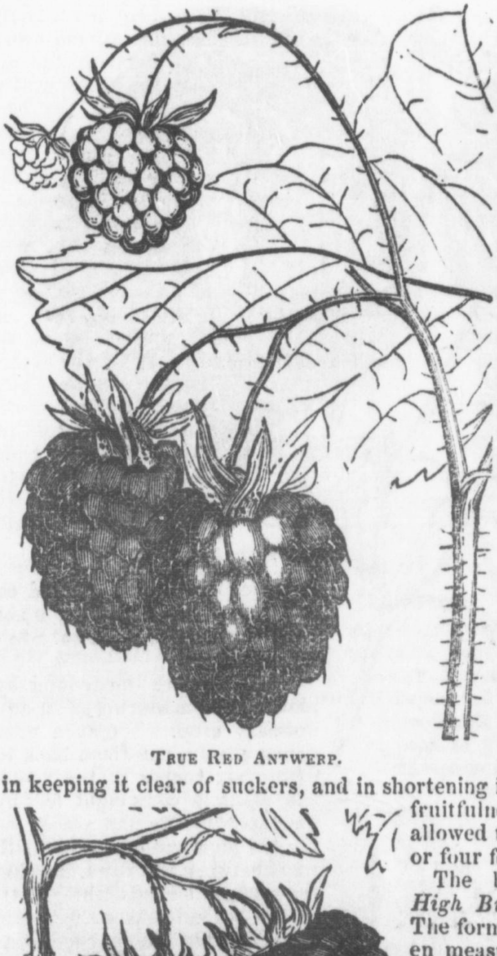


Fig. 6.

For extensive marketing, plantations of raspberries prove quite profitable on the best soils, producing about five hundred dollars per acre in each year, when accessible to good city markets.

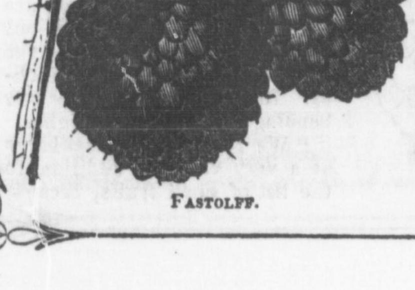
The best varieties of the Raspberry are the *Red Antwerp*, a large, dark red, rich and juicy berry, admirably fitted for



TRUE RED ANTWERP.

marketing; the *Fastolff*, resembling the Red Antwerp, but richer and softer in texture; the *Franconia*, quite similar, but later, of firm flesh, and is rather hardier than either of the others; *Knevett's Giant*, very large, and of fine quality; *Yellow Antwerp*, large, conical, excellent, but tender, and a moderate bearer; *Col. Wilder*, resembling the latter, but with smaller berries, and much hardier stems; *Large Fruited Monthly*, large, red, bears late and valuable; and *Brinckle's Orange*, reregarded by many as the best of all Raspberries, vigorous, hardy, productive, handsome and excellent.

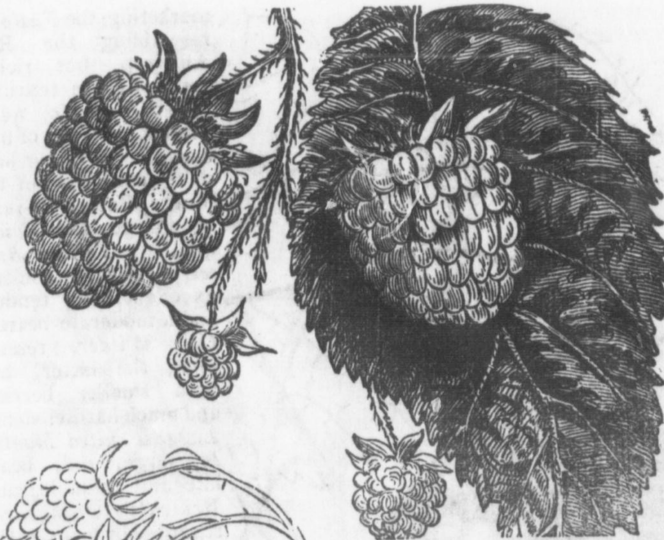
THE BLACKBERRY requires nearly the same treatment as the Raspberry, but as it is a more rampant grower, it needs particular care in keeping it clear of suckers, and in shortening in the stems to promote fruitfulness. It should not be allowed tc grow more than three or four feet high for bearing.



FASTOLFF.

The best varieties are the *High Bush* and *New Rochelle*. The former are oblong, and often measure an inch and a half long. The latter is becoming a general favorite, being very large, more nearly round, and exceedingly productive.

The New Rochelle Blackberry, of which, according to Charles Downing, "a dozen or so in full bearing. will give fruit sufficient for an ordinary family for some six weeks," requires good cultivation and management. The



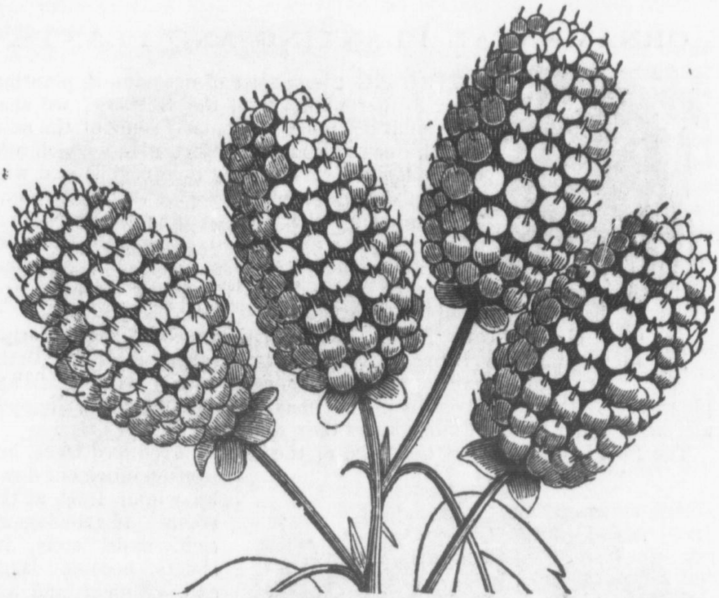
Col. Wilder.

Kneevet's Giant.

following directions, founded on experience, are copied from the Horticulturist, from Geo. Seymour & Co.:

"We prepare the ground by plowing and manuring as for any ordinary crop. We then take young plants, cut them back to within six inches of the roots, and plant in rows eight feet by four apart. The first season we use the plow and cultivator both ways between the rows, keeping the ground in good tilth. Next, or the second season, we train the plants into the four feet spaces, leaving the eight feet spaces for the plow and cultivator to work in. When the plants are five or six feet high, pinch out the leading shoot to induce the growth of vigorous side branches. In training, we prefer the bending mode to the upright.

"We regard this Blackberry as a very valuable addition to the list of small fruits, because



HIGH BUSH BLACKBERRY.

it is so simple in its cultivation, bears regular and abundant crops, and when perfectly ripe is of a highly agreeable flavor."

"We have only to add," says P. BARRY, the editor, "that from what we have seen and heard of this fruit, it cannot fail to be an object of very profitable culture within any reasonable distance of large cities. It ripens after Strawberries and Raspberries, and before Peaches, and therefore comes most opportunely as to season. And then its cultivation must be of the easiest possible kind—only give it rich soil, and keep it clean and well cultivated, and an abundance of large fruit is certain. No one need expect such wondrous large fruit, however, as people have witnessed at New Rochelle and Norwalk, in ordinary soil and with ordinary culture. Manure must be applied unsparingly, and the ground must be kept clean and friable as work can make it. *Rich soil and clean culture* are indispensable to the growth of large fruits of any kind."

NEW ROCHELLE BLACKBERRY.

ORNAMENTAL PLANTING AND PLANTS.

CONTINUING the subject of ornamental planting, from former numbers of the Register, we shall here point out more particularly some of the newer or rarer trees and flowering plants which may be employed for decorating the grounds and windows of dwellings, with hints for their treatment. The eminent utility of increasing the attractions of home by the use of these beautiful natural objects, and the great economy of this mode of decoration, when compared with expenditure for costly architecture, have been already pointed out.

Half-Hardy Trees.—Some of the most interesting ornamental trees, being natives of warmer regions than the Northern States, require more management than a maple or an apple tree. With proper treatment they may be made to grow in the open air, when under other circumstances they would perish.

The *Paulownia* is one of the finest of the newly introduced trees, but is often much cut down by winter frost at the north. If growing on rich, moist soils, its shoots become large and succulent, and are easily injured. On a deep, dry soil, and a *dry sub-soil*, possessing but moderate fertility, or rather sterile, its growth is slower, and the wood becomes harder and better ripened, and fitted to withstand the cold of severe winters. By transplanting into a deep artificial bed of stones, gravel and soil, that shall always be dry, it might be successfully raised in nearly every part of the north. Even the Catalpa, which is a hardier tree than the Paulownia, is much influenced by these causes. In one instance, in a clayey region of country, a tree planted in the deep loose bed of sterile earth formed by excavating a cellar, grew and flourished for thirty years, its present

Paulownia Imperialis.

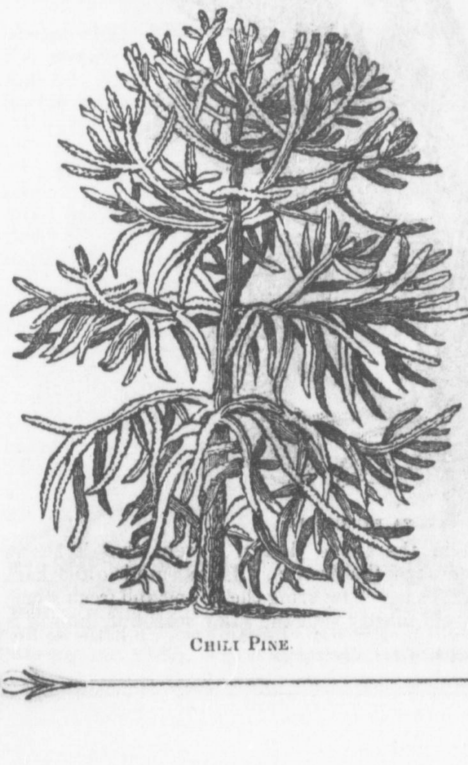
age; while another similar tree set in the ordinary soil, did not survive three years.

Tender Evergreens require different management. The great cause of injury to these is exposure to the *sun's rays* after severe freezing. Hence protection must be mainly looked for by shelter from the sun, either under the north side of buildings, or under the shade of hardier and larger evergreen trees. The *Deodar*, the *Cedar of Lebanon*, and even the *Araucaria*, may be inured to open exposure by these precautions.

CEDAR OF LEBANON, growing on the grounds of T. Ash, Throg's Neck, N.Y.

The Cedar of Lebanon usually grows without injury, except in the extreme northern portions of the Union, if thus shaded while young. Where the shade of buildings or of other trees cannot be had, a temporary screen made of evergreen boughs, to remain through winter and the early part of spring, will answer a good purpose.

The Chili Pine, or *Araucaria imbricata*, is a tender tree, and needs not only the protection of shade, but of the dry sub-soil already mentioned. The accompanying figure is a portrait of a young tree, 12 feet high. On its native mountains, (the Cordilleras,) it attains a height of 150 feet.



CHILI PINE.

FLOWERING SHRUBS.—In the second number of the Rural Register, a list only was given of some of the finer and more desirable shrubs.—The following newer sorts, mostly in addition to that list, are much admired.

Double-flowering *Spiræa prunifolia*, or Double Japan Spiræa. The genus SPIRÆA furnishes a large number of beautiful and showy herbaceous perennials and shrubs. None exceeds the Double

SPIRÆA PRUNIFOLIA.

white Japan, represented in the above figure, except that it shows nothing of the snowy whiteness of the flowers. This shrub is quite hardy, and it may be rapidly increased by layering the young and fresh stems early in summer, and they will mostly root the same season if the soil is kept moist.

DEUTZIA SCABRA.

The *Deutzia scabra*, or Rough-leaved Deutzia, when in bloom, is covered with a profusion of white flowers, and is one of our finest ornamental shrubs. It is a native of Japan, and is perfectly hardy. It grows about six feet high, and is easily propagated by layers and by dividing the plant.

The ***Forsythia*** (***Forsythia viridissima***) is one of the new shrubs found by R. Fortune in the north of China. He discovered it in the gardens of the rich mandarins, and afterwards wild among the mountains where it appeared even still more ornamental. The shoots and leaves are of a dark green color (whence the specific name *viridissima*, or *dark green*,) and the flowers of a bright yellow. Like the Mezereon and Flowering Almond, they open early in spring before the expansion of the leaves. It appears to be hardy.

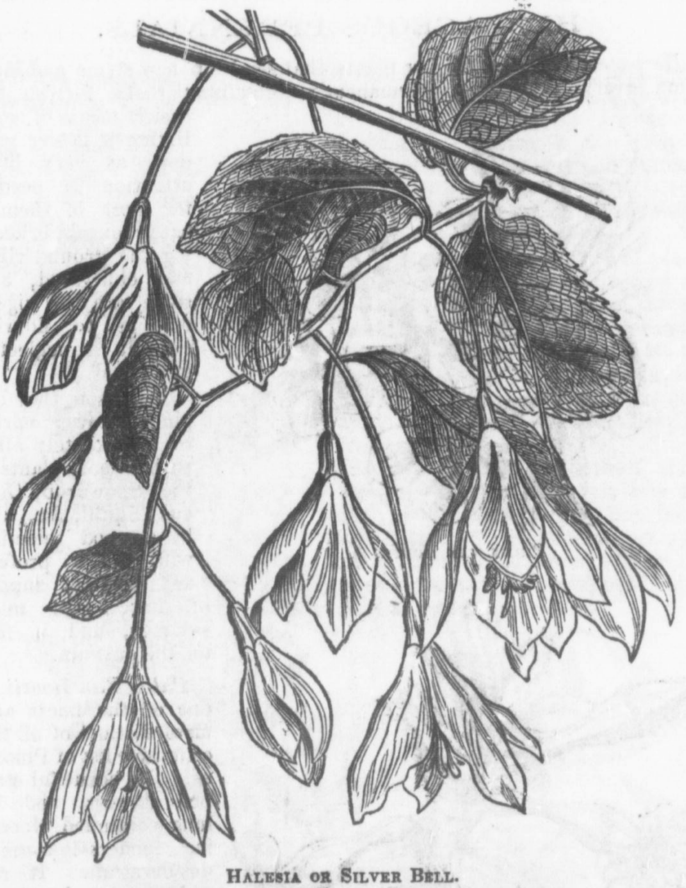
FORSYTHIA VIRIDISSIMA.

DOUBLE CRIMSON CURRANT.

The *Double Crimson Currant* (*Ribes sanguineum.*) The single crimson variety is well known; the double is more showy, and its pendent racemes when in flower, render it a striking object. Like the single crimson, it is not entirely hardy, unless shaded from the winter and spring sun; with this precaution we have never known it to be injured at 43° north latitude. On a dry soil with dry bottom, it has usually passed the winter without iujury, even if unprotected in this way. The blossoms are larger than the single variety, the racemes from three to six inches in length; and the effect of the shrub, when laden in spring, with their fine pendent blossoms, is very rich and striking.

The *Halesia* or *Silver Bell*. The *Halesia diptera*, shown in the accompanying engraving, is a handsomer and much rarer species than the common Silver Bell or *Halesia tetraptera*. The former blooms later, has larger and whiter flowers, and two angles or wings to its seeds—the latter has four wings. The form and drooping position of the flowers give the name *Silver Bell* to the plant. Both species are hardy, and are propagated by seeds.

FINE EARLY SPRING FLOWERING SHRUBS.—Among shrubs that make an early display on the lawn, we must call special attention of young planters to the following, while their impressions are fresh on our minds. 1. The well known Japan Quince (*Pyrus Japonica*), with its brilliant

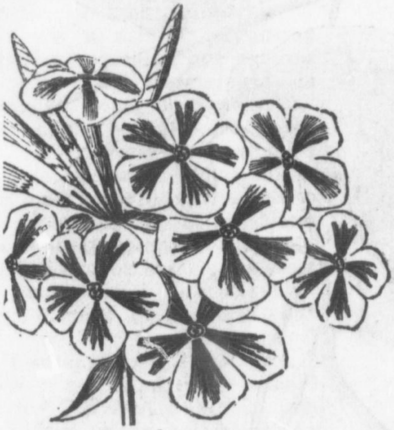


HALESIA OR SILVER BELL.

blood-red flowers. 2. The Deep Green Forsythia, with its clear yellow flowers. 3. The Crimson Currant (*Ribes sanguinea*). 4. The Gordon's Currant (*Ribes Gordoni*), crimson and yellow. 5. The Ashberry (*Mahonia aquifolia*, evergreen), with its bright yellow blossoms. 6. The Rose-colored Wiegela (*W. rosea*), with delicate rose-colored blossoms. We may add to these the Double-flowering Spiræa (*S. prunifolia fl. pl.*), as it follows them closely, has small double flowers. These form a beautiful collection for the early spring, all perfectly hardy and flourishing without any particular care or treatment. The Mahonia we must single out because it is not yet much planted, and is very desirable. It is evergreen, bearing the winter well, the best substitute we have for Rhododendrons; then it blooms so early and so profusely; it is low and spreading, and makes a rich mass of foliage on the lawn.—P. BARRY *in Horticulturist*.

HERBACEOUS PERENNIALS.

Herbaceous Perennials, or plants that send up new stems and blossoms every year from permanently remaining roots, furnish the easiest means of beautifying a flower garden, as very little attention is needed for most of them if hardy, except in keeping the ground clean and cultivated, and some are so vigorous as to flourish even in a neglected grass sod.



PHLOX VAN HOUTII.

In season, they begin to flower early, or immediately after such bulbous plants as the Snowdrop, Crocus, Squill, &c., and by a good selection will give a profuse and brilliant supply of flowers till midsummer, and a few on till autumn.

Phlox Van Houtii, is one of the finest and most distinct of all the extensive list of Phloxes. Its beautiful striped flowers, and its long continued blooming, renders it a great desideratum. It requires care, however, being easily destroyed by drought.

ZAUSCHNERIA CALIFORNICA.

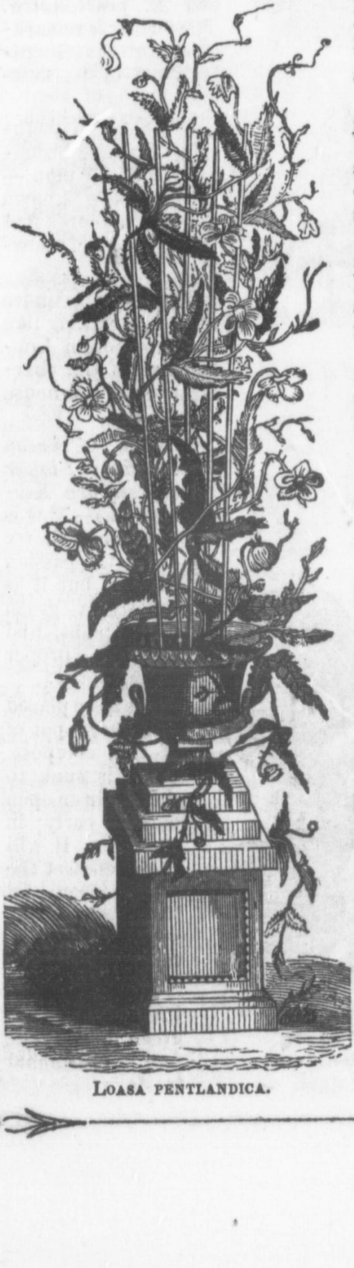
Zauschneria Californica, is one of the new Californian acquisitions, and possesses considerable beauty.—Its flowers are numerous, and of a bright scarlet. It is believed to be hardy if planted on a dry soil.

CLIMBING ANNUALS.

Annuals, although requiring some skill and labor in sowing each year, constitute a very important part of an ornamental garden, and generally succeeding next to herbaceous perennials, furnish a fine display through the latter part of summer and in autumn.

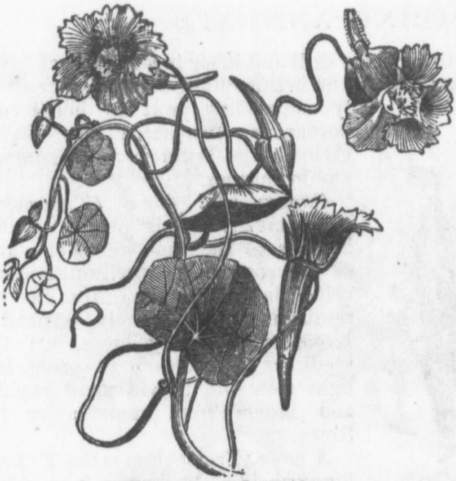
Canary bird flower (*Tropæolum peregrinum.*) This pretty climber belongs to the same genus of plants as the common nasturtium, and receives its English name from the resemblance of its partly expanded blossoms to canary birds. If the seeds are planted early in spring, in a light rich soil, it will grow rapidly and bloom from midsummer till frosts.

A newer Tropæolum is the *T. Lobbianum*—like the former it is a native of South America, but needs more attention; to succeed best, the plants from seeds sown the previous year in pots, should be set out in open ground early in summer.



LOASA PENTLANDICA.

CANARY BIRD FLOWER.



TROPÆOLUM LOBBIANUM.

PASSIFLORA KERMESINA.

The *Loasa*.—There are two fine species, namely, *L. lateritia*, or brick-red Loasa, and *L. pentlandica*. The former is remarkable for the singular form of its flowers.

It blooms in profusion through summer and autumn.—It has been known to run twenty feet the season of sowing.

The latter is more tender, partaking like the Tropæolum Lobbianum, of the character of a green-house plant.

The *Crimson Passion Flower* (*Passiflora Kermesina.*)—This is the most showy of all the passion flowers, but it is strictly a green house plant, and requires proper management.

It is to be placed in a large pot of of rich compost, and this sunk to the rim in an open border early in summer. It will grow ten feet the same season, and bloom profusely by the first of autumn.

It must be returned to the green house before autumnal frosts.

PERENNIALS FOR LAWNS.

Lawns which adjoin dwellings, should be planted towards their boundaries with trees, and more especially with evergreens, which will exclude any objects that should be shut out, and protect the house from sweeping winds. The more central and open parts may be interspersed with shrubbery and with the larger growing and more showy flowering perennial plants. If the latter are selected among the hardier and stronger sorts, they will maintain their appearance and thriftiness with a small amount of cultivation—no more than shrubs commonly require for their successful growth. Among some of the best perennial flowering plants for this purpose, are the following:

Dictamnus—the purple and white, of which the former should predominate. A mass once well established, will continue to furnish large groups of flowers early in summer, for an indefinite number of years, with only an occasional mellowing of the soil about them. The flowers are about an inch and a half across, and the spikes ten inches long; they grow about three feet high, and will spread out and form a round compact clump three or four feet in diameter, the whole top of which will be covered with a mass of flowers in their season.

The Pæonies.—There are several species and varieties of these; the masses they constitute are not so symmetrical in form as the preceding; but the size and splendor of the flowers are nearly unequalled. P. Whitleii, white; P. Reevesii, blush; P. Humeii, red; P. Pottsii, dark crimson,—(all varieties of the species *P. albiflora*) and several other varieties, produce very double flowers, often measuring six to seven inches in diameter. The common dark crimson, *P. officinalis*, were it "far fetched and dear bought," would be regarded as a wonder; and the two other varieties of the same species, *rosea* and *albicans*, (much less common) are inferior to none. All these flower early in summer.

The *Caucasian Poppy*, (*Papaver bracteatum*,) is remarkable for the very showy character of its single flowers. The color is deep crimson, and the flowers on well established, thrifty roots, often measure *nine inches in diameter*, on stems four or five feet high. The plant does not, however, produce well formed masses.

Baptisia cerulea grows in a handsome form, and bears profusely blue spikes of flowers. The strongest varieties grow three or four feet high, and the spikes are often a foot and a half long.

Clematis erecta will form masses of foliage five or six feet in diameter, and four feet high. When in bloom, the whole top is covered with dense panicles of white blossoms, the panicles often a foot in length. It flowers about mid-summer.

Spiræa aruncus, produces large graceful plumes of white flowers early in summer, and *S. lobata* very beautiful masses of rose-colored flowers a month or two later,—both being strong-growing large plants.

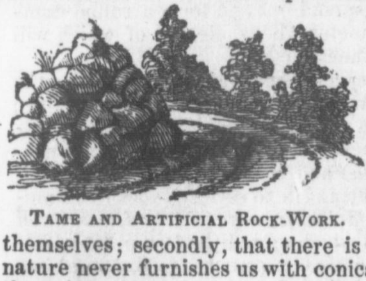
The numerous varieties of *Phlox paniculata*, of all shades of colors from pure white to deep red or purple, and some of them finely variegated, are not excelled for the handsome and showy appearance they present in the latter part of summer, some of them growing five or six feet high, and forming finely shaped round groups of foliage with very large panicles of flowers at the summit.

Among the later blooming or autumn plants, we have never seen any thing to excel a large mass of the New England Aster (*Aster novæ-anglicæ*) the exterior form of which was much like that of a balloon, and was about five feet in diameter each way, the whole upper surface being one uninterrupted mass of purple flowers.

All the preceding are perfectly hardy, and need only a good rich soil, moderate cultivation, and a few years to become well established, in order to come fully up to the sizes we have mentioned. There are doubtless many others that might be added to the list.

ARTIFICIAL ROCK-WORK.

No part of ornamental gardening appears to be less understood, than the construction of artificial rock-work. A few years since, in visiting one of the most celebrated and costly rural residences in this country, we observed an artificial specimen of the kind, consisting of a nearly conical pile of stones, weighing fifty to one hundred pounds each, and perhaps containing half a dozen loads in all, placed in the midst of a smooth, level piece of the highly cultivated grounds. We have often seen examples of this kind, and the great error in thus introducing them appears to be, first, that such as these are not pleasing objects in themselves; secondly, that there is no imitation of nature in them, for nature never furnishes us with conical or formal piles; thirdly, in placing them in a level, cultivated garden, where we do not look for any such objects, and where stone-heaps are an evident obstruction to cultivation. Only twenty rods from the rock-work in the celebrated garden we have



TAME AND ARTIFICIAL ROCK-WORK.

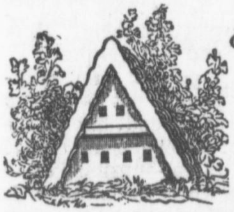
spoken of, in an adjoining grove, was a *natural* specimen worthy of the name, consisting of huge rocks protruding from a slope, partly concealed by earth, and covered with patches of moss, in the thick shade of trees, whose old and twisted roots occasionally enwreathed them. Here everything was in keeping—rough, bold, massive, and picturesque.

NATURAL AND PICTURESQUE ROCK-WORK.

As a general rule, rock-work should not be placed on level ground, but on the side of a slope, bank, or side of a ravine—just at those places where in nature, beds of rocks are to protrude. It should be more or less shaded by trees, and the rocks themselves should be partly covered with plants growing in their crevices. Climbing and trailing plants are especially appropriate, and when in flower they have an exceeding pleasing effect. It often happens, that rocks of this character may be found already in place on the spot; and all that is necessary is to improve what nature has furnished, by the introduction of the plants we have spoken of, and of clearing away whatever is offensive. But where the rocks are to be furnished, they must be large and massive,—the larger the better,—weighing a ton or more. On the banks of a small stream, rocks are always an interesting object; and a small cascade dashing amongst them, or a rill trickling down their sides, in the midst of occasional plants in flower, gives them an exceedingly pleasing character.

TOADS IN GARDENS.—Various remedies have been given for the prevention of the ravages of insects in gardens. Worms, or the larvæ of certain moths and beetles, often make great destruction among many kinds of plants. Various kinds of bugs attack melons, cucumbers, squashes, &c., and often destroy the crop soon after it appears above ground. Young chickens and ducks are sometimes kept in gardents, that they may devour the insects. This is but a partial remedy. Chickens will only eat a few species of insects—some of the most destructive they leave unnoticed—and they will always do more or less injury by eating plants and by scratching. But *toads* will do much more good (if well grown,) than either chickens or ducks. They do no injury whatever; they feed altogether on insects, and devour almost every species that infests the garden. They have another advantage over chickens and ducks—they seek their food at times when insects are most abroad; at dusk of evening, when fowls are at rest. Excepting the black "pumpkin bug," toads will fill their stomach with any bug, worm or fly, that belongs to the catalogue of enemies to the farmer or gardener.

RUSTIC SEATS AND STRUCTURES.



A GREAT reform is needed among country residents in relation to the attractions for *open air*. There are members of every family who suffer serious loss both in health and spirits, from an almost perpetual confinement within doors. Trees, flowers, walks, and shady seats, are far more important than splendid drawing rooms and costly furniture. The most pleasant and agreeable summer parlor the writer ever occupied, and in which he has spent many days during the heat of summer, was formed only by the dense shade of leafy boughs overhead, beneath which the cooling breezes could freely pass among the trunks of the trees. For the purpose of inviting attention to the increase of these out-door attractions, by pointing out a mode of providing such summer parlors as these with appropriate furniture within the reach of all, and for adding to the interest of the *more secluded parts* of the ornamental grounds, we propose to devote a short chapter.

Seats, arbors, and other structures, made of *rustic work*, that is, of the trunks and branches of trees in their natural forms, have much to commend them to the peculiar wants of landscape gardening in America. They admit a great display of taste and ingenuity, with but little cost—an important consideration where the motto of the people must be, "profuse of genius, not profuse with gold."

There are very few of our countrymen who will consent to give a highly polished air to their grounds, except in the immediate proximity to their dwellings, and even here the claim to much finish, is commonly a very doubtful one at best. It is even rare to find other parts of ornamental grounds so highly kept, that such costly ornaments as vases and statues are not quite out of place; and it is quite as rare to find those who ought to be so lavish of their money as to incur the expense.

Most objectionable of all, on the score of taste, are those heavy wooden structures, made of elaborate carpentry, for the support of climbing plants, or for summer shelter, so commonly seen in various parts of the country. Nothing can be more incongruous than the forced connexion between those most delicate and graceful of all plants, twiners and climbers, and stiff, formal and heavy board supports. A simple and appropriate rustic material is as much superior to these, as a charcoal sketch by a skilful artist, is superior to the rich daubings of a sign painter.

It should be distinctly remembered, however, that rustic structures should not be placed near a highly finished dwelling, but in the less formal and more sequestered parts of the grounds, except it be those of a smaller size, and of the more simpler forms. On the other hand, a small cottage, possessing little formality, will more freely admit these structures in all situations.

In order to succeed in constructing rustic work, the first thing is to procure *the materials*. All such objects as may be exposed to the weather should be of the most durable wood, of which red cedar is best. For certain purposes, white oak will answer well, but as it is essential to have the bark remain on, the wood should be cut at a time of year when this will not peel or separate. If cut towards the close of summer, the wood will last about twice as long as when cut in winter or spring. A horse load or two, of boughs or branches of trees, of which a goodly portion may be curved and twisted, from one to six inches in diameter, will constitute the materials for a good beginning.


Fig. 1.


Fig. 2.

Among the simplest objects, are rustic stools, figs. 1 and 2, which nearly explain themselves. The first is made of nearly straight pieces, put together by boring holes for the principal framework, and using nails for the smaller pieces. The second is simpler and stronger, but requires two curved branches or portions of roots. The rustic chair, fig. 3, has the face of the back and seat made of "wood mosaic," a mode of facing flat surfaces of boards and plank represented more distinctly by figs. 9 and 10,—the small and straight shoots which are split into two parts for this purpose, being, unlike other rustic material, with *smooth* back. This mode of working admits of the exercise of much taste and ingenuity, as rods having differently colored bark may be used and so arranged as to give an interesting variegated appearance. This kind of work, is often used with great advantage for facing the interior walls of rustic summer houses; and in all cases, the design, however simple, should be first marked with chalk on the board-facing intended to be covered. It is usually made of the halved rods as shown in fig. 9; but for the bottoms of seats, a more even surface is presented by shaving the edges, as in fig. 10. Sometimes *bark* alone is used for this purpose.


Fig. 3.


Fig. 9.


Fig. 10.


Fig. 4


Fig. 5.

Fig. 4 is a lighter and simpler chair. The outer portion of the back will be strongest if in one piece, and a portion of wild grape-vine may be advantageously employed. The seats shown by figs. 5 and 6 require but little explanation. Fig. 5 may be formed of nearly straight pieces of wood; the back of fig. 6 will require 2 or 3 crooked pieces strongly and neatly spliced together. It may be


Fig. 6.

well to add here, that the perfection of all rustic work renders very close and perfect joints absolutely necessary. The back of the seat shown by fig. 7 is let into or fastened to the middle of the tree.

Fig. 7.

The table, fig. 8, is formed of the trunk of a tree with well selected branches, inverted; to the top of which is nailed circular boards, battened crosswise together, and covered with "wood mosaic" already described.

Fig. 8.

Fig. 11 is a flower stand, supported by a leg formed of the branching trunk of a tree, with braces nailed on below. The top is wicker-work, and will receive a round tin pan, filled with clear wet sand, and covered with a lid of basket or seive-work, through the openings in which the stems of flowers may be thrust into the sand, which will keep them fresh for several days. Fig. 12 is a similar stand, made stronger, to hold a box or pot of rooted plants.

Fig. 11.

Fig 12.

Fig. 13 is a pedestal for flower-pots, and may be a neat and handsome ornament for any part of the grounds. It is easily made of a wooden box, covered with the mosaic of wood.

Fig. 14 is a rustic foot-bridge. It should be strong and durable, and the joints secured by iron bolts, although withes are afterwards applied to give it a more picturesque appearance. The ends may be supported on stone abutments, which may be made to con-

Fig. 13.

Fig. 14.

stitute a very appropriate rock-work, much more natural and suitable than where an unmeaning pile of stones is placed on level ground as is sometimes seen.

Fig. 16.

Fig. 15 is a rustic arbor, requiring but little explanation. If the straw forming the thatched roof, is kyanized, it will last a long time. The cornice is or-

FIG. 15.

namented with cones of the white pine, nailed to the horizontal board supporting the roof.—Cones of different size are very suitable for interior cornices of rustic buildings, a specimen of which is shown in fig. 16. They may be used for the interior overhead. Moss is also used for the last named purpose, the surface overhead being first covered with rods placed an inch apart, and the moss with the ends even, rammed

FIG. 17.

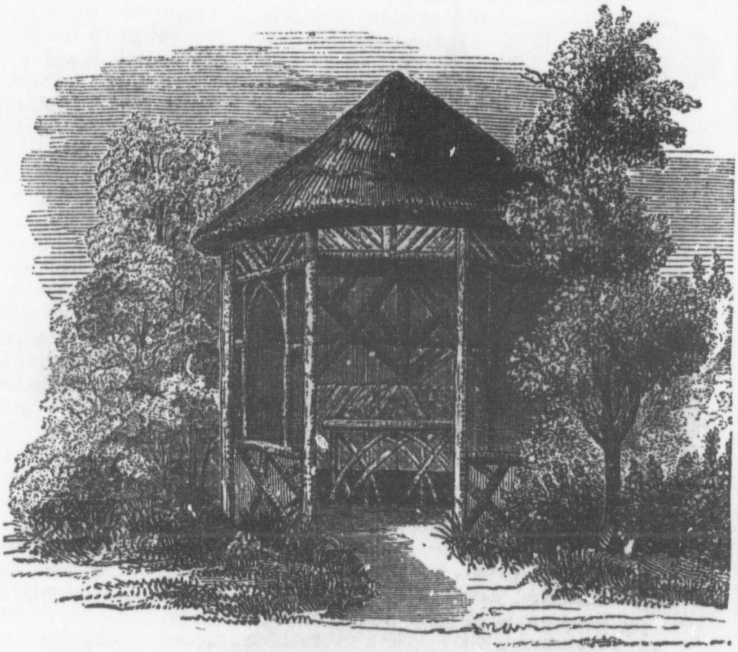


Fig. 18.

in between with a wooden wedge, so as to cover the rods from view. It is only the larger mosses that will answer for this purpose; and by selecting those of different colors, or by dyeing a part of them with log-wood, a surface resembling a Brussels carpet is presented. This is however attended with more labor than most of the contrivances we have described.

Fig. 19.

Figs. 17 and 18 are rustic arbors, with variations in design.

Fig. 19 is a prospect tower, to be placed on any wooded hill where an extensive view is afforded. Six strong upright poles are first set into the ground, and secured by cross-pieces at the top and middle. The upper roof may be of straw or boards, and the lower of boards, the latter covering the whole interior and forming a separate apartment below. The tower is ascended by stairs placed within. The shorter posts below serve to stiffen the structure, and furnish a verandah round the whole, where seats may be placed.

All the structures we have described, taken together, if built in the best manner, would not cost so much as single statues or vases of marble; and as a proof of their durability when made of the right materials,

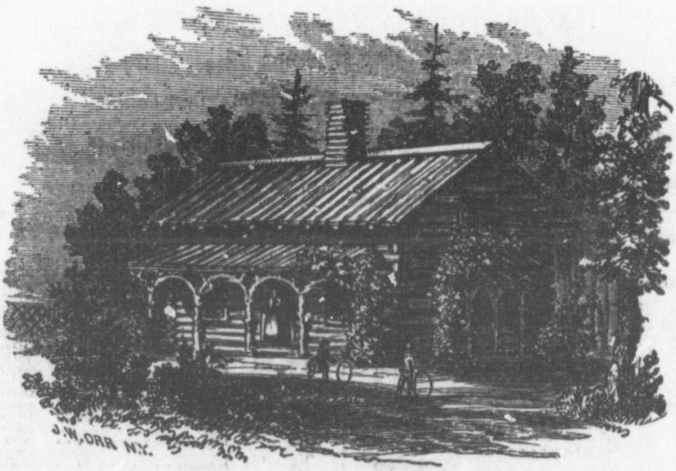


FIG. 20.

we may state that there are specimens in England, which have been exposed to all weathers, now more than forty years old.

Before closing this article, we give the view of a log house, rendered an ornamental object, by a few rustic additions, fig. 20, and by means of climbing roses, &c., made more pleasing than a bleak, costly edifice. Every ingenious owner of a log-house in the west, may thus, by a little labor and contrivance, make an attractive home without a long purse to pay masons, carpenters, joiners and painters.

RAISING BLACKBERRIES AND RASPBERRIES FROM SEED.—Raspberry and blackberry seed require very much the same treatment as mountain ash seeds—that is, preservation of the natural moisture by immersion from the fruit in moist sand, earth, or peat, and exposure to the freezing of winter. Small seeds, as the raspberry and mountain ash, must be buried very shallow, in order to germinate—not over one half an inch at most, and the moisture of the fine earth with which they are covered must be preserved by proper shading.

As this is an important and interesting subject, we applied to Dr. BRINCKLE of Philadelphia, who has had so much experience as well as success in raising new varieties, and have been favored with the following answer:—"I have no experience in the germination of seed of our indigenous black raspberry. In regard to the blackberry, I planted seed several seasons without obtaining from them a single plant. In the summer of 1854, as soon as the berries were ripe, I planted a few blackberry seeds in pots, which were left in the open air all winter. Many of the seed germinated in the spring of 1855, and continued to do well. As a general and almost invariable rule, blackberry seed, even when planted immediately after the maturity of the berry, will not germinate until the ensuing spring. But, in one or two instances, I have known germination to take place the same season the berry ripened."

WEIGHTS AND MEASURES.

MEASURES OF LENGTH.

Gunter's Chain—7.92 inches = 1 link.

100 links = 4 rods, 22 yards, or 1 chain.

Shoemakers.—No. 1, is 4⅛ inches in length, and every succeeding number is ⅓ of an inch. There are 28 divisions, in 2 series of numbers, viz: from 1 to 13, and 1 to 15.

A French *metre* is = 3.28174 feet. A *hand* is 4 inches.

Number of Plants or Trees that can be planted on an acre of ground, at the following distances apart, in feet.

Distances apart.	No. of Plants.	Distances apart.	No. of Plants.
1 by 1	43,560	7 by 7	888
1½ " 1½	19,360	8 " 8	680
2 " 1	21,780	9 " 9	537
2 " 2	10,890	10 " 10	435
2½ " 2½	6,969	11 " 11	360
3 " 1	14,520	12 " 12	302
3 " 2	7,260	13 " 13	257
3 " 3	4,840	14 " 14	222
3½ " 3½	3,555	15 " 15	193
4 " 1	10,890	16 " 16	170
4 " 2	5,445	17 " 17	150
4 " 3	3,630	18 " 18	134
4 " 4	2,722	19 " 19	120
4½ " 4½	2,151	20 " 20	108
5 " 1	8,712	24 " 24	75
5 " 2	4,356	25 " 25	69
5 " 3	2,904	27 " 27	59
5 " 4	2,178	30 " 30	48
5 " 5	1,742	40 " 40	27
5½ " 5½	1,417	50 " 50	17
6 " 6	1,210	60 " 60	12
6½ " 6½	1,031	66 " 66	10

Multiply the distances into each other, and divide it by the square feet in an acre, or 43,560, and the quotient is the number of plants.

MEASURES OF SURFACE.

Drawing Paper.

	Inches.		Inches.
Cap	13 × 16	Columbian	33¾ × 23
Demy	19½ × 15½	Atlas	33 × 26
Medium	22 × 18	Theorem	34 × 28
Royal	24 × 19	Double Elephant	40 × 26
Super-royal	27 × 19	Antiquarian	52 × 31
Imperial	29 × 21¼	Emperor	40 × 60
Elephant	27¾ × 22¼	Uncle Sam	48 × 120

MEASURES OF CAPACITY.

Standard gallon = 231 cubic inches.

Gallon of the State of New-York = 221.184 cubic inches, or 8 lbs. of pure water of maximum density.

Imperial gallon (British) or *dry measure gallon* here, = 277.274 cubic inches = 10 lbs. of distilled water at 62° Fahrenheit. A gallon of flour = 7 lbs. Ale gallon = 282 cubic inches.

U. S. standard bushel or *Winchester bushel*, contains 2150.42 cubic inches. Its dimensions are $18\frac{1}{2}$ inches diameter inside, and 8 inches deep, and when heaped the cone must not be less than 6 inches high, = 2747.70 cubic inches for a true cone.

Bushel of the State of New-York, contains 80 lbs. pure water at maximum density, or 2211.84 cubic inches.

1 chaldron = 36 bushels = 57.25 cubic feet.

1 perch stone = 24.75 cubic feet. Mason's perch, after laying, 22 cubic feet.

Lime bushel is $13\frac{1}{2}$ inches diameter at bottom, 15 at top, and 13.47 deep.

A box 16 inches by 16 8-10, and 8 inches deep, will contain one bushel.

A box 8 by 8 inches square, and 4 1-5 inches deep, will hold a half peck—4 by 4 inches and 4 1-5 deep is a quart.

TABLE OF SPECIFIC GRAVITIES.

Metals.

Gold, pure	19.36	Iron	7.78
" standard	17,16	" cast	7.20
Mercury	13.58	Steel	7.82
Lead	11.35	Brass, common	7.82
Silver	10.50	Tin	7.29
Copper	8.82	Zinc	6.86

Stones and Earths.

Brick	1.90	Gypsum	1.87 to 2.17
Chalk	2.25 to 2.66	Limestone	2.38 to 3.17
Clay	1.93	Lime, quick	.80
Coal, anthracite, about	1.53	Marble	2.56 to 2.69
Coal, bituminous	1.27	Peat	.60 to 1.32
Charcoal	.44	Salt, common	2.13
Earth, loose, about	1.50	Sand	1.80
Flint	2.58	Slate	2.67
Granite, about	2.65		

Woods—dry.

Green wood often loses one-third of its weight by seasoning, and sometimes more. The same kind varies in compactness with soil, growth, exposure, and age of the trees.

Apple	.68 to .79	Pine, yellow	.55 to .66
Ash, white	.72 to .84	Oak, English	.93 to 1.17
Beech	.72 to .85	" white	.85
Box	.91 to 1.32	" live	.94 to 1.12
Cherry	.71	Poplar, Lombardy	.40
Cork	.24	Pear	.66
Elm	.58 to .67	Plum	.78
Hickory	.84 to 1 00	Sassafras	.48
Maple	.65 to .75	Walnut	.67
Pine, white	.47 to .56	Willow	.58

Miscellaneous.

Beeswax	.96	Oil, whale	.92
Butter	.94	" turpentine	.87
Honey	1.45	Sea water	1.02
Lard	.94	Sugar	1.60
Milk	1.03	Tallow	.93
Oil, linseed	.94	Vinegar	1.01 to 1.08

Weights of a Cubic Foot of various Substances, from which the Bulk of a Load of one Ton may be easily calculated.

Cast Iron	450	pounds.
Water	62	"
White pine, seasoned, about	30	"
White oak, " "	52	"
Loose earth, about	95	"
Common soil, compact, about	124	"
Clay, about	135	"
Clay with stones, about	160	"
Brick, about	125	"

Bulk of a Ton of different Substances.

23 cubic feet of sand, 18 cubic feet of earth, or 17 cubic feet of clay, make a ton. 18 cubic feet of gravel or earth before digging, make 27 cubic feet when dug; or the bulk is increased as three to two. Therefore, in filling a drain two feet deep above the tile or stones, the earth should be heaped up a foot above the surface, to settle even with it, when the earth is shoveled loosely in.

CONTENTS OF CISTERNS.

The amount of water which falls upon most farm-buildings is sufficient to furnish a plentiful supply to all the domestic animals of the farm when other supplies fail, if cisterns large enough to hold it were only provided. Generally speaking, none at all are connected with barns and out-buildings, and even when they are furnished, they are usually so small as to allow four-fifths of the water to waste.

If all the rain that descends in the Northern States of the Union should remain upon the surface without sinking in or running off, it would form each year a depth of about three feet. Every inch that falls upon a roof yields two barrels for each space ten feet square, and seventy-two barrels a year are yielded by three feet of rain. A barn thirty by forty feet supplies annually from its roof 864 barrels, or enough for more than two barrels a day for every day in the year. Many farmers have in all five times this amount of roof, or enough for twelve barrels a day yearly. If, however, this water was collected, and kept for the dry season only, twenty or thirty barrels daily might be used.

In order to prevent a waste of water on the one hand, and to avoid the unnecessary expense of too large cisterns, their contents should be determined beforehand by calculation.

RULE FOR DETERMINING THE CONTENTS.

A simple rule to determine the contents of a cistern, circular in form, and of equal size at top and bottom, is the following: Find the depth and diameter in inches; square the diameter and multiply the square by the decimal .0034, which will find the quantity in gallons for one inch in depth. Multiply this by the depth, and divide by 31½, and the result will be the number of barrels the cistern will hold.

For each foot in depth, the number of barrels answering to the different diameters are,

For 5 feet diameter	....	4.66 barrels.
6 "	....	6.71 "
7 "	....	9.13 "
8 "	....	11.93 "
9 "	....	15.10 "
10 "	....	18.65 "

By the rule above given, the contents of barn-yard cisterns and manure tanks may be easily calculated for any size whatever.

DETERMINING THEIR SIZE.

The size of cisterns should vary according to their intended use. If they are to furnish a daily supply of water, they need not be so large as for keeping supplies for summer only. The average depth of rain which falls in this latitude, although varying considerably with season and locality, rarely exceeds seven inches for two months. The size of the cistern, therefore, in daily use, need never exceed that of a body of water on the whole roof of the building seven inches deep. To ascertain the amount of this, multiply the length by the breadth of the building, reduce this to inches, and divide the product by 231, and the quotient will be gallons for each inch of depth. Multiplying by 7 will give the full amount for two months' rain falling upon the roof. Divide by 31½, the quotient will be barrels. This will be about fourteen barrels for every surface of roof ten feet square when measured horizontally. Therefore, a cistern for a barn 30 by 40 feet should hold 168 barrels; that is, as large as one ten feet in diameter and nine feet deep. Such a cistern would supply, with only thirty inches of rain yearly, no less than 630 barrels, or nearly two a day.

Cisterns intended only for drawing from in times of drought, to hold all the water that may fall, should be about three times the preceding capacity.

WEIGHTS.

1 bushel of	Wheat	= 60 lbs.	1 bushel of	Flax seed	= 56 lbs.
"	Beans	= 63 "	"	Salt,	= 80 "
"	Peas	= 64 "	"	" coarse	= 85 "
"	Corn	= 58 "	"	" fine	= 70 "
"	Barley	= 47 "	"	Hemp seed	= 44 "
"	Oats	= 38 "	"	Timothy "	= 56 "
"	Potatoes	= 60 "	"	Blue grass	= 14 "
"	Rye	= 58 "	"	Dried apples	= 22 "
"	Clover seed	= 60 "	"	" peaches	= 33 "

VELOCITY OF WIND.

Wind is air in motion. Its force depends on its speed. When its motion is slow, it constitutes the soft, gentle breeze. As the velocity increases, the force becomes greater, and the strong gale sweeps round the arms of the wind-mill with the strength of many horses, and huge ships are driven swiftly through the waves by its pressure. By a still greater velocity of the air, its power becomes more irresistible, and solid buildings totter, and forest trees are torn up by the roots in the track of the tornado.

The force of wind increases directly as the square of the velocity. Thus a wind blowing ten miles an hour exerts a pressure four times as great as at five miles an hour, and twenty-five times as great as at two miles an hour. The following table exhibits the force of wind at different degrees of velocity:

Miles an hour	Pressure in lbs on a square foot.	Description.
1	.005	Hardly perceptible.
2	.020	Just perceptible.
3	.045	
4	.080	Light breeze.
5	.125	
6	.180	Gentle, pleasant wind.
7	.320	
10	.500	Pleasant, brisk wind.
15	1.125	
20	2.000	Very brisk.
25	3.125	
30	4.500	Strong, high wind.
35	6.125	
40	8.000	Very high.
45	10.125	
50	12.500	Storm or tempest
60	18.000	Great storm.
80	32.000	Hurricane.
100	50.000	Tornado, tearing up trees, and sweeping off buildings.

PREPARING SOIL FOR GARDENS.

There are several reasons why the soils of gardens should be made better than for ordinary farm crops. 1. Most of the products of gardens are of a succulent nature, or will otherwise bear high feeding, such as garden *roots* in general, plants whose *leaves* furnish food, as lettuce, cabbages, &c., or those which produce large and succulent fruits, as cucumbers, melons, squashes, &c. 2. As nearly all garden crops are the immediate food of man, while many farm crops are only the coarser food of animals, greater care and skill may properly be applied in bringing the former forward to a high degree of perfection. 3. The great amount of family supplies which may be obtained from a half-acre garden, provided the best soil is prepared for their growth, renders it a matter of equal importance and economy, to give the soil the very best preparation.

It rarely happens that there is much selection to be made in soils as we find them in nature, for gardening purposes, unless particular attention is given to the subject in choosing a site for a new dwelling. Generally, we have to take the land as we find it. Unless, therefore, we happen to find it just right, we should endeavor to improve it in the best manner. The principal means for making a perfect garden soil, are *draining*, *trenching* and *manuring*.

Now lest any one should be startled at the outset, with the *fear of cost*, in thus preparing the soil, we may remark that the entire expense of preparing half an acre, (which would constitute a large kitchen garden,) would not in general, amount to more than the amount saved in a single year in the purchase of food for family supplies, by the fine and abundant vegetables afforded. If the owner cannot possibly prepare his half or quarter acre of land properly, then we would earnestly request him to occupy the ground with something else than garden crops, and to take only a single square rod, (if he cannot attend to more,) and give this the most perfect preparation. A square rod of rich, luxuriant vegetables, will be found more valuable than eighty rods or half an acre of scant, dwarfed, and stringy growth, which no one will wish to eat; while the extra cost and labor spent on the eighty rods in seeds, digging and hoeing, would have been more than sufficient to prepare the smaller plot in the most complete manner.

Let the determination be made, therefore, at the commencement, to take no more land than can be properly prepared, and in the most *thorough manner*.

1. *Draining*. A few soils do not require draining, but with most it will be indispensable. Where the subsoil is gravelly or porous, so that any amount of extra surface water will be immediately discharged below, the operation is not needed; but in all cases where, in digging a hole two feet deep, the water is found to stand in its bottom during the wetest times, we may be sure that draining will be of great importance, in preventing a cold, sour subsoil, and stagnant water beneath its surface. Such a condition of the soil could not fail to prove exceedingly detrimental to good growth, and drains not more than thirty feet apart should be made as the first indispensable requisite. No one who has never given draining a full and fair trial, can appreciate its importance. It often happens that the soil may be worked and planted from two to four weeks earlier in spring—a most important advantage for *early* vegetables, where a few days of accelerated maturity are so highly valued. Scarcely less, is the benefit during the rest of the season, in preventing a hard and baked soil in times of drouth.

2. *Trenching*. A surface soil of a few inches only, will not answer for a good garden. The roots of succulent vegetables must extend into a deeper bed of fertility; and a greater depth of pulverization is required to absorb surplus rains, and to give off the accumulated moisture in dry weather. A shallow soil will become deluged by a single shower, because the hard subsoil will not allow it to pass downward; and again, in the heat and drouth of midsummer, a thin stratum is made dry and parched in a week, while one of greater depth becomes scarcely affected. We might cite numerous instances, where trenched gardens remained in the finest state of luxuriance during the most severe drouths, when others under ordinary management were nearly burnt up with the heat, growth having quite ceased, and leaves curled and withering for want of moisture.

The *mode* of trenching must vary with circumstances. In small circumscribed pieces of ground, necessity requires it to be done by hand, according to the well known process of throwing the earth to one side, from a ditch cut between the trenched and untrenched portions of the ground. It is not unusual to trench three feet deep for trees, but for the kitchen-garden two feet or even twenty inches, will answer an excellent purpose, and prove incomparably better than its entire omission. Disappointment sometimes results from the practice of throwing the poorer subsoil to the top; this should be avoided, or at least but a portion of the lower soil mixed with the upper, and the same time a copious amount of manure mixed through and more abundantly applied near the bottom. Compost or old manure is best; but fresh manure will answer nearly or quite as well, provided it is thoroughly broken up with an iron rake and mixed in, as the work advances.

The cost of trenching by hand may appear great, but when its future results are taken into the account, it will be found to be a remarkably paying expenditure, the gain amounting perhaps, to five hundred or a thousand per cent. for subsequent years. It may be greatly cheapened on all grounds where a team can be used, by the subsoil plow, to loosen up to a depth of one and a half to two feet. A double Michigan plow may be afterwards employed with great ease in this loosened bed of soil, to bring any desired portion to the surface, but more especially for working in through all parts a plentiful supply of manure. The cost of preparing thus a half acre of garden ground, will be about as follows:

One coat of manure or compost, 10 loads drawn............	$10.00
Two thorough harrowings of this manure to break and intermix it............	.25
Plowing with a common plow, followed with a subsoiler and double team..	3.00
Another coat of manure, 20 loads............................	20.00
Two thorough harrowings..	.25
The whole thrown under to a depth of 15 inches, by large Michigan plow and tripple team........................	3.00
A third coat of manure, 20 loads..............................	20.00
Two harrowings..	.25
Plowing under with a common plow, about 8 inches........	1.00
Total cost for preparing garden ground....................	$57.75

Of this expense, $50 are paid for fifty loads of manure, (for half an acre, or 100 loads per acre,) and only $7.75 for all else, after the manure is applied, the drawing of the manure being reckoned with the cost, $1 per load. The manure would cost the same, if applied in the common way, and would be much less efficient, hence the subsoiling, plowing and harrowing, are operations of great economy, if only the saving in the manure is considered.

The mode and depth of some of the plowings must be made to vary with circumstances. If the subsoil is sterile, the plowing after the subsoiling must not be so deep; and a fourth coat of manure, well harrowed, and turned under with a gang-plow, will be advisable. The precaution must be observed, however, in any modification of the preceding process, to throw down each successive coat of manure to a depth different from the others. If *fresh* manure is applied, a greater number of harrowings will be necessary to break and intermix it, an operation of the greatest importance, and increasing *several times* the efficiency of the manure, according to careful experiments.

The present time of year will be found suitable for preparing for some of these operations. Sometimes hand-trenching may be done to great advantage towards the close of winter, when the subsoil is softened with moisture and digs easily; and manure may be collected and sometimes composted. If the composts are prepared a year, or at least several months ahead, all the better.

VALUABLE FACTS.

Powdered chalk added to common glue, strengthens it. Boil 1 lb. of glue with 2 quarts of skimmed milk, and it will resist the action of water.

New wood-work requires about 1 lb. of paint to the square yard, for three coats.

Copper and gold will conduct electricity six times better than iron or tin, and twelve times better than lead. Zinc will conduct nearly twice as well as iron; silver more than four times better.

Wood is 7 to 20 times stronger lengthwise than transversely.

Melted snow produces about one-eighth of its bulk of water.

At a depth of 45 feet, the temperature of the earth is uniform throughout the year.

Cast iron expands 1-162,000 of its length by 1 degree of heat, and wrought iron 1-143,000. It requires 46 tons per square inch to crush cast iron.

Hay.—11 to 12 cubic yards of clover hay weigh a ton; 10 cubic yards of meadow hay, and 8 or 9 from old, settled stacks.

Cement —2 parts ashes, 3 parts clay, and 1 part sand, mixed with oil, will resist the weather equal to marble.

It requires about 13 cubic feet of air for the combustion of 1 lb. of tallow, wax or oil; and about the same for the combustion of a pound of coal or pine wood.

One pound of good seasoned wood will raise 27 lbs. of water from the freezing to the boiling point, if no heat is wasted.

The farmer who burns 25 cords of green wood in a winter, loses heat in evaporating the sap, enough to boil more than 15,000 gallons of water.

A hemp rope one inch in diameter will support a weight or force of 5,000 pounds, but in practice, should not be subjected to more than one-half this strain.

A rod of good iron is about ten times as strong as the best hemp rope of the same size.

A manilla rope is about half as strong as the best hemp.

To find the area of a circle, multiply the diameter by the decimal .7854.

To find the contents of a sphere, multiply the cube of the diameter by .6236.

To measure corn in the crib, multiply the length, breadth and height together, in feet, multiply this product by 4, strike off the right figure, and the result will be shelled bushels.

FOOD CONSUMED BY DIFFERENT ANIMALS

THE SAME FOR EQUAL WEIGHTS.

In BOUSSINGAULT'S experiments, the daily average consumption of 17 horses and mares, aged from 5 to 12 years and weighing on an average 1070 lbs., was 33 lbs. of hay each, per day, equal to 3.08 lbs. of hay per day to each 100 lbs. of live weight. His milch cows, weighing on an average 1466 lbs., are also allowed 33 lbs. of hay per head, per day. This gives to each 100 lbs. of live weight 2.25 lbs. of hay per day.

As might be expected BOUSSINGAULT found that 14 growing animals, from 5 to 20 months old, required more food, or 100 lbs. live weight required 3.08 lbs. of hay per day.

BOUSSINGAULT estimates from his experiments, that pigs consume an equivalent of hay per day equal to 3 per cent of their live weight. Sheep, too, require about the same amount.

In some experiments made in consequence of premiums offered by the Worcester County (Mass.) Agricultural Society on the economy of cutting food for stock, a pair of working oxen belonging to A. H. HAWES, and kept at moderate work weighing 3134 lbs. consumed 75.2 lbs. of hay per day; or 100 lbs. live weight consumed 2.4 lbs. of hay per day. A pair of steers, belonging to HARVEY DODGE, weighing 2220 lbs., consumed 51.2 lbs. of hay per day, equal to 2.84 per cent live weight. Two dry cows belonging to C. B. DEMOND, and weighing 1784 lbs. consumed 43.5 lbs. of hay per day or 2.42 per cent of their live weight. Two *milch* cows, belonging to W. S. LINCOLN, weighing 1800 lbs. consumed 43.2 lbs. of hay per day, equal to 2.4 per cent of live weight.

Mr. BARNUM'S elephant, weighing 4700 lbs. consumes 100 lbs. of hay and a bushel of oats per day; 100 lbs. live weight, therefore, consume 2.12 lbs. of hay and 0.68 lbs. of oats per day, or, estimating, as BOUSSINGAULT does, that 68 lbs. of oats are equal to 100 lbs. of hay, the elephant consumes 3.12 lbs. of hay per day for each 100 lbs. live weight. To recapitulate therefore, 100 lbs. live weight of animal requires of hay per day, in

Working horses	3.08
Working oxen	2.40
Milch cows, (Boussingault's)	2.25
do do (Lincoln's)	2.40
Young growing cattle	3.08
Steers	2.84
Dry cows	2.42
Pigs (estimated)	3.00
Sheep	3.00
Elephant	3 12

There is considerable difference in these figures, but certainly not as much as might be expected from such various animals. The elephant consumes the most, the working horses and young cattle the next highest amount, then the sheep and pigs, and what is surprising the large *milch* cows of Boussingault consume least of all. Working oxen would appear to consume less than horses. On the whole, these figures give little indication that large animals consume less in proportion to their weight than smaller ones.—*Country Gentleman.*

PACKING TREES AND PLANTS.

It is estimated that there are over four thousand acres of land under nursery culture in western New-York, nearly all of which is for raising fruit trees. At a moderate computation, at least two million dollars worth of trees (at retail prices) are sent out from these nurseries annually—or not less, probably, than ten million trees. What becomes of these ten millions? Do they all reach a thrifty, bearing condition? Very far from it—we question if one-fourth ever do; and some have estimated that not a tenth, or even a twentieth, ever advance beyond a stunted growth at best. The casualties are—mutilation in removal; loss from bad packing or no packing at all, for transporting them from one place to another; careless setting out; but especially a neglect of cultivation after they have been fairly transplanted, by which a large portion of those that pass successfully through the previous stages, are parched up by drouth, and choked down by weeds and grass, and all those which are not thus killed, linger in a doubtful existence for many subsequent years.

At present we shall confine our remarks to *good* and *bad packing*.

Drying and exposure to the air always injures roots. The longer the exposure, and the greater the drying process, the greater of course is the injury. Digging up trees when destitute of leaves, and leaving them an hour or two in the shade, produces but little or no harm; but to remain in the sun, or to expose them for a whole day to the air, should not be allowed. If they cannot be set out or packed immediately, they should have the roots plunged in a bed of mud, to give the surface a thin coating; or the roots should be immediately buried in mellow soil or sand, until further operations are commenced upon them.

Nothing is more common than serious injury to trees by deficient packing. Nearly all those from nurseries are carried to some distance. Some are taken by wagons; and the practice has not been an unusual one, to leave the roots exposed for days together. If the trees afterwards lived, it was because they had an inherent power to recover from their nearly dead condition to which they were thus reduced. Many trees are now sent by steamboat and railroad, and are sometimes weeks on the way. In such cases, the complete protection and preservation of the roots is a matter of the greatest consequence. The packing in which the roots are imbedded, should as nearly as possible resemble in effect, the bed of moist soil from which they are removed. This is most effectually accomplished by first dipping the roots into mud, and then surrounding them with damp moss. At the same time, to prevent external injury, the roots and branches must be well surrounded with straw, if in bundles, or with a strong box if the latter is used.

Packing well, requires considerable practice and skill, and many nurserymen do not understand it as they should do. It also involves some expense, which purchasers often begrudge, and hence to save five per cent in this way, often lose fifty per cent of their trees by exposure.

The great number of trees packed annually, and the large amount on which the work is imperfectly performed, induces us to offer a few practical hints to beginners.

In the first place, the *materials* must be provided. For packing *bundles*, these must be, 1, a prepared bed of mud, which is best made by setting half a hogshead (made by sawing in two) in the ground, in which to stir thoroughly the soil and water; 2, moss; 3, straw, of which rye is much the best; 4, straps of stout leather, two and a half inches wide, with very strong buckles at one end; 5, cord, about one-fourth or one-third of an inch in diameter; 6, strong sowing twine; 7, a strong packing needle, six inches long; 8, bass mats, sacking or gunny cloth; 9, directing labels, which may be planed pine board, half an inch thick, or very thick shingles, about a foot long, and three inches wide; 10, a small quantity of white lead paint, and a soft, black lead pencil, to give the direction or address.

To pack a bundle, first lay down on the ground, two of the leathern straps already spoken of, about three or four feet apart and parallel with each other; on these deposit a layer of long, straight, rye straw, about two or three inches in thickness. If the trees are long, lay down another strap, and another length of straw lapping on the last. Then place a layer of moss on one end of the straw, and the roots of the trees, previously dipped in the mud, on the moss. Proceed to lay on the trees successively, sprinkling moss among the roots, and straw among the stems and branches, taking care at the same time that the roots lie as compactly as possible with each other, and the stems perfectly parallel and not crossing. When a sufficient number of trees are made into a pile for a bundle, a layer of moss is laid over the roots, and straw on the stems and branches, as below. The straps are then brought up, and two or three men draw them strongly through the buckles, until the whole is compressed into a round and compact bundle. Next, in order to secure the straw firmly to its place, (having previously, while drawing the bundle together, adjusted it evenly over the whole surface,) a cord must be passed around from bottom to top at intervals of six inches to a foot, first tying it to a strong root, and then proceeding upwards by successive loops, as in fig. 1. To keep the straw to its place, these loops must be tightened with great force, which is best accomplished by two men working together, one of whom forms the loop and keeps it to its place, and the other passing the cord around a short strong stick, draws upon it by this means with his whole strength, the first one holding it to its place while another loop is made. The end of the bundle being slightly raised on a bench from the ground, the work is rapidly accomplished—the leathern straps being successively taken off as the cording proceeds. Lastly, a mat or piece of sacking is spread under the roots, after they have been well covered on every side with moss and a coating of straw, and its corners are drawn together, and the whole well secured by sewing with twine. The directing label is then sewed or corded on, and the bundle is ready for shipment, fig. 2.

Fig. 1.

Fig. 2

This is the simplest mode of packing a bundle, and answers well for all of moderate size. Usually, however, there are some modifications or additions needed.

If, for instance, there are several sorts of trees and several of a variety, in the bundle, as usually happens in filling retail orders, it is best to tie up each variety by itself, with a small straw band, and with an admixture of straw among the stems. These are then all placed together on the straps, moss mingled well with the roots, and brought compactly into a bundle, and kept together by a few twisted straw bands. The external coating of straw and cording is applied afterwards.

Very large bundles, are likewise more securely packed by first binding them together, as above mentioned, and strawing them externally afterwards.

Ropes, doubled, so as to form a loop, are sometimes used instead of a strap to draw the bundles together, but they are more apt to cut or bruise the trees, than the flat surface of the leather, or need a thick bed of straw under them. Others employ a windlass for tightening; but this should be used with caution, and with a full supply of straw interspersed among the stems. In the spring of the year, when the buds start and the bark consequently is free, great care should be used to prevent bruising, by a copious use of straw—and all easily broken trees, such as plums, dwarf pears, &c., need special care of this kind.

Fifty trees of common size, seven or eight feet high, will be enough for an ordinary bundle, covered with a mat or sack three by five feet—and two active men will pack in the best manner, about six or eight in a day.

Boxing Trees, should be adopted where they are sent long distances. Although they are heavier, yet as the charge for freight is less upon them for a given weight, they are really of cheaper conveyance. They are also requisite in all instances for seedlings, herbaceous roots, &c.

For trees in large quantities, it is most economical to employ *large* boxes, such as will hold two or three hundred seven feet trees. The size may be about nine or ten feet in length, and over two feet square inside. These, when filled, will weigh about 700 lbs. They should be of boards not more than three-fourths of an inch thick, with battens or cleats across the ends and middle, secured by *wrought* nails, and when the box is filled, they should be banded with hoop iron at the ends. In filling, the trees should be secured to their places occasionally by cross pieces placed within, and nailed at the ends from the outside. These prevent the boxes spreading, keep the tops and bottoms from being crowded off, and hold the trees firmly to their places. The same care as for bundles is needed in mudding the roots, packing in moss, and securing the stems from bruising by an intermixture of straw. A lever, like that for filling flour barrels, may be carefully used for compressing the contents.

For *marking* boxes, a mixture of lamp-black and turpentine is most convenient, as it immediately sinks into the wood and becomes dry at once.

To Preserve Herbs.—All kinds of herbs should be gathered on a dry day, just before, or while in blossom. Tie them in bundles, and suspend them in a dry airy place, with the blossoms downwards. When perfectly dry, wrap the medicinal ones in paper and keep them from the air. Pick off the leaves of those which are to be used in cooking, pound and sift them fine, and keep the powder in bottles, corked up tight.

DOCTORING SICK ANIMALS.

One of the best systems of medical practice ever known, and which will probably stand at the head of the list for all coming time, is NURSING. Good care will do more than all the medicine in the world without it. Medicine is sometimes very good, but the most skilful physicians have found they could do but little with serious cases without that intelligent and careful watching at all times required for the removal or prevention of irritating causes, and known as good nursing.

The writer once owned a horse suffering from an excessive cough. Numerous remedies were prescribed by kind neighbors, enough, doubtless to have killed him at once. It was concluded to discard all, to give the best attention to his wants, and avoid everything which causes or prolongs a cold. This was during the changeable weather of autumn—and he was blanketed whenever a chilly air was apprehended; he was worked very moderately, always avoiding perspiration, and he was fed on succulent food which was supposed to favor expectoration, and especially young clover. In a few weeks nature had performed a perfect cure; and if any one of the nostrums had accidentally been employed, and had not proved very prejudicial, it would unquestionably have received high praise for its efficacy. It is of the utmost importance to discriminate between a recovery *by virtue* of a medicine, and *in spite of it*.

To *keep animals in health*, is more important than to cure sick ones, and for this purpose a few leading rules should be always observed, and which cannot be out of place here.

1. Always feed regularly, as to time and quantity. Many animals are made sick by starving at one time, and stuffing at another. Especially, never *overfeed*.

2. The same rule must be observed with watering—and let the water be *pure*.

3. Never *overwork* an animal—regular and moderate exercise will enable a working animal to do more the year through, by all odds, than any hurried driving at one time and resting and overfeeding at another; and be infinitely less liable to disease.

4. Allow a regular supply of salt—it is useful, but an observance of the preceding rules without salt, will be incomparably better than their infraction with it.

5. Never feed musty or bad food. If musty fodder must be used, pass it through a rapid cutter, and moisten, salt and meal it.

6. Avoid unwholesome or poisonous plants in pastures and in hay.

7. Guard all animals against cold rain and snow falling on them, and against lying on cold wet ground.

8. All changes of food must be *gradual*. If from hay to grass, let the grazing be but an hour the first day, two hours the next, three the next, &c. The same caution must be carefully observed, in beginning to feed with roots, grain, &c.

9. Be careful that animals always have enough of exercise—and plenty of pure, fresh air. Stables must be well ventilated—animals often become sick from breathing foul air.

10. Lastly, and by no means least, let strict cleanliness be observed. All animals, even pigs, kept clean and curried, are found to maintain

their flesh better, or fatten faster, than when dirty and neglected—and cleanliness is more important to health than for flesh.

We do not propose to go into a long discourse on diseases and their remedies, but there are a few of the more common diseases and some simple remedies for them, a knowledge of which may be useful for the inexperienced.

HORSES.

Colic and *inflamation of the Bowels,* are two very common diseases, often confounded together. With colic the pulse is natural, not fifty a minute, the animal often rolls, the disease intermits, and there is usually not much fever. With inflamation, there is much fever, the pulse sometimes rising to nearly a hundred a minute, the attack is gradual, and the disease does not intermit.

The remedies proposed are of the simplest character, and not those often used by professional men.

For Colic—If from badly digested food, give a pint or more of a solution of saleratus; or a mixture of half a pound or upwards of fresh powdered charcoal with thrice its bulk of water, is still safer. Spasmodic colic may be treated with the charcoal internally, and brisk friction externally, and a quart of peppermint tea with a spoonful of powdered cinnamon may be given. Ginger tea is also useful.

For *Inflamation of the Bowels*—This is a difficult disease to cure, and horses generally are killed by the amount of irritating medicines administered, which only add to the disease, such as whiskey, gin and molasses, salts, castor oil, gunpowder, &c. &c. Give a drink of slippery elm every hour, to ally irritation—keep the animal quiet—let him have but little food, and let that be weak gruel. Avoid bleeding.

Scours or *Diarrhœa*—Sometimes this arises from irritating matter, in which case it must not be checked too soon. When it proceeds from exposure after over-exertion, let all the drink the animal takes be slippery-elm water, with occasional doses of a spoonful of charcoal. The food should be dry. Raspberry leaf tea is a good drink, after the symptoms begin to subside. In severe cases, twenty or thirty grains of kino may be given in a quart of thin flour gruel, twice a day.

Cold or *Catarrh*—This is a common and well known disease. Medicines generally are of little use except to allay attending symptoms. Good nursing and careful management are best, avoiding any exciting cause calculated to increase the disease, or retard the gradual cure that nature commonly effects. If followed or accompanied by a hard cough, green food should be given—if in winter, turnips or ruta bagas with warm wet meal are useful. A moderate feeding of fresh apples two or three times a day operates as an expectorant, and relieves the cough.

Heaves—When a horse is fed on musty hay, and his cough begins to assume symptoms of heaves, immediately procure good hay if possible, or else cut the hay fine and always feed it wet, to which add a spoonful of ginger daily until the symptoms disappear. A horse which has the heaves once established, cannot be cured, but the disease may be kept so latent as to be of no inconvenience, by always feeding wet chopped food.

Scratches—(A cutaneous and troublesome disease just above the hoof.) Keep the affected parts clean, by washing with soap and water, and then apply a solution of chloride of lime.

Distemper or *Horse Ail*—(attended with thickened discharges from the nose, and sore throat, often a tumor under the jaws, and weakness.) Rub and curry often to promote warmth and circulation, keep warm and comfortable, and if the animal refuses to eat, withhold all drink, but place before him warm mashes which he will swallow, when he finds his water is not given. He will often eat wet hay, slightly salted, if given him morsel after morsel by the hand. Scraped carrots are excellent. The principal object is to keep up his strength and flesh, until the disease runs its course. A seton is often advisable, diverting the disease.

CATTLE.

If the ten rules already given are carefully observed, cattle will scarcely ever become diseased; and if they do, immediately examine to see if some of these rules are not broken. The following remedies may be applied, in case of a few of the more common diseases.

Horn Ail—The symptoms are dullness, failure of appetite, giddiness, failure of flesh, the horn generally feels cold. The head and not the horn merely is diseased. Boring is generally of no use, and can only give temporary relief where there is a pressure of matter in the horns. Hornless cows have it sometimes. It generally occurs to animals in low condition, with deranged digestive organs. The best remedies are to keep them in a warm shelter, and to give warm, nourishing, and stimulating food. If the animal should happen to be in high condition, feed lightly. Most of the remedies have their reputation because they did not *prevent* natural recovery.

Garget or Caking of the Bag—Let the calf suck, after having drawn off a part of the milk; and if there is danger of matter forming, rub the udder with a liniment of equal parts of goose oil and hot drops. If painful, wash with weak lye. It is very important always afterwards to milk very clean. Avoid high or stimulating food.

Hoven—occasioned by eating too much fresh clover or other green food. The preventive is caution in turning into fresh pastures, allowing but a short time at first. In mild cases, a cure may be effected by a quart of saleratus water; in severe and threatening ones, a penknife must be thrust into the paunch through the skin, two or three inches forward of the hip bone.

Foul in the Foot—caused by standing long in filth—may be cured by removing to a dry clean place, washing with soap, then with chloride of lime, and applying curriers' oil. Washing with salt and water is useful.

Lice—Wash the skin, night and morning, with a decoction of 2 ounces of lobelia seeds in 1 quart of boiling water; after standing 2 hours, apply with a sponge.

Sore Teats—Always wash with *water* before milking, or after calf-sucking—this is often sufficient. If much sore, apply equal parts of lime-water and linseed oil.

Choked Cattle—may be relieved, when the obstruction is high, by thrusting the arm at full length down and seizing it with the fingers. To prevent the animal biting dangerously, pass the arm through a wheel-box or clevis, held firmly in the mouth; or still better, through a wooden box made on purpose, with projecting ends to hold by. If far down the obstruction may be pushed down with a flexible stick with a round soft knob.

To Prevent a Cow sucking herself—thrust a hickory stick, 8 inches long, and half an inch in diameter, through a slit made in the nose, so that the stick may project each way horizontally. If the stick is a little smaller at the center, it will not come out.

Colic, inflammation of the bowels and diarrhœa, require nearly the same treatment as with horses.

SHEEP

Scours—Give 4 ounces raw linseed oil mixed with two ounces of lime-water, when the disease first appears, and give half a gill of ginger tea every four hours, and mix ginger with the food. Feed on gruel or mashes of meal. A drink of slippery elm is valuable. When approaching dysentery, give a teaspoonful of charcoal additionally.

Stretches or Constipation—Give fresh air and exercise, and scalded shorts. Chopped roots are excellent.

For loss of appetite, give camomile tea.

To destroy Ticks, drop on a tincture of lobelia seeds, a few drops only.

Foot Rot—Mix about one part of sulphur with twenty parts of salt, or thereabouts, and feed the sheep regularly with it the season through. In flocks of 2000 sheep, badly infected, it reduced the disease to one thirtieth in a single year, and afterwards entirely eradicated it. Flour sulphur may be bought very cheaply at wholesale in New-York.

Rot—Give 2 ounces powdered charcoal and 1 ounce of ginger, mixed in a pound of oatmeal.

Staggers—if too poorly fed, feed higher; if too high, reduce. Dr. Dadd's remedy is to give half a teaspoonful daily, mixed in food, of slippery elm powder 4 parts, powdered snake-root 2 parts, and 1 part of fennel seed.

As a general medicine, for all diseases affecting the digestive function, a mixture of charcoal and salt is recommended.

SWINE.

Fits—Give a clean, airy pen—feed carefully and *moderately*, with a little horse-radish in the food, and give plentifully of valerian tea.

Meazles—usually known by its eruptions, with dullness or drowsiness. Remove to a warm and separate place, keep on thin gruel, give a teaspoonful of sulphur daily, and a drink of bittersweet tea.

Vermin—Mix sulphur and powdered charcoal with the food, and wash the skin in wood-ash lye, and then in a decoction of tobacco.

Diarrhœa—apply the same remedy as for sheep.

PRESENCE OF MIND.

There is no branch of practical education of greater importance than teaching *presence of mind*. Disasters which occur are greatly increased by the fright and perturbation which are generally manifested on such occasions. Self-possession and practical knowledge combined, often give an immense superiority to the person who can command them. The world-felt loss of the steamship Arctic could have been prevented, if a single individual on board had possessed these two qualities:—by immediately driving the water from one boiler, and filling the other, the rent in the ship's side would have risen above the water's edge, and the hundreds who perished been saved.

Fright and confusion often result directly from conscious ignorance, and a feeling of inability to help one's self. Hence it is of the utmost importance to fix clearly and indelibly in the mind at all times what course should be pursued when accidents occur. The remedy may be then instantly applied. A volume should be written to teach this knowledge, which should be taught in schools and colleges, as equally important with arithmetic, chemistry, and book-keeping. As an illustration of our meaning, and also as a small contribution to this object, we furnish a few rules to be observed in certain cases of emergency or of accident.

If a house takes fire, instantly endeavor *to keep all the doors shut*. Currents of air and of flame cannot pass through, and it will burn much more slowly, and furniture may be saved, and perhaps the conflagration so retarded until it may be extinguished. We have known houses in a mass of flames in a few minutes, merely in consequence of doors left wide open in the fright and terror of the occasion.

If the lower story is in flames, and inmates are above, the first thing is to direct the attention to loosening a bed cord or tying bed clothes together, which, fastened to the bedstead, will admit a safe descent. A prompt attention to this particular would often save broken limbs, from leaping.

If horses become frightened and run, in all cases *keep your seats*, unless they stop so that you may jump out safely. A passenger striking the ground or any obstacle, alone and unprotected, is far more likely to be injured, than when encased in the protecting walls of a carriage. Always avoid the extreme folly of seizing the reins from the driver.

If harness breaks while ascending a hill in a wagon, instantly turn the horses' heads from the bank or precipice if there be any. This will cause the wheels, in backing, to turn to the same side, and prevent falling or running off. The same precaution is to be observed, if a balky horse should commence backing.

Horses which run away and cannot be stopped, may be checked (and sometimes cured,) if a long ascent is at hand, by turning them up the hill. They soon get tired of this kind of hard work, and if then urged still upward, will be reluctant to run away again.

To save horses from a rapidly burning barn, they must be instantly blindfolded. They cannot otherwise be led out.

In assisting persons who have broke through ice,—procure, if possible, a pole or stick—laid horizontally on the ice, it will sustain a considerable weight, even if the ice is thin, and also assist in laying hold for extrication. Many persons lose their lives in water, by slipping off the ice edge while attempting to raise themselves on their arms. It is better to approach the edge *sidewise*, and attempt to *roll out*.

In case of a severe wound, and danger of bleeding to death, before medical assistance arrives, immediately tie a knot in the middle of a pocket handkerchief—(or if one is not to be had, use a suspender)—then tie the handkerchief loosely around the part cut, *betweem* the cut and the *body* placing the *knot* about a couple of inches from the wound; put in a short stick through the bandage and *twist* until the blood stops running. Bleeding to death may almost always be prevented in this way.

In resuscitating persons who have been drowned—place them upon a table or bed with the head a little elevated; procure a pair of bellows if possible—place the nose in the mouth of the patient, close the rest of the mouth with a cloth, and forcibly fill the lungs. Then remove the bellows, press upon the lungs, and drive out the air. Repeat the operation as rapidly and thoroughly as possible for several hours—meanwhile keep the body and extremities warm by hot flannels and rubbing. If no bellows can be had, let the strongest person present inflate his lungs to their full capacity, immediately place his mouth on that of the patient, force the air into his lungs—imitate natural breathing as far as possible. The reason why a person dies from drowning is that the supply of air is cut off from entering the lungs—*no water* by any possibility ever enters them. so by giving the lungs a copious supply of fresh air and inducing circulation by friction and warmth, we are doing all that can be done to restore the patient.

In cases of poisoning, if discovered immediately, take a thorough emetic at once. Many things will answer if no better can be found—a dessert spoonful of mustard in a gill or less of warm water, or 3 or 4 grains of tobacco, (a small quid) will operate as a ready emetic.

PROPAGATING BY CUTTINGS.

Nothing is more easy and simple than to raise plants of the willow or gooseberry by cuttings, a practice which has been long known, when applied to such easy-rooting sorts as these, which, however, comprise a very small part of the vegetable kingdom. It is only of late years that the art has become so thoroughly perfected that nearly everything of vegetable growth may be increased by cuttings. When applied to the more difficult species, as, for example, the resinous trees, it becomes one of the most delicate and skilfull of all gardening operations. It is however merely intended here to speak of the simpler and easier processes, and such as may be performed without the assistance of a *propagating* house.

FIG. 1.

FIG. 2.

When an easy-rooting cutting is placed in earth, the descent of its sap in the bark, being arrested at the cut, forms a *callus* or ring round the face of the cut (Fig. 1,) which soon swells and shoots down into the soil in the form of roots, (Fig. 2,) forming, as growth proceeds, the new plant or tree, as in fig. 3, which represents the rooted cutting of a currant; no care being required in its management but simply removing the shoot at its base sometime during autumn or winter, preserving it in mould, and

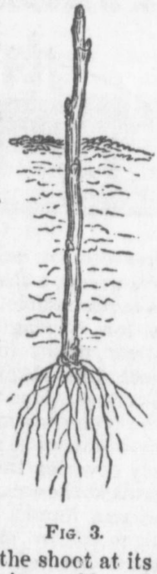


FIG. 3.

planting to two-thirds its length early in spring. Perhaps the easiest and simplest of all is the peg-cutting, (Fig. 4,) used for multiplying oziers, &c., and which consists merely of a branch cut to a certain length, sharpened, and driven into a hole previously made with a bar or stake. These cuttings may be made of portions of the trunk of considerable size, (Fig. 5,) and are often seen growing into trees, where willow stakes have been driven into moist soils for other purposes.

Fig. 4.

Fig. 5.

Quinces, grapes, &c., often root freely from cuttings planted in the open ground, provided the soil is deep, rich and mellow,—deep to retain moisture; rich to impart vigor; and mellow, to fit closely the surface of the shoot, and prevent drying. The character of the soil is of the greatest consequence, for if it be too heavy, cold, or compact, the cuttings will decay; and if too loose, they will dry up. As a general rule, a soil just light enough never to crack by drying, and warm and mellow, will be best for currants, gooseberries, grapes, quinces, climbing roses, bush honeysuckles, &c. Those inclining in the least degree to be tender, should be cut in autumn, as their vigor is often seriously injured by exposure to intense cold, even when they are not killed. Out-door cuttings, like the above, should be buried, with the earth pressed closely about them, so as to leave but one or two buds above ground, and only one for the grape. If long, they should be set sloping, approaching horizontal, to receive surface heat.

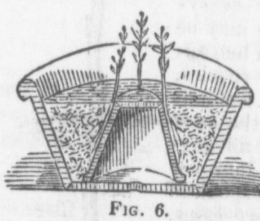


Fig. 6.

If the season should be very dry, the soil may be kept moist by a mulching of saw-dust, tan, or forest leaves, or by systematic irrigation,—if on a small scale, by the watering-pot, or if on a large scale, by the water-cart, or channels, which, to prevent baking the surface, must be on a mulch. For the dwarf or tree-box, or any other easily rooting evergreen, a shading for the whole plant is indispensable, and may be effected by a low awning covered with mats or straw, or by lines of inclined boards, each line shading a row of cuttings. Cuttings which will not strike root with the preceding management, may in many instances be made to succeed by simply covering them with a bell-glass, to prevent the escape of moisture, and preserve a humid and still atmosphere for them, or by placing them in a partly spent hot-bed, or in a coal-pit under a glass sash. This is a very common me-

Fig. 7.

thod of treating the cuttings of roses, pelargoniums, and other plants, which are taken from the plants while growing, and on which a part of the leaves are left to keep up active growth till the roots are formed.

It is a well known but curious circumstance, that many sorts of trees, if inserted merely in a mass of earth, will not root at all, or but very rarely, while if placed in contact with the sides of the pots they seldom fail to become rooted plants. An English cultivator, some years ago, had long tried to strike cuttings of orange trees without success, when hearing of this practice, he was enabled, on the first trial to raise eleven out of thirteen. Fig. 6 represents a propagating pot for this purpose, the hole at the bottom being covered by an inverted smaller pot, against the sides of which the cuttings are placed, the hot air passing up through the hole, and imparting heat to the smaller pot and plants. The central pot also serves to keep the new plants apart, so that they are easily separated afterwards. Large bell-glasses, (Fig. 7,) are sometimes conveniently used to cover a great many small pots at one operation, where great nicety of process is not required as in China roses; where much skill is required, single glasses, nearly fitting the dimensions of the cuttings, are found to succeed best (Figs. 8 and 9.) Several small cuttings, as of heaths, for example, may be placed under a broad low glass, (Fig. 10.)

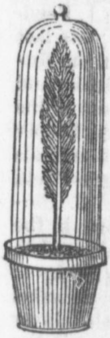


FIG. 8.

FIG. 9.

FIG. 10.

SATISFACTORY FARMING.

The *Country Gentleman* gives the following interesting account of the great success which has attended a thorough system of farming in connection with regular underdraining, as conducted by JOHN JOHNSTON and R. S. SWAN, near Geneva, N. Y.

"If any are dubious as to the profitableness of expending $30 per acre in underdrains, let them visit the farms of JOHN JOHNSTON and ROBERT S. SWAN near Geneva, N. Y. After gazing at corn, yellow and stunted, as are most of the fields we pass on the N. Y. Central Railroad, it is delightful to walk through an eighteen acre field of Dutton corn gaily waving its tassels a yard above one's head. Such a field has Mr. JOHNSTON. Standing on the side of the hills we could not reach the top of the tassels within eighteen inches. We have never seen such a piece of corn before in this state; the whole field is the same, except a few rods where an underdrain is stopped, and here the corn is *not one quarter as good*. We may say, *par parenthese*, that Mr. J. has laid 210,000 tiles on his farm, and this is only the second drain that has been stopped.

When Mr. JOHNSTON bought what was then called the "poorest farm in all creation," one of his neighbors said that he "would starve" on it; but by underdraining, by growing clover, and consuming it on the farm by sheep and cattle, and by using a large quantity of oilcake as food for stock, by a judicious rotation, deep plowing and thorough cultivation, he has made it one of the most productive farms in the state. Agriculture is a complex art. We must not attribute this great improvement to underdraining alone, but it lies at the foundation; the deep plowing, thorough cultivation and high manuring would have had comparatively little effect without it.

The prominent points of Mr. JOHNSTON's system are as follows: 1. Feeding a large number of cattle or sheep in winter. For instance, late last fall he purchased 331 Spanish Merino sheep for $600, and fed them during the winter on wheat and oat straw, and half a pound of oilcake and three-fifths of a pound of corn per sheep per day. He sold them in the spring at $6 per head. The cost of oilcake and corn was $1.63 per sheep. 2. The rich manure made from the oilcake and corn-fed animals is applied to the land *in the fall;* generally it is spread on a grass field that is to be plowed the following spring and planted with corn. 3. Clover is not plowed under as a manure. The wheat is seeded down in the spring with 8½ lbs. of clover and 5 quarts of Timothy. It is allowed to lie in grass four years, being generally mown for hay. 4. Eight tons of plaster are used on the farm each year. It is sown *broadcast*, a bushel per acre, on the corn at or immediately after planting, and the clover and grass lots are supplied freely. It is, too, sown on the wheat in the fall for the benefit of the young clover next year. 5. Salt is frequently sown, a barrel per acre on the wheat. It gives a bright, stiff straw, and causes the wheat to *ripen earlier*. Salt too is often sown on the corn and hastens its maturity. 6. For wheat the land is usually summer fallowed, but now since the soil is so rich that the wheat is sometimes too rank, an occasional oat or barley crop precedes it. There are many other interesting points in Mr. JOHNSTON's management to which our space forbids allusion this week.

The farm of Mr. SWAN deserves more extended examination than we were able to give it. Mr. S. studied agriculture with Mr. JOHNSTON, and brought intelligence, skill, great energy, practical knowledge and abundant capital to the work of improving a beautifully located farm of 340 acres, but which had been "run out" by mismanagement and neglect. Four years since, when he came in possession, the wheat on the farm produced only five bushels per acre, and some of it was plowed under in the spring. He commenced a systematic course of drainage, and has prosecuted the work with such energy, that he has not a field on this large farm which is not thoroughly underdrained. We have never seen a farm in Great Britain where the drainage was more complete, *and none where there were so few ditches*. He has laid *forty-six miles* of underdrains. The result is most satisfactory and astonishing. On one field, where four years since the wheat yielded less than five bushels per acre, there was growing at the time of our visit a crop that we should estimate at 30 bushels per acre. The corn and oats too are most excellent.

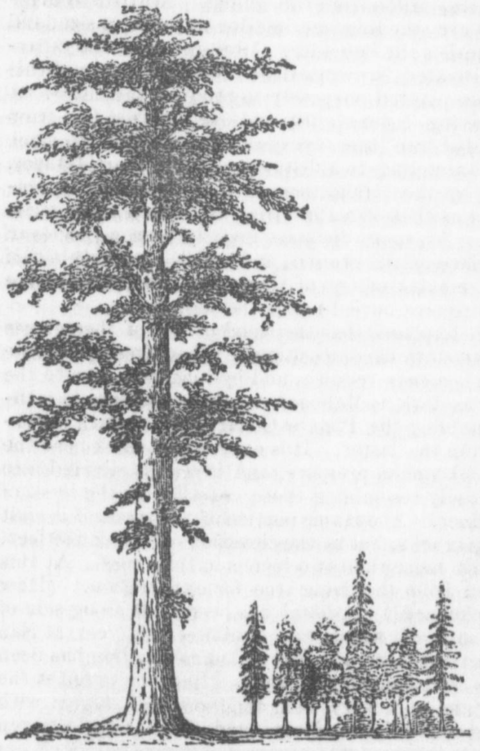
DRYING WOOD.—It has been found that the most thoroughly seasoned wood, at common temperatures, still contains about one-tenth water.

STINGS OF INSECTS are accompanied by an *acid* poison. One of the best remedies, as we have fully proved, is a paste made of saleratus and water. A paste of fresh ashes would be good. It neutralizes the poison.

THE GREAT TREE.

A late number of the *Horticulturist* contains some interesting information in relation to the *Sequoia gigantea,* which the English botanists are determined to call the *Wellingtonia,* and which some of the Americans are as pertinaciously resolved shall be known as *Washingtonia.*

The information we allude to, is contained in an article originally from the *California Farmer,* a communication from Dr. F. Winslow, an American traveller. We have already furnished our readers a brief account of this magnificent giant, and the testimony is ample in proof of its vast dimensions; but the following extract from Dr. Winslow's communication, at the same time that it is graphic and precise, gives the height rather greater than other accounts that we have met with:—



"The *Great Tree,* (thus he distinguishes the *Sequoia gigantea,*) is peculiar to the Sierra Nevada, and grows no where else on the globe. I may even add, as far as my information extends, that it is entirely confined to a narrow basin of 200 acres at most, of which the soil is silecious and strewn with blocks of Lignite. This basin is very damp, and retains here and there pools of water; some of the largest of the trees extend their roots directly into the stagnant water, or into the brooks. There are more than a hundred which may be considered as having reached the extreme limits of growth which the species can attain. One of our countrymen, Mr. Blake, measured one, of which the trunk, immediately above the root, was 94 feet in circumference. Another, which had fallen from old age, or had been uprooted by a tempest, was lying near it, of which the length from the roots to the top of the branches was 450 feet. A great portion of this *monster* still exists, and according to Mr. Lapham, the proprietor of the locality, (and who has undoubtedly appropriated to himself all trees by right of occupation,) at 350 feet from the roots the trunk measured 10 feet in diameter. By its fall, this tree has overthrown another not less colossal, since at the origin of the roots it is 40 feet in diameter. This one, which appeared to me one of the greatest wonders of the forest, and compared with which man is but an imperceptible pigmy, has been hollowed, by means of fire, throughout a considerable portion of its length, so as to form an immense wooden tube of a single piece. Its size may be imagined when it it is known that one of my companions, two years ago, rode on horseback in the interior of this tree for a distance of 200 feet, without any inconvenience. My companions and myself have frequently entered this tunnel and progressed some sixty paces, but have been arrested before reaching the end by masses of wood which had fallen from the ceiling. Near these overthrown giants others still are standing, not inferior to them in size, and of which the height astonishes the beholder. I can mention three particularly, which, entirely isolated, grow near each other so systematically as to appear to have been planted purposely to produce the effect. A fourth is remarkable in having, between fifty and one hundred feet from the ground, its trunk divided into three enormous branches of the same size and nearly parallel, extending to a distance of more than 300 feet. Others are distinguished by the straightness of their trunk, comparatively as delicate and erect as that of a Pine-tree, and which are not less than 350 feet in height. At some distance may be seen a species of knoll rising from the surface of the ground, and which is merely a half developed knot, the last remains of one of these monsters, which have fallen centuries ago, and are now buried under the soil.

"I am informed by Mr. Lapham, that the wood of one of these trees is remarkable for its very slow decomposition. When freshly cut the fibre is white; but it soon becomes reddish, and by long exposure to the air acquires a color nearly as dark as Mahogany. Its consistence is rather feeble, and nearly resembling the Pine or Cedar, but the bark covering it differs materially from the latter. It is excessively thick near the foot of the tree, sensibly elastic on pressure, and is readily divided into a small mass of fibres closely resembling those constituting the husk of the cocoa-nut, but much finer. About this portion of the trunk it is split in every direction by deep cracks, but at the elevation of 100 or 180 feet, it is almost smooth and not more than two inches in thickness. At this point the bark is removed from the living tree for exportation. (How can such a sacrilege be tolerated!) A hotel has been built along side of the "Great Tree," the bark of which was exhibited last year at San Francisco, and, on its overturned trunk a sort of ladies' pavilion has been erected, which serves as an elegant promenade. In order to fell it the trunk was bored, by means of a very long and powerful augur, with many holes very near to each other and arranged circularly; but even when almost detached from its bases its immense mass resisted all efforts to overthrow it. Four days subsequently it was blown down by the wind. It shook the earth when it fell, and made for itself a deep furrow in the ground in which it lies, at this moment, half buried."

Now to read simply of a tree four hundred and fifty feet high, we are struck with large figures, but we can hardly appreciate the height without some comparison. Such a one as that through which the horseback journey was performed, would stretch across a field twenty-seven rods wide; if standing in the Niagara chasm at Suspension Bridge, it would tower two hundred feet above the top of the bridge; if placed in Broadway, New-York at the head of Wall street, it would overtop Trinity steeple by one hundred and sixty feet, and would be two hundred and thirty feet higher than Bunker-Hill monument, Boston; or two hundred and seventy above Washington monument, Baltimore. If cut up for fuel, it would make at least *three thousand cords*, or as much as would be yielded by sixty acres of good woodland. If sawed into inch boards, it would yield about three million feet, and furnish enough three inch plank for thirty miles of plank road. This will do for the product of one little seed, less in size than a grain of wheat.

By counting the annual rings it appears that some of the oldest specimens have attained an age of three thousand years. If this computation is correct, and we see no reason to doubt it, they must have been as large as our best forest trees in New-York, in the times of Homer and the prophet Elijah; and venerable and towering giants during the Carthagenian wars. In other words, "The Roman Empire has begun and ended" since they commenced growing. We hope the small plantation which comprises their whole number, will not share the fate of the world-renowned cedars of Lebanon on their native mountains, now reduced to a dozen in number, but that they will be protected and preserved, and only those that fall by old age be removed for exhibition. It would of course be idle to talk of transporting such a monster to this part of the country, weighing as it does some five thousand tons, and a portion of its shell only may be secured as a fragment of such a specimen in natural history.

The figures at the head of this article represent the relative size of the gigantic Sequoia, and of the largest forest trees in the more fertile districts of New-York, where elms and maples attain a height of 90 feet, and pines 130 feet.

TO PREVENT WHEAT FROM SPROUTING.

To give a remedy after the damage is done, may remind our readers of the old proverb, "after the steed is stolen, shut the stable door." But as a shrewd old friend sometimes remarks, "the best way is as good as any,"—a practice which will insure the grain crop from injury in wet seasons, and be wholly unobjectionable at other times, is worthy of adoption.

We have taken some pains to ascertain by experiment the precise time of cutting when the wheat crop affords the largest yield; and this we find to be when the chaff has become about one-half or two-thirds yellow, green streaks running through it—a few days earlier is better than too late. We have recommended this practice to our readers, and also to our neighbors, and many have adopted it. A good farmer and careful observer informs us that he cut a part of his wheat this year while in this condition, and put it up in capped shocks, well known to many farmers, and represented in the annexed figure. It remained during the long period of heavy rains which followed, dried thoroughly during this time, and came out as bright and as fresh as in any year; while all the rest, cut at the usual time, was badly sprouted. The contrast was remarkable.

We saw large fields the present year that were quite ripe enough to cut, before the rains commenced, and regretted, at the time the risk from delay that the owners were incurring, but did not dream of so disastrous a result.

Now if the practice of cutting early and shocking securely, is as good in any season, and better in wet ones, why not adopt it generally? Let our readers make a memorandum of this matter in their minds, for another year.

SUPPORTS FOR LIGHTNING RODS.

Nearly all the directions that occasionally appear for the erection of lightning rods, require that a glass insulating ring be placed around the rod at each point of support, to prevent the electric fluid from passing to the building. Most of the rods we have seen have this contrivance carefully attached to them, and in most instances the ring was placed inside a hole through an iron rod or bolt, the other end of which entered the timbers of the building.

Now, there are but two objections to this contrivance, namely, that first, it is of no use; and secondly, it misleads to security by causing neglect of other precautions—all for the following reasons:—

1. The distance insulated is too small to be of any practical utility, for very small charges of the fluid, such for instance as may be obtained every successive second from any good electric machine, will leap through the air a greater distance than that from the rod to the iron support; consequently in the heavy explosions from the clouds, it would be perfectly inefficacions.

2. The glass, by becoming wet, as it certainly would in any thunder storm, would immediately become a conductor, and if useful at any other time, would now lose all its valuable property.

3. The nearness of the rod to the iron support, would tend to turn the fluid into the building, if the communication to the earth below should happen to be imperfect, or if the explosion were too large to be easily carried down by the rod.

A much better plan is to make supports of wood, which may be of plank or small scantling, with a hole bored through one end for the passage of the rod, the other to be screwed, nailed, or mortised into the building, so as to hold the rod off at least one foot distance from the outer side wall. If the rod is sharp at the upper end, high enough above the roof, continuous throughout, and enters the earth several feet (at least 6 or 7,) so as to reach permanently moist earth, no danger can ever arise—because the electric fluid always takes the *best conductor*, and as iron conducts almost infinitely better than seasoned wood, and the rod is held by it at some distance from the building, the discharge would pass instantly into the moist subsoil and be as instantaneously dissipated through the earth. *Baked* wood is nearly as perfect a non-conductor as glass; and when a foot in length and compared with glass of only half an inch, would insulate incomparably the best. Every electrician is aware that the heaviest discharge from a Leyden jar may pass safely through a metal rod held in the bare hand, provided the communication is complete at each end of the rod,—which being so much a better conductor than the hand, none of the fluid passes into the latter. In the same way, a good lightning rod, high above the building, and entering the earth deeply, will carry down a heavy discharge through even thoroughly moistened supports, without any tendency to pass into the building. An interesting proof of this fact occurred some years ago, at a house formerly occupied by the writer. The rod, an inch in diameter, was a single silvered point at the top, and entered the earth six feet, into a bed of charcoal deposited there. During a severe thunderstorm, an explosion occurred to which the discharge of a cannon seemed as a mere pop-gun, and the building trembled to its foundations. It was however found to be uninjured; but the next day the point of the rod with its cap of silver, was found melted into a ball, nearly as large as a rifle bullet! This rod was held about one foot from the clapboarding by means of wooden supporters, painted like the rest of the house; and but for its protection, in carrying down, as it evidently did, a tremendous discharge of lightning, the dwelling would probably have been shivered to fragments.

MICE-GNAWED TREES.

The remedy of connecting the upper and lower portions of the bark of fruit trees separated by the gnawing of mice, has been known, published and practiced for many years, although recently described in some of the papers as new. We have, however, recently witnessed a mode of applying this remedy adopted by S. M. Woodruff, of Canandaigua, N. Y., which is so simple, easy and efficient, that we think it worthy of being placed before our readers for future use. About seventy of his fine young bearing trees had been completely girdled, some of them for the length of nearly a foot, and this remedy has saved nearly all of them.

A number of young shoots or portions of the branches of apple trees are first provided, and as they are wanted, are sharpened in the form of a wedge at each end, being long enough to connect the upper and lower portions of the bark, separated by gnawing. A chisel, the breadth of which is about equal to the diameter of the shoots, is then driven into the bark, (say half an inch from the gnawed edge,) both above and below, and the prepared or sharpened shoot is then firmly pressed at each end into the cut made by the chisel. This is easily done by first bending the shoot outwards at the middle, so as to allow each end to enter, and then crowding it in again. The place must be then well waxed. The *edge* of the chisel must be placed so as to make a horizontal line in the bark, and then be driven nearly verti-

Fig. 1.

Fig. 2.

cally upwards or downwards for the upper or lower parts of the bark. When the shoot is placed in the cut thus made, some portions of the line between the bark and the wood in both tree and shoot, must necessarily coincide, and as a consequence, the two parts almost invariably adhere and grow together—there is scarcely ever a failure. Fig. 1, represents a girdled tree; Fig. 2, the same with the shoots inserted; and Fig. 3, is an enlarged section, showing the position of the sharpened end of the shoot when in its place. The great advantage of this mode consists in the rapidity with which the work may be done, and the difficulty of displacing or knocking out these shoots when once in. There should always be a few stout stakes driven around each tree, to keep off plows, harrows or cultivators, which might otherwise strike the tree and loosen these shoots.

FIG. 3.

The shoots used were about one-fourth to one-half an inch in diameter when applied, and they had already tripled their original size. Probably larger ones would be better, and the more numerous they are the greater will be the security, and the sooner they will grow and unite in one solid trunk.

APPARATUS FOR SHEARING SHEEP.

An Ohio correspondent of the *Country Gentleman*, furnishes that paper with the following:—Not having seen any notice of any improvement on the old-fashioned mode of shearing sheep,—no doubt as uncomfortable for the sheep as the shearer—I thought I would send you a sketch of one I have been using for the last three years, which I find

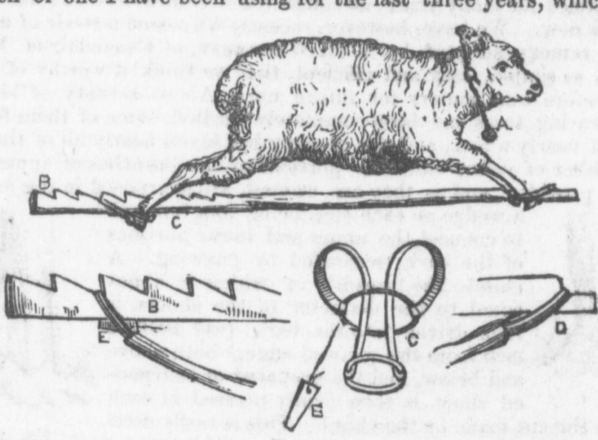


FIG. 1.

to be just the thing. It was first made and used by a neighbor who has followed shearing many years. It has these advantages,—the shearer stands up to his work, having both hands free; the sheep cannot injure itself by struggling, even if heavy with lamb, and you can shear faster and easier.

Description.—A. Small rope, with iron ring in the end, passes through two holes in the table, and over the sheep's head.

B. Hickory stick, 7 feet long, 2 inches wide at the notched end, notches 1½ or 2 inches apart, for adapting it to the size of the sheep.

C. Shackles, made of two leathern straps, one inch wide, fastened to each end of a small iron ring, 1½ or 2 inches diameter, and passing and fastened to another ring 2 inches in diameter.

D. Forward end of stick B.

E. Wooden wedge, to fasten rings on the notched stick.

Mode of operation.—The sheep is caught, turned on its haunches, and the under part of neck and between the fore legs are sheared; then lifted on the table or bench, the head placed under the rope, the leather shackles put on the feet, and stick inserted—as shown in the cut; one side is sheared and then the sheep is turned over, and finished. Hoping this may benefit some of my brother farmers, I submit it to your consideration.

[It strikes us that any assistance in performing the laborious and disagreeable work of shearing sheep will be especially acceptable to the farmer, and we gladly give place to the above. A friend suggests an improvement, shown in Fig. 2, representing two leathern loops at each end of a stick, through which the feet are inserted; and as the legs are extended these loops draw tight and hold the sheep fast. A sliding ring, with a pin and holes, accommodates it to the size of the sheep. Two leather straps (not shown,) nailed to the table, and connected by a buckle in the middle, then receive the neck of the sheep, as in the mode described by our correspondent.]

FIG. 2.

PAINTS AND WHITEWASH FOR BARNS, &c.

The following mixtures are given in Wheeler's new and useful work, entitled "Homes for the People," from which some valuable hints may be derived in forming desirable tints:—

A cool grey, similar to what would be the tint of unpainted timber after a few years, may be obtained as follows:

Indian Red, half a pound;
Lamp Black, three ounces;
Raw Umber, half a pound, mixed with one hundred pounds of White Lead.

This color will be changed by the addition of sand, which in all cases is recommended, in a proportion of about one quart to every one hundred pounds of mixed color. The finest and whitest sand that the neighborhood affords should be used, and as its hue differs so will the tint of the paint be changed.

This color with one-third less white, is very suitable for roofs, and is a cool, unreflecting grey tint of great softness and beauty.

Cream color, *No.* 1.—A soft pleasant tint like that of coffee greatly diluted with milk, is oftentimes well adapted to a building, particularly in regions where red sand stone or other similar objects, with such local coloring, give a brown hue to portions of the landscape.

It may be mixed as follows:

Yellow Ochre, five pounds;
Burnt Umber, half a pound;
Indian Red, quarter of a pound;
Chrome Yellow, No. 1, half a pound, with one hundred pounds of White Lead.

The key notes in this color are the Indian Red and the Chrome Yellow, and the tone may be brightened or lowered by more or less of either, as individual taste may prefer.

No. 2.—A still more delicate tint, resembling the pure color of the Caen stone, and well adapted for a large building with many beaks of outlines, may be mixed thus:

Yellow Ochre, two pounds;
Vandyke Brown, quarter of a pound;
Indian Red, quarter of a pound;
Chrome Yellow, No. 1, half a pound to every one hundred pounds of Lead.

Downing in his "Country Houses," says:—

As this is the season of the year when considerable whitewashing is performed, and as we have been inquired of for a good whitewashing receipt by numbers of new subscribers who have not read our receipt in a former volume, we present it again, knowing that a good story is never the worse to be twice told:—

Take a clean barrel that will hold water. Put into it half a bushel of quicklime, and slack it by pouring over it boiling water sufficient to cover it four or five inches deep, and stirring it until slacked. When quite slacked dissolve it in water, and add two pounds of sulphate of zinc, and one of common salt, which may be had at any of the druggists, and which in a few days will cause the whitewash to harden on the woodwork. Add sufficient water to bring it to the consistency of thick whitewash.

To make the above wash of a pleasant cream color, add 3 lbs. yellow ochre.

For fawn color, add 4 lbs. umber, 1 lb. Indian red, and 1 lb. lampblack.

For grey or stone color, add 4 lbs. raw umber, and 2 lbs. lampblack.

The color may be put on with a common whitewash brush, and will be found much more durable than common whitewash.

The Locust Tree has grown, in forty years, sixty feet high, and six feet in circumference at a height of 3 feet from the ground. The wood toughens as the tree grows older.

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BY LUTHER TUCKER & SON,

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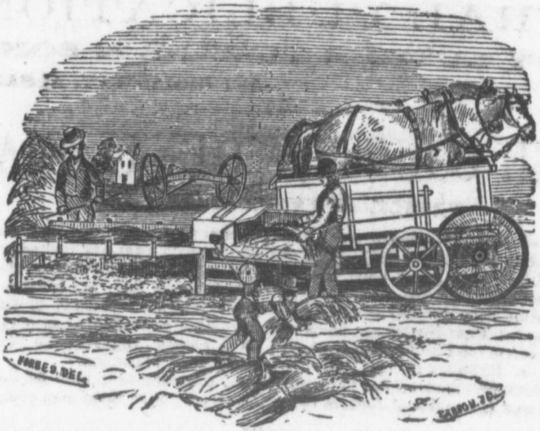

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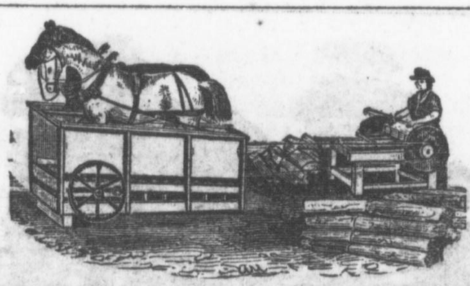

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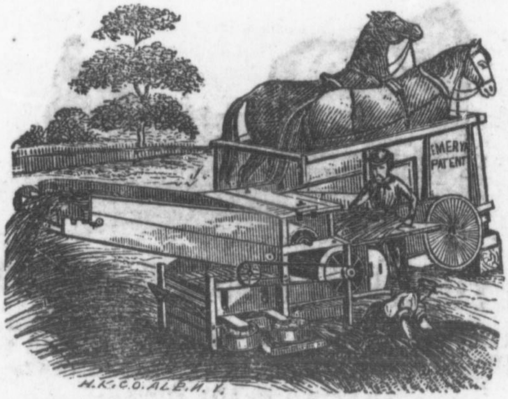

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TO THE PUBLIC.—It is the painful privilege of excellence to be subjected to imitations; nearly every good thing is counterfeited, and the more it is done the stronger the inference that such thing is not only good but popular, as few will undertake to imitate that which is not intrinsically valuable. Judging by this rule, it is easily accounted for why the EMERY'S PATENT HORSE POWERS are so closely imitated and offered in the various markets for sale, and not unfrequently as of the genuine manufacture, by a competing firm in this city, whose stock in trade, to a large extent, consists in maligning and misrepresenting persons and facts concerning the Proprietors and Business of the ALBANY AGRICULTURAL WORKS, as well as *themselves* and *their* counterfeit and infringing wares, and not unfrequently has the intended effect to palm off a much inferior article as the genuine, and by holding out greater inducements to dealers, in way of commissions (which the profits of the genuine article cannot afford), induce such agents thereby to purchase the inferior and infringing machine for sale to their unsuspecting customers, for which, suit for damages for said infringements has been commenced in the United States Courts, before whom the case will be tried on its merits so soon as it is possible or practicable.

Since the suit in the United States Court has been pending, an application was made for a preliminary injunction to restrain said manufacturers from continuing the business, until final trial could be had, when the defendant denied the validity of a portion of the claims of Emery's Patent, as not being original with the patentee, and the court decided that where a question of validity arises, and where, as in all ex parte cases, no opportunity is given for a proper investigation of the testimony upon such facts, it was not the practice to grant an injunction, and therefore it must be first tried at law upon the questions involved, and therefore the injunction was refused. Elated with the apparent success, by the refusal of the court, as stated, they have used every exertion to establish and get patented that something (*which in the defence to the injunction was claimed as not original with Emery*), to offset or mitigate the damages for the infringement. With what success, it may be seen by the following correspondence.

As it shows clearly, the Commissioner of Patents, after declaring their application to be an interference with the existing claims of Emery's Patent, did not grant Letters Patent for anything relating to Emery's claim; and the Patent of July 8th, which was granted them, being for an arrangement or construction entirely different from Emery's, and different from any Horse Power ever manufactured by said competing firm, and which cannot be applied to the various uses which give to Emery's its world-wide reputation.

The opinion of CHARLES M. KELLER, Esq., of New York, who formerly, for many years, was Chief Examiner of the Patent Office (which, better than all other means, enables him to judge on such matters), should be regarded as establishing the rights of Emery's Patent. Thus far, no trial having been had or decisions on the merits of the case been given, certain publications to the contrary notwithstanding, which have been made by said competing firm.

NEW YORK, Aug. 1, 1856.

HORACE L. EMERY, Esq., Albany, N. Y.—I have examined the claim in the Patent granted Philip H. Kells for Horse Power on the 8th of July, 1856, and find that it does not conflict with your Patent.

Your invention is for reversing from right to left, and left to right, and for changing the velocities by shifting the gears and pulleys or the ends of the two shafts, while Kells' claim is simply for reversing by taking out and reversing the counter shaft. The two modes are entirely different, and the velocities cannot be changed by his.

The Patent Commissioner erred in giving Kells a Patent, because the evidence filed by him, if it proves anything, proves that Horse Powers made by him on his plan were sold and used, with his knowledge and consent, more than two years before his application for a Patent, and it is a special provision of the law that in such a case the Commissioner has no authority to grant a Patent, and if he does grant such a Patent it cannot be sustained in any court; and a license from Kells, under this Patent, will not authorise any persons to make and vend Horse Powers on your plan, because Kells' claim does not cover the improvement patented by you; and if R. H. PEASE continues to make and sell your Horse Powers, I would advise the suit at law against him, so that the witnesses may be examined orally before the jury. Yours respectfully, CHARLES M. KELLER.

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TWENTY SELECT AND CHOICE VARIETIES FOR ONE DOLLAR.

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20,000 Cherries, one year old	$12.00 per 100	100.00 per 1000
10,000 Cherries, two year old	16.00 per 100	140.00 per 1000
30,000 Dwarf Pears, one year old	18.00 per 100	160.00 per 1000
10,000 Dwarf Pears, two year old	25.00 per 100	250.00 per 1000
15,000 Standard Pears, one year old	16.00 per 100	160 00 per 1000
20,000 Peaches, one year old	10.00 per 100	80.00 per 1000
5,000 Apricots, one year old	12.00 per 100	100.00 per 1000
10,000 Plums, one year old	20.00 per 100	180.00 per 1000
5,000 Grapes, two year old	10.00 per 100	100.00 per 1000
3,000 Grapes, one year old	8.00 per 100	75.00 per 1000
2,000 Quinces, one year old	15.00 per 100	150.00 per 1000
8,000 Currants, one year old	7.00 per 100	60.00 per 1000
4,000 Currants, two year old	9.00 per 100	80.00 per 1000
3,000 Gooseberries, two year old	10.00 per 100	90.00 per 1000
5,000 Raspberries	5.00 per 100	40.00 per 1000

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200,000 Apple Seedlings, two year old	$4.50 per 1000
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I would say to those about starting in business, that I will offer great inducements when large quantities of the above are taken, both as to time and price, on their sending me a list of articles needed. All communications promptly attended to, and Catalogues, Descriptive and Wholesale, furnished on application.

P. S. I will also receive and fill orders for Apple Grafts, packed and delivered at the Railroad Depot, free of charge, for **$7 per thousand,** in quantities from one to two hundred thousand, of the best varieties. Workmanship done in the best manner, by experienced hands.

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SUPERB DOUBLE DAHLIAS.

Our stock of this gorgeous flower consists of upwards of Two Hundred of the finest varieties in cultivation, among which are all the leading English and French Prize varieties of the last year. Plants in pots suitable for turning out into the flower border will be ready for delivery about the first of May. Dry Roots after the 10th of October. Our arrangements for propagating are such, that we are enabled to offer them at the following greatly reduced prices:

	Per Dozen.
NEW ENGLISH AND FRENCH VARIETIES, of 1856, now offered for the first time	$10.00
Leading Varieties, of 1855	5.00
Best old Varieties, all reliable sorts, fine form and free bloomers	3.00
Good Varieties, of previous years	$1.50 to 2.00

Plants carefully packed, to bear transportation.

A Descriptive Catalogue will be published early in April, and forwarded to all applicants who enclose a postage stamp.

B. K. BLISS & HAVEN, SPRINGFIELD, MASS.

ISABELLA AND CATAWBA GRAPE VINES,

OF PROPER AGE FOR FORMING VINEYARDS,

Cultivated from, and containing all the good qualities which the most improved cultivation for over sixteen years, has conferred on the Croton Point Vineyards, are offered to the public. Those who may purchase will receive such instructions for four years, as will enable them to cultivate the Grape with entire success, provided their locality is not too far north.

All communications addressed to R. T. UNDERHILL, M. D., New York; or Croton Point, Westchester County, N. Y., will receive attention.

The additional experience of the four past seasons gives him full assurance that, by improved cultivation, pruning, &c., a crop of good fruit can be obtained every year, in most of the Northern, and all of the Middle, Western and Southern States.

N. B. To those who take sufficient to plant six acres, as he directs, he will, when they commence bearing, furnish the owner with one of his Vinedressers, whom he has instructed in his mode of cultivation, and he will do all the labor of the Vineyard, and insure the most perfect success. The only charge, a reasonable compensation for the labor.

Also, APPLE-QUINCE TREES, (which are sometimes called the Orange Quince,) for sale as above.

R. T. UNDERHILL, M. D.

DOUBLE HOLLYHOCKS.

Few flowers have been so greatly improved by cultivation as the Hollyhock. They are now of the most brilliant colors, very double, of a dwarfer habit, producing large spikes of neat, beautiful flowers, surpassing the Dahlia in brilliancy of color.

Our stock consists of about FIFTY of the best English Prize Varieties, selected by one of our firm when the plants were in full bloom, from the finest collection in Europe.

We can offer fine Plants at $4 and $6 per dozen. Hollyhock Seed saved from the above Plants, in packets of 100 Seeds each, 25 cents per packet.

Plants ready for delivery early in April, and carefully packed to bear transportation to all parts of the country.

B. K. BLISS & HAVEN, SPRINGFIELD, MASS.

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The undersigned respectfully calls the attention of the trade to the following:

200,000 Norway Spruce, 3 to 4 inches, bedded the past spring, and will move with abundance of fibrous roots, transport safer, and grow freer, than larger. $10 per 1,000, $90 per 10,000.

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50,000 Chinese Arbor Vitæ (Biota Orientalis) one year Seedlings. $12 per 1,000. These are cheaper than they can be purchased in Europe.

Plums, one year, leading varieties, on Plum Stocks, $20 per 100.

20,000 Currants, Red Dutch, Red Grape, White Dutch, White Grape, Victoria, Black Naples, &c. Strong. $6 to $10 per 100.

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Dutch Bulbous Roots, direct from Holland, a splendid collection, at very low rates.

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We have just received a very select assortment of English, French and German Flower Seeds, direct from several of the most Celebrated Florists in Europe, which, in addition to many fine varieties of our own growth, renders our assortment one of the most complete in the country. The attention of Florists and Amateurs is particularly invited to our select varieties of DOUBLE GERMAN ASTERS, DOUBLE BALSAMS, CARNATION AND PICOTEE PINKS, ENGLISH PANSIES, GERMAN STOCK, CALCEOLARIAS, CINERARIA, CHINESE PRIMROSE, fringed, DOUBLE HOLLYHOCK, &c. &c., saved from *Prize Flowers* only, which cannot be too strongly recommended.

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HAVE BEEN BEFORE THE PUBLIC SIXTEEN YEARS, WITH THEIR

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Which, as a Manure for Corn, and General Garden purposes, is still unequalled and unsurpassed by anything which has been in the market. A good crop of corn can be raised on ordinary ground, by the application of one handful to the hill, or two barrels ($3 worth) to the acre—and on poor ground by a second application.

As we have suffered immensely by rivals, who have injured our business by making a spurious article called Poudrette, and underselling us, we now warn the public to buy no other Poudrette but that of The Lodi Manufacturing Company's brand, and from our accredited Agents.

We guarantee every barrel of Poudrette to contain two-thirds its weight of night soil, and that the other one-third is entirely decomposed vegetable matter.

Price $1.50 per barrel, delivered to any vessel or railroad in the city of New York, for any quantity over seven barrels. A small trial, if nothing more, is requested.

N. B. A Pamphlet will be sent gratis to any one applying for the same, post paid, to

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The attention of Farmers and Planters is respectfully called to the above invaluable compound, for their approaching spring Planting. The manufacturer begs to assure his friends and patrons that they may always depend upon being supplied with a genuine and uniform article, as he constantly superintends in person, the entire process of manufacture and putting up for sale. This article has now been before the community a period of six years, during which time it has been analyzed by a large number of the most scientific chemists in different places, has been tried by farmers upon every kind of soil, in nearly every State in the Union, with almost unvarying success. Please refer for the proof of this, among others, to the Reports of the Massachusetts State Farm for 1855 and 1856.

Perhaps one of the best proofs of its value is the greatly increased demand, unprecedented in the history of Artificial Fertilizers, and not equalled by Guano itself, but having greatly increased my works, by adding new factories, I hope to be able to supply orders to any extent that may be required. As there are a large number of Superphosphates in market, for the value of which I would not like to be responsible, I earnestly request all purchasers to be careful to get the GENUINE article, either from myself or my accredited agents, who are always of acknowledged respectability. For the Superphosphate purchased from such houses, I hold myself responsible for its good character. Cash price, 2½ cents per pound.

Please address C. B. DE BURG, Sole Proprietor and Manufacturer,
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The subscriber offers for sale several very superior Bulls, Bull Calves, and Cows in Calf, of this favorite breed. His Herd, now numbering about forty head, has been bred entirely from Animals of his own Importation, direct from the best Herds in England, and includes the three Imported Bulls, May Boy (71), Omer Pasha, winner of the First Prize in his Class at the Royal Show of England in 1855, and Hiawatha. Catalogues containing full Pedigrees, &c., with the Prices attached to such Animals as are for sale will be forwarded on application. Also, ESSEX PIGS, from the best and most recent importations.

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For Villages, Towns, Farmers' Clubs, and Private Individuals,

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Carefully selected, with reference to the wants of the Farmer, and arranged so as to afford the needed information in each Department, without needless repetition. For the purpose of furnishing to all who are interested in the cultivation of the soil, the readiest access to **Works in every Department of Agriculture,** at a trifling cost to each individual, it is proposed to establish an AGRICULTURAL LIBRARY in every Town or School District in the State, on the following plan:—The best, most reliable, and prominent works on Agriculture and kindred subjects, are selected and judiciously arranged in Libraries costing FROM FIVE TO ONE HUNDRED DOLLARS EACH. In each Town or District, those persons desiring a Library will unite, under a few simple regulations; or, if preferred, adopt a more formal Constitution, choose a Librarian, and fix the amount to be contributed by each member, at from $1 to $5, and purchase such a Library as their means will afford.

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(p. 425)

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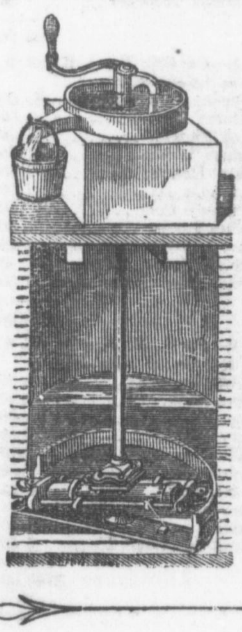

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This Pump has just been patented in America and England, and is an improvement on all Pumps heretofore invented. It is made entirely of wrought and cast iron, (and the pipe of wrought iron,) is extremely simple in construction, not liable to get out of order, and will last for an age. It requires a space of two feet in diameter for them to work in, and they have to be under the water, but will operate in water six inches in depth. The pipe must stand perpendicular, and is arranged so that the water will not freeze. It is peculiarly adapted to wells of EVERY DEPTH, and more especially VERY DEEP WELLS, as it will raise water one hundred and fifty feet by hand, with ease, and there is neither friction nor the loss of a drop of water in that height. A No. 1, and fifty feet of pipe, with every thing complete, so that any farmer can put it in, repair it, or take it out, costs but $30! There are three sizes, Nos. 1, 2 and 3. The larger ones are for Railroad Stations, Very Deep Wells, &c. A Circular sent free of expense, with a drawing and full description, prices, &c., to all who desire it. The subscriber is General Agent for the sale of these Pumps to all parts of the world, and Exclusive Agent for New York. All orders and inquiries will meet prompt attention. He guarantees the Pump. JAMES M. EDNEY, COM. MERCH'T,
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PATENT PORTABLE KEYSTONE CIDER AND WINE MILL.

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Please take particular notice, that this is an entirely new Mill—no expense has been spared in its manufacture—all the materials are the very best, and are used unsparingly. The cylinders are almost twice the length of the former ones, and all, including the top cylinder, made of Iron. The Screw is TWO inches in diameter, with a heavy ½ V thread cut on it. The beam of the Press is CAST IRON instead of wood, is made very heavy, and the thread of the nut cut four inches through it. The power of the Press is very much increased, and it cannot be broken by any fair means. The arrangement of the Tub, and other parts of the Press, is very perfect. The boxes and hopper are all DOVETAILED together, the journals run in long bearings, and lastly, the workmanship shall not be excelled by any machine of the kind whatever, perfection being the aim, both in the arrangement and the mechanical department. This Mill will grind faster, with less power than any Mill in the market. The press is decidedly the most powerful one that has yet been put into Portable Cider Mills. ☞ More than one hundred Silver Medals and Diplomas have been given to my Mill within the last four years. This Mill occupies about 2½ by 3 feet, and is 4 feet high, weighing 370 lbs., is every way portable and convenient. Price, $40.

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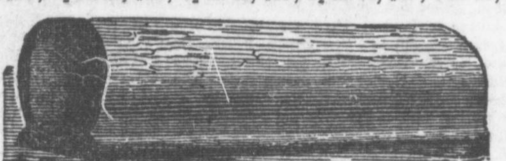
The subscribers, being the most extensive manufacturers of Draining Tile in the United States, have on hand, in large or small quantities, for Land Draining, the following descriptions, warranted superior to any made in this country, hard burned. On orders for 10,000, or more, a small discount will be made.

HORSE SHOE TILE, FOURTEEN INCHES LONG.

2½ in. calibre, $12; 3½ in. do, $15; 4½ in. do, $18; 5½ in. do, $40; 8 in. do, $80 per 1,000.



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2 inch calibre, $12 per 1,000; 3 inch calibre, $18 per 1,000; 4 inch calibre, $40 per 1,000.

Also on hand, 6 inch calibre Octagon Pipe, $20 per 100, and 8 inch calibre Round Pipe, $30 per 100, for large drains. Cornice Brick, of the pattern used in the City of Washington, also on hand. Orders respectfully solicited. Cartage free.

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The subscriber would respectfully call the attention of Florists, and all lovers of this Beautiful Bedding Plant, to his unrivalled collection, numbering some

THREE HUNDRED VARIETIES,

Embracing everything worthy of cultivation, including the NEW FOREIGN AND DOMESTIC SEEDLINGS sent out in 1856. Devoting his entire time and attention to the *exclusive* culture of Verbenas, MAKING A SPECIALTY OF IT, he feels entire confidence in his ability to please all who may favor him with their patronage. No pains or expense will be spared to secure all the New Varieties, as soon as sent out, and as he *Deals in no other Flower*, persons may rely upon getting the varieties True to Name and Description, as found in his Catalogue for 1857. Among the New ones, which he will take pleasure in recommending, are:

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And Mrs. THORBURN, a fine new Seedling, raised by the subscriber. It is decidedly the best Blue Verbena yet sent out, and has given entire satisfaction wherever it has been sent.

The subscriber has also some superb new ones of this season's growth, that will be ready early in the spring of 1857, and will be described in his forthcoming Catalogue.

Plants were sent into twenty-two different States of the Union the past season; also, into the Canadas; and he has many letters, received from customers, highly complimenting his mode of packing, and the choice selections made by him.

Plants supplied by the dozen, or at wholesale, at prices as reasonable as at any other establishment. Wholesale price, from $7 to $8 per 100, according to quantity ordered.

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Trucks, with cast iron wheels, from $20 to $50 extra, ready to hitch the team on.

☞ Circulars can be had by addressing us as above. A. N. WOOD & CO.

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UPON A NEW AND IMPROVED PLAN, MOST ADMIRABLY ADAPTED FOR

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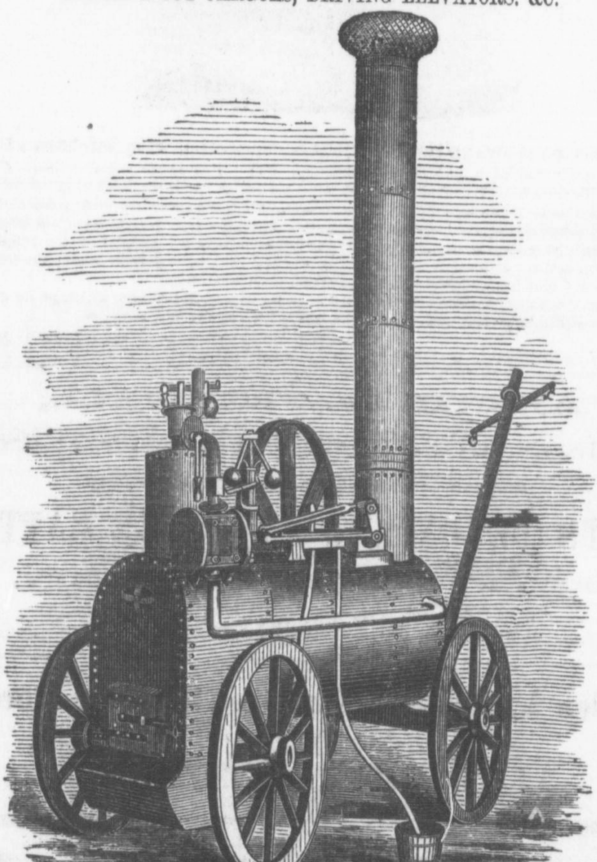
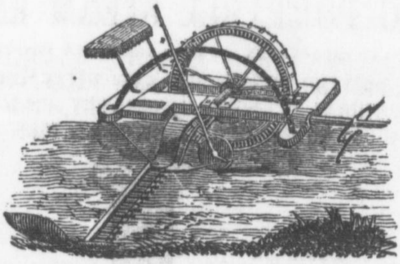
These Engines particularly recommend themselves for their adaptation to different kinds of work, for their strength, compactness, and little liability to get out of order, and for the ease and facility with which they are moved from place to place, as one or two Horses will take them over any ordinary road.



The annexed sketch will give an idea of the plan and arrangement. They are built either with or without Wheels and Axles. They are very economical on fuel, costing but little comparatively to run them. We build different sizes, varying from four to forty Horse power.

We include an ample Locomotive plan of Boiler with Engine, smoke stack made to strike, spark catcher on smoke pipe, engine finished complete. Everything made strong and substantial, and finished in a thorough, workmanlike manner. Each engine well tried. Their cost is much less than the ordinary engine, when cost of brick foundation, chimney, separate building, setting up, &c., indispensable with other engines, is considered.

Address HARLAN & HOLLINGSWORTH, WILMINGTON, DEL.



The Engraving shows an Improvement in connection with Ketchum's Mower on which we obtained a patent, in February, 1855. The large number sold, and the numerous Testimonials received, warrant us in claiming for it the following advantages:

The adjustment of the cutter-bar by the driver, when the machine is in motion, throwing the weight of the driver frame and cutter-bar upon the roller, to pass over obstructions, or allowing it to rest upon the ground. It can be used on stony ground, or for reaping by attaching an apron; it lessens the draft; is backed and turned with ease; moved from farm to farm; and worked at a much less speed than without it.

We offer this IMPROVEMENT to those owning the above Machines, in shape to connect in the most substantial manner. For Circulars, with particulars, address

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DISTANT FROM NEW YORK CITY,

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Agricultural and Horticultural Implements and Machinery,

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A complete assortment of the most desirable articles in this line, for Farming and Gardening purposes, always on hand. Implements and Machinery manufactured to order, at short notice.

COMBINED REAPER AND MOWER.

MANNY'S PATENT, WITH WOOD'S IMPROVEMENT.

In calling the attention of Farmers to my Machine for the coming harvest, I take great pleasure in speaking of its still increased merits over any previous year's manufacture, and in recommending it as now improved and perfected, as being a combined Reaper and Mower, adapted in every respect to the wants of farmers having use for such an implement.

I have so shortened the rear part of the platform and frame as to make the delivery in grain easy. The left hand reel post is made higher, the wing-board wider and longer, and have put in internal gear. The raising lever is much longer, the seat set further back, and the Machine is so balanced as to rid the horses of any weight upon their necks, and I have the utmost confidence in recommending it as the best COMBINED REAPER AND MOWER now in use. Warranted capable of cutting from 10 to 15 acres of Grass or Grain per day, in a workmanlike manner. My terms are the same as heretofore. For the Combined Machine delivered on board the cars at this place, $125, cash; Single Mower, $110, cash.

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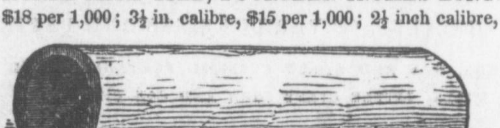
HORSE SHOE TILE, FOURTEEN INCHES LONG.

4½ in. calibre, $18 per 1,000; 3½ in. calibre, $15 per 1,000; 2½ inch calibre, $12 per 1,000.



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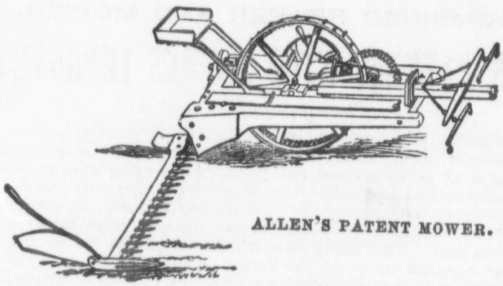

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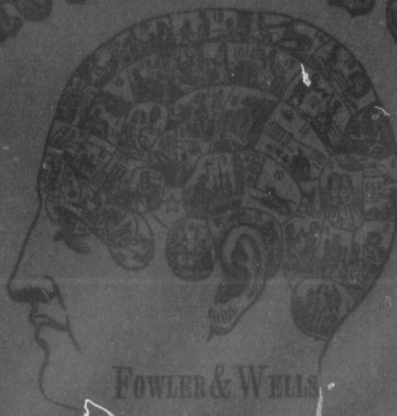

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B. Sublimity.—Love of the grand, vast, endless, and
22. Imitation.—Copying, mimicking, doing like. [infinite.
23. Mirth.—Fun, wit, ridicule, facetiousness, joking.
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25. Form.—Memory of shape, looks, persons, and things.
26. Size.—Measurement of quantity, distance, etc., by eye.
27. Weight.—Control of motion, balancing, hurling, etc.
28. Color.—Discernment and love of colors, tints, hues, etc.
29. Order.—*Method*, system, going by *rule*, keeping things
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31. Locality.—Memory of places, position, etc. [tails, etc.
32. Eventuality.—Memory of facts, events, history, de-
33. Time.—Telling *when*, time of day, dates, how long, etc.
34. Tune.—Love of music, singing and playing by ear.
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